



DIGBOI COLLEGE

ITAVATA, P.O.: DIGBOI-786171(ASSAM)

Third Cycle NAAC Accreditation

Criteria-1 Curricular Aspects

1.1 Curricular Planning and Implementation

Submitted to



THE NATIONAL ASSESSMENT
AND ACCREDITATION COUNCIL

1.1.1 The institution ensures effective curriculum delivery through a well planned and documented process

3. COURSE PLAN



Session
2016-17
2017-18
2018-19
2019-20
2020-21

COURSE PLAN

2016-17

**DEPARTMENT OF ASSAMESE,
DIGBOI COLLEGE**

COURS PLAN FOR MAJOR COURSE (NON-CBCS)

2016-17

Name of the Teacher:- Purnananda Saikia

Department of Assamese

Digboi College, Digboi

Course: Major

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and relevant books	
2	Ancient Assamese literature: Characteristics.	
3	Charyapads, SriKrishna Kirtan and Sunya Puran	
4	Charyapada: linguistic and literary value	
5	Selected text from Charyapada	
6	The pre-Sankardeva period: Introduction	
7	Hem Saraswati	
8	Haribar Bipra	
9	Rudra Kandali and Kavi Ratna Saraswati	
10	Madhava Kandali and Assamese Ramayan	
11	The Ramayana and Devajit	
12	Characteristics of Pre Sankardeva period	
13	Do	
14	Pre Sankardeva period and Assamese language	
15	Discussion of the tentative questions and answer	
16	Revision	

Course: MIL (Assamese)

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASM - 101

Unit Assignes: Unit-5

Marks Assign: 12

Class	Topic/Unit	Remarks
1	Introduction and related books	
2	Definition of culture	
3	Do	
4	Classification of culture	
5	Various aspects of culture	
6	Society and culture	
7	Revision	
8	Revision	
9	Revision	

Course: Major

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-3

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	The Jonaki: 2 nd golden age of Assamese Literature	
3	B background of Jonaki	
4	Background of Romanticism	
5	Characteristics of Romanticism	
6	Romanticism in Assamese literature	
7	Assamese poetry in the period	
8	Do	
9	Short story in the period	
10	Do	
11	Growth of Assamese Novel	
12	Do	
13	Assamese Drama: Pre Independence Period	
145	Do	
15	Literary Criticism and non-fictional prose	
16	Biography, Autobiography, Child literature	
17	Humour and satire, gender issues and others	
18	Revision	

Course: MIL (Assamese)

Class: BA 2nd Semester

Name of the paper: Practices of Assamese Language

Paper Code: ASM - 201

Unit Assignes: Unit-3

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Technical terms: General discussion	
3	Technical terms in Assamese language	
4	Do	

5	Administrative terms various uses	
6	Administrative terms in Assamese literature	
7	Revision	
8	Revision	

_Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-4

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Assamese poetry: Pre-Romantic period	
3	kamalakanta Bhattacharyya: life an creations	
4	Discussion of selected text: Ekura Jui	
5	Romanticism: Definition and characteristics	
6	Romanticism in Assamese poetry	
7	Life and poetic works of Chandra Kumar Agarwala	
8	Selected text: Tejimola	
9	Tejimola as a literary Ballad	
10	Mysticism: Definition and characteristics	
11	Mysticism in Assamse Literature	
12	Paramtrishna by Nalini bala Devi	
13	Do	
14	Patriotism in Assamese literature	
15	Chiro Chenehi Mur Bhasa Janani by Mitraddev Mahanta	
16	New trends in Assamese poetry towards modernism	
17	Kathmistrir Ghor by Dhirendra Nath Dutta	
18	Revision	
19	Revision	

Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Pre Sankardeva period and Madhava Kandali	
3	The Ramayana: Assamese Version	
4	Sundarakanda	
5	Discussion of the selected text	
6	Madhav dev: life and creative work	
7	Discussion of the selected text Namghosha	
8	Introduction to the Panchali Literature	
9	Pitambar kabi and Usha Parinoy	
10	Disussion of selected text from Usha Parinoy	
11	Do	
12	Introduction to Sufism	
13	Sufism and Assamese literature	
14	Dwija Rama and Sahapari Upakhyan	
15	Selected text from Sahapari Upakhyan	
16	Do	
17	Revision	
18	Revision	
19	Revision	

_Course: Major

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-2

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Early Assamese Prose: Various Aspects	
3	Characteristics of early Assamse literature	
4	Assamese Buranji literature	
5	Selected text from Tunkhungia Buranji	
6	Do	
7	Assamse Charit Tradition and Evolution	
8	Katha Guru Charit linguistic and historical values	
9	Selected text from Katha Guru Charit	
10	Revision	
11	Revision	

Course: Major - V

Class: BA 4th Semester

Name of the paper: Cultural Studies

Paper Code: ASMM - 501

Unit Assignes: Unit-All

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Definition of culture	
3	Various aspects of culture	
4	Classification of Culture	

5	Culture and society with human values	
6	Various anthropological aspects in Assamese culture	
7	Assimilation in Assamese culture	
8	Faiths and traditional customs of different ethnic groups in Assam	
9	Do	
10	Do	
11	Performing art in Assam	
12	Do	
13	Do	
14	Traditional dresses and ornaments in Assam	
15	Do	
16	Do	
17	Introduction to the painting and Architecture in Assam	
18	Do	
19	Revision	
20	Revision	
21	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Different aspects of Language and literature

Paper Code: ASMM - 601

Unit Assignes: Unit - 4

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Introduction to sociology of literature	
3	Definition of sociology of literature	
4	Human Manners in literature	

5	Human Values in literature	
6	Literature and traditional customs in society	
7	Revision	
8	Revision	
9	Revision	
10	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Introduction to world literature

Paper Code: ASMM - 604

Unit Assignes: Unit-2 & 5

Marks Assign: 15+10=25

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Life and literary works of Kalidas	
3	Do	
4	Abhigyan Sakuntalam: Discussion in details	
5	Do	
6	Selected text. Act IV of the play	
7	Plot structure of the play	
8	Characteristics of the play	
9	Do	
10	Do	
11	Nature and human being in the play	
12	Sakuntala and Indian Philosophy	
13	Life and dramatics works of Shakespeare	
14	Atul Chandra Hazarika as a dramatics	
15	The king lear in Assamese Ashrutirtha	
16	Plot construction of the play	
17	Characteristics of the play	
18	Other aspects	

19	Revision	
20	Revision	
21	Revision	
22	Revision	

COURS PLAN FOR MAJOR COURSE (NON-CBCS)

2016-17

Name of the Teacher:- Achyut Saikia

Department of Assamese

Digboi College, Digboi

Course: Major

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the whole course and relevant books and journals	
2	Different periods of early Assamese literature	
3	Sankardeva and his times – social, political and religious aspects.	
4	Sankari Yuga – First golden age of Assamese literature, brief discussion	
5	Discussion of Indian Bhakti Movement	
6	Life and works of Sankardeva	
7	Poetic creation of Sankardeva	
8	Ankiya Nat and other works	
9	Life and literary works of Madhadev	
10	Differences of Ankiya nat and Borgeet of	

	Sankardeva and Madhadev.	
11	Aananta Kandali and Sridhhar Kandali	
12	The Manasa Poets, Mankar, Pitambar, Durgabor and others	
13	Life and literary works of Ram Saraswati	
14	Do	
15	Other Vaishnava poets of the period	
16	Revision	
17	Revision	
18	Revision	

Course: MIL (Assamese)

Class: BA 1st Semester

Name of the paper: History of Assamese Literature and studies on Assamese culture

Paper Code: ASM - 101

Unit Assignes: Unit-2 &3

Marks Assign: 15+12=27

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Indian Bhakti movement and Sankardeva	
3	Sankardeva and Madhadev	
4	Do	
5	Aananta Kandali and other poets	
6	The Panchali literature	
7	Ram Saraswati	
8	Main Characteristics of the period	
9	Do	
10	The Jonaki and its background	
11	Background and characteristics of Romanticism	
12	Romanticism in Assamese	

13	Poetry	
14	Drama	
15	Novel	
16	Short Story	
17	Other literary Genres	
18	Revision	
19	Revision	
20	Revision	

Course: Major

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-1

Marks Assign: 10

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Background of modern Assamse literature from 1826-1889	
3	Modern Assamse literature: pre war period	
4	Modern Assamse literature: post war period	
5	Western influence in modern Assamse literature	
6	revision	
7	Modern Assamse literature: pre war period	
8	Modern Assamse literature: pre war period	
9	Modern Assamse literature: pre war period	
10	Revision	
11	Revision	
12	Revision	

Course: MIL (Assamese)

Class: BA 2nd Semester

Name of the paper: Practices of Assamese Language

Paper Code: ASM - 201

Unit Assignes: Unit-2

Marks Assign: 15

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Definition of translation	
3	Do	
4	Classification of translation	
5	Do	
6	Different field of translation	
7	Do	
8	Translation and modern society	
	Practices Assamse to English	
	Practices English to Assamse	
	Revision	
	Revision	

Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-1&5

Marks Assign: 16+16=2

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Ancient Assamse poetry	
3	Pre Sankardeva period	
4	Assamese poetry : Sankardeva period	
5	Do	

6	Post Sankardeva period	
7	Assamese poetry: beginning of modern age	
8	The Arunudoy	
9	Pre romantic Assamese poetry	
10	The Jonaki	
11	Romanticism in Assamese poetry	
12	Post war Assamese poetry	
13	Selected text by Nabakanta Baruah	
14	Selected text by Nilmani Phukan	
15	Selected text by Harekrishna Deka	
16	Selected text by Karabi Deka Hazarika	
17	Revision	
18	Revision	
19	Revision	

Course: Major

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assigns: Unit-1 & 5

Marks Assign: 16+16=32

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Evolution of Assamese prose	
3	Early Assamese prose	
4	Do	
5	Background of modern Assamese prose	
6	The Arunudoy period	
7	The Jonaki period	
8	Pre independence period	
9	Post independence period	
10	Brief discussion of Assamese novel	

11	Atulananda Goswami as a novelist	
12	Namghariya : plot construction	
13	Characterisation of the novel	
14	Do	
15	Other aspects of the novel	
16	Namghariya as a social novel	
17	Revision	
18	Revision	

Course: Major - V

Class: BA 5th Semester

Name of the paper: Comparative Indian Literature

Paper Code: ASMM - 504

Unit Assignes: Unit-All

Marks Assign: 80

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Definition of comparative literature	
3	Scope of comparative literature	
4	Development of the idea of comparative literature	
5	Different schools of comparative literature	
6	Contemporary trends	
7	Thematic study	
8	Geology	
9	Influence studies	
10	historiography	
11	The idea of Indian literature	
12	Then idea of comparative Indian literature	
13	Do	
14	Thematic study of Indian literature	
15	Banshi by Rabindranath and Banhi by Bezbaruah	
16	Rabindranath as a poet	

17	Bezbaruah as a poet	
17	Introduction to the painting and Architecture in Assam	
18	Do	
19	Revision	
20	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Introduction to world literature

Paper Code: ASMM - 604

Unit Assignes: Unit-1, 3 & 4

Marks Assign: 10+15+15=40

Class	Topic/Unit	Remarks
1	Introduction to the Course	
2	The idea of world literature	
3	Do	
4	Do	
5	World literature and translation	
6	Definition and characteristics of short story	
7	Selected text by Maupassant	
8	Do	
9	Selected text by Anton Chekhov	
10	Do	
11	Selected text by O Henry	
12	Do	
13	Selected poem by Thomas hardy	
14	Selected poem by Garcia Lorca	
15	Selected poem by Alexander block	
16	Selected poem by Oswald Durant	
17	Selected poem by County Kinder	
18	Revision	

19	Revision	
20	Revision	

Name of the Teacher:- Simanta Bordoloi

Department of Assamese

Digboi College, Digboi

Course: Major - I

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-1 (Asomiya Sahityar Jug Bahaman)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Origin and Development of Assamese language and Literature	
2	Classification of Assamese literature	
3	Controversy about the classification of Assamese literature	
4	Problems in classification of Assamese literature	
5	Revision	
6	Revision	
7	Revision	

Course: Major - II

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-2 (Adhunik Asomiya Bhasa Sahityar pratishtha)

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Development of Modern Assamese Literature	
2	Background of modern Assamse Literature	
3	Role of Arunudoy in the development of Assamse language as well as literature	
4	Introduction of Missionaries	
5	Language and prose style used by missionaries	
6	An introduction about Assamese writers o Arunudoy	
7	Literary work of Hemchandra Baruah	
8	Literary work of Gunabhiram Baruah	
9	Role of Hemchandra Baruah and Gunabhiram Baruah in the development of Assamese language, literature and society	
10	Briefing	

Course: Major - III

Class: BA 3rd Semester

Name of the paper: Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-3 (Madhav Kandali: Sundarakanda, Madhadev: khed, Usha Parinoy, Chahapori Upakhyan)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Madhav Kandali and his work	

2	Introduction about the trends of Ramayana	
3	Discussion about the text Sundarakanda	
4	Introduction About Madhadev and his works	
5	Introduction about Namghosha	
6	Analysis of Khed	
7	Discussion about Chahapori Upakhyan	
8	Sufism in Assamese literature	
9	Poetic beauty of the selected poetry	
10	Briefing	

_Course: Major -I V

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-3 (Anandaram Dhekial Phukanar jiban Charitra,)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Madhav Kandali and his work	
2	Introduction about the trends of Ramayana	
3	Discussion about the text Sundarakanda	
4	Introduction About Madhadev and his works	
5	Introduction about Namghosha	
6	Analysis of Khed	
7	Discussion about Chahapori Upakhyan	
8	Sufism in Assamese literature	
9	Poetic beauty of the selected poetry	
10	Briefing	

Course: Major - V

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-4 (Spandan, Dupporiya, Phulpahor Shabdo)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Sayad Abdul Malik	
2	Characteristics of short story written by Sayad Abdul Malik	
3	Introduction about Saurabh Kumar Chaliha	
4	Characteristics of short story written by	
5	Introduction about Purabi Bormudoi	
6	Characteristics of short story written by Purabi Bormudoi	
7	Revise	
8	Revise	
9	Revise	
10	Revise	

_Course: Major - VI

Class: BA 4th Semester

Name of the paper: Asomor Bhasa aru Lipi

Paper Code: ASMM - 402

Unit Assignes: Unit-4 (Asomiya Bhasar Lipi aru Asomor Anannya Lipi)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Development of Assamese Language	
2	Development of Assamese script	
3	Introduction about the various script of ancient Assam	
4	Controversy about the Development of Assamese script	
5	Revise	
6	Revise	
7	Revise	

Course: Major - VIII

Class: BA 5th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 502

Unit Assignes: Unit-1 (Assamese Drama and History of Stage)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Development of Assamese Drama in old era	
2	Development of Assamese drama in medieval era	
3	Development of Assamese drama in modern time	
4	Pre war Assamese Drama	
5	Post war Assamese drama	
6	Classification Assamese drama	
7	Types of Assamese Drama	
8	Development of stage in Assam	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - VIII

Class: BA 5th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 502

Unit Assignes: Unit-5 (Eta Cholar Kahini)

Marks Assign: 15

Class	Topic/Unit	Remarks
1	History of One Act Play	
2	Introduction about Ali Haidar and his works	
3	Marxism in Assamese Drama	

4	Characteristics of One act play	
5	Trends of one act play in Assam	
6	Discussion about the text	
7	Discussion about the text	
8	Discussion about the text	
9	Discussion about the text	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assigns: Unit-2 (Electronic and Print Media, language of advertisement))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Definition of mass media	
2	Types of media	
3	Types of electronics media	
4	Types of print media	
5	Merits and demerits of electronic media	
6	Merits and demerits of print media	
7	Use of language in advertisement	
8	Revision	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit-3 (Editing of Manuscript: Print and Hand written))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Preparation of manuscript	
2	Various process of manuscript editing	
3	Importance of manuscript editing	
4	Various sources of manuscript editing	
5	Problems in manuscript editing	
6	Revision	
7	Revision	
8	Revision	
9	Revision	

Course: Major - XII

Class: BA 6th Semester

Name of the paper: Bharatiya Arya Bhasha Aru Asomiya Bhasha

Paper Code: ASMM - 602

Unit Assignes: Unit-5 (Asomiya Bhashar Bikash)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Origin of Assamese language	
2	Development of Assamese language	
3	Language in ancient Assam	

4	Language in medieval Assam	
5	Language in modern period of Assam	
6	Language in Arunudoy stage	
7	Language in Jonaki stage	
8	Post war Assamese language	
9	Assamse language in recent time	
10	Revision	
11	Revision	
12	Revision	
13	Revision	

DIGBOI COLLEGE , DIGBOI

COURSE PLAN : (July'2016-Dec'2016)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC : HONOURS .

Class/Semester - B A 1 st Semester (Old Course) .

Name of the paper – ASMM 101 (History of Assamese Literature) .

Units Assigned – Unit 5 (Background of Post-Sankardeva period)

Marks Assigned - 16 ; Classes - 10

Class .	Topic/ Unit .	Remarks	
1	Background of Post-Sankardeva period -1		
2	Background of Post-Sankardeva period-2		
3	Assamese Prose Literature		
4	Guru-Charita Katha and its importance in Assamese Literature & Culture		
5	Characteristics of Guru-Charita-1		
6	Prose of Guru-Charita-2		
7	Assamese Buranji - Literature		
8	Various types of Buranji in Assamese Literature and its characters		
9	Post-Sankardeva Drama		
10	Post-Sankardeva Poets		
11	Literary values of Post-Sankardeva Dramas & Poems		
12	Revision		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN (July'2016-Dec'2016)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC : MIL .

Class/Semester - B A 1 st Semester (Old Semester)

Name of the paper – ASM 101 (History of Assamese Literature and Study of Assamese Culture) .

Units Assigned – Unit – 04(The history and civilization of the people of Assam)

Marks Assigned - 12 . Classes : 10

Class .	Topic/ Unit	Remarks	
1	Anthropological history of the people of Assam		
2	The Aryan people of Assam		
3	The Austric Race of Assam		
4	The Dravidian people of Assam		
5	The Mongoloids people of North- Eastern India.		
6	Assam and the Mongoloids Race		
7	Ahom Kingdom and assimilation of Assamese Society.		
8	Sankardeva and its time		
9	The Eastern frontier of British India		
10	The assimilation of the people of Assam		
11	The mind of Assamese People		
12	Revision		

COURSE PLAN

2016-17

**DEPARTMENT OF BENGALI,
DIGBOI COLLEGE**

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2016-2017
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- I (NCBCS)

Name of the Paper :- BANGLA GADYA SAHITYA

Units Assigned : 1 & 2

Marks Assigned: 25 & 15

Class	Topic/ Unit	No. of class
B.A SEM I (MIL)	Unit :1 : BANAFULER SHESTHRA GALPO	25
	Unit : 2 : EKEI KI BALE SABHYATA	15

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2016-2017
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- II (NCBCS)

Name of the Paper :- BANGLA SAHITYA

Units Assigned : 2 & 4

Marks Assigned: 25 & 15

Class	Topic/ Unit	No. of class
B.A SEM II (MIL)	Unit :1 : EKSHSO SHERA GALPO	25
	Unit : 2: FERARI FAUZ	15

DIGBOI COLLEGE, DIGBOI
Department of Bengali

Session : 2016-2017
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- III (NCBCS) COMMERCE

Name of the Paper :- BANGLA BANIJYIK SAHITYA PARICHAY

Units Assigned : 1,3 & 5

Marks Assigned: 20 , 15 &10

Class	Topic/ Unit	No. of class
B.COM SEM III (MIL)	Unit :1 : EKSHSO SHERA GALPO	15
	Unit :3: COMMERCIAL TERMS	10
	Unit :5: PRABANDHA LIKHAN	10

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2016-2017
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- IV (NCBCS)

Name of the Paper :- BANGLA BHASHA O SAHIYO

Units Assigned : 1&3

Marks Assigned: 20 &10

Class	Topic/ Unit	No. of class
B.A. SEM IV (MIL)	Unit :1 : BIBIDHA PRABANDHA	15
	Unit :3: PATRA LIKHAN	10

COURSE PLAN

2016-17

**DEPARTMENT OF BOTANY,
DIGBOI COLLEGE**

Name: Dr. Dimpy Das

Course Plan; June 2016 to July 2017

Semester: 1st Semester (Major)

Name of Paper: BOTMT 101; Algae, Fungi and Lichen

Units Assigned: 1 (Unit 3: e and f)

Class	Topic/Unit	Remarks
10	Unit 3: A comprehensive knowledge of the following classes with special reference to the structure and life histories of the genera mentioned below: e. Phaeophyceae: Ectocarpous, Fucus f. Rhodophyceae: Polysiphonia and Batrachospemum	

Semester: 1st Semester (General)

Name of Paper: BOTGT-101; Lower cryptograms

Units Assigned: 1 (Unit 1- c,d, bacteria and virus)

Marks Assigned: 30

Class	Topics/Unit	Remarks
15	Unit 1: A general account of different algal groups, their relationship basing on the structure, lifehistories of the types and the economic importance of algae. c. Phaeophyceae: Ectocarpous, Fucus d. Rhodophyceae: Polysiphonia and Batrachospemum Bacteria Virus	Home assignment on "Life history of Batrachospemum"

Semester: 3rd Semester (Major)

Name of Paper: BOTMT-301; Pteridophytes, Gymnosperms and Palaeobotany

Units Assigned: 5 (Pteridophytes: Unit-1,2,3 and Palaeobotany: Unit- 1 and 2)

Marks Assigned: 40

Class	Topic/Unit	Remarks
4	Pteridophytes Unit 1: General classification, organization and affinities, distribution in India and economic importance.	
4	Unit 2: Stelar organization in Pteridophytes; evolution of sporophytes and sporophylls in Pteridophytes; Homospory and heterospory and its importance in evolution of seed habit.	
12	Unit 3: Comparative study of morphology and life history of Psilotum, Lycopodium, Selaginella, Equisetum and Marsilea.	
3	Palaeobotany Unit 1: An elementary knowledge of palaeobotany – process and theory of fossilization, geological periods and importance of palaeobotany.	
6	Unit 2: General accounts of anatomy and reproduction of the following types: A. Pteridophytes: Rhynia, Hornea, Psilophyton, Sphenophyllum. B. Gymnosperms: Cycadofilicales (Lyginopteris), Bennettitales (Williamsonia) and Cordaitales (Cordaite)	

Semester: 3rd Semester (General)

Name of Paper: Morphology, taxonomy, development and reproduction of angiosperms.

Units Assigned: 1 (Unit 3)

Marks Assigned:15

Class	Topic/Unit	Remarks
15	Unit 3: Magnoliaceae, Brassicaceae, Malvaceae, Fabaceae, Rosaceae, Apiaceae, Lamiaceae, Euphorbiaceae, Orchidaceae, Musaceae, Liliaceae, Arecaceae and Poaceae.	Home assignment on "Cruciferae- a floral morphology study".

Semester: 5th Semester (Major)

Name of Paper: BOTMT 505; Functional and chemical biology

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
10	Unit 1: Concept of biomolecules, polymeric substances in plants- a brief study of polysaccharides, lipids, proteins, nucleic acids, chlorophylls with special reference to their functions	Home assignment on "Polysaccharide and lipid"
3	Unit 2: Metabolic concept – anabolism and catabolism	
10	Unit 3: Secondary plant products- Terpenoids, phenols, flavonoids, anthocyanins, alkaloids, non-protein amino acids	Seminar presentation on "Terpenoids – secondary metabolite"
10	Unit 4: General account of – plant hormones and their role (Auxins, gibberellins, cytokinins, florigen, abscisic acid), phytochrome and storage products.	
3	Unit 5: Mechanism of source sink relationship	

Semester: 5th Semester (General)

Name of Paper: BOTGT 501; Cytogenetics, evolution and biostatistics

Units Assigned: 3 (unit 2,3 and 4).

Marks Assigned: 30

Class	Topic/Unit	Remarks
15	Cytogenetics Unit 2: Concept of ploidy and its application, Mendel's laws, linkage, crossing over and chromosome mapping, concept of gene, allele and mutation.	
8	Unit 3: Knowledge of non-chromosomal inheritance, concept of genetic engineering and crop improvement.	
4	Unit 4: Concept of protoplast, cell and organ culture, tissue culture techniques and its application and	

	somatic hybridization.	
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Semester: 2nd Semester (General)

Name of Paper: BOTGT-201; Bryophytes, Pteridophytes and Gymnosperms

Units Assigned: 1 (Pteridophytes: Unit-1)

Class	Topic/Unit	Remarks
8	Pteridophytes Unit 1: A general account of the structure and life histories of the following: Ophioglossum, Polypodium and Maesilea.	Home assignment on "Life history of Lycopodium sp". Seminar presentation on "Cones of Lycopodium and Selaginella"

Semester: 4th Semester (Major)

Name of Paper: BOTMT- 401; Morphology and Taxonomy of Angiosperms

Units Assigned: Whole Paper

Marks Assigned: 60

Class	Topic/Unit	Remarks
12	Morphology of Angiosperms Unit 1: Detail study of morphological characters: i) Carpel polymorphisim ii) Origin of angiosperms iii) Evolution of inflorescence iv) Role of morphology in the classification of the flowering plants.	
8	Taxonomy of Angiosperms Unit 1: History of plant classification, its aims and objectives, outlines of the main classification (systems of classification)- Artificial, Natural, Phylogenetic and Modern with special reference to Lonnaeus, Benthian and Hooker, Engler and Prantl, Hutchinson and Takhtajan's classification.	Home assignment on "Hutchinson's system of plant classification"
8	Unit 2: Generic name, specific epithets, citation and authority, binomial nomenclature, taxonomic keys; typification and priority; importance of herbarium specimens and their preparations; role of herbaria and botanical gardens; documentation (floras, monographs, manuals, journals, abstracts, indices and dictionaries).	
5	Unit 3: Details on cytotaxonomy, Chemotaxonomy, Numerical taxonomy and Biosystematics.	
22	Unit 4: A detailed knowledge of the following families and their phylogenetic affinities and economically important plants: Dicotyledons: Magnoliaceae, Malvaceae, Rubiaceae, Fabaceae, Rosaceae, Solanaceae, Cucurbitaceae, Apiaceae, Asteraceae, Lamiaceae, Theaceae, Apocynaceae and Euphorbiaceae. Monocotyledons: Orchidaceae, Musaceae, Zingiberaceae, Arecaceae, Poaceae, Commelinaceae and Cyperaceae.	Seminar presentation on "Floral characteristics of family – Magnoliaceae, Malvaceae, Fabaceae, Solanaceae" (one family for each group)

Semester: 4th Semester (General)

Name of Paper: BOTGT- 401; Physiology and Economic Botany

Units Assigned: 1 (Unit 1: a - g)

Marks Assigned: 20

Class	Topic/Unit	Remarks
14	Economic Botany Unit 1: A general knowledge of the following economically important plants with reference to their local names, scientific names and parts used. a. Cereals: Rice, wheat and maize b. Pulses: Pea and Soyabean c. Oil seeds: Mustard, Ground Nut, Coconut and Sunflower. d. Fibre yielding plants: Jute, cotton, ramie. e. Medicinal plants: Rauvolfia, Swertia, Ocimum and Neem. f. Timber yielding plants: Sal, Sissoo, Teak and Holokh g. Non-alcoholic beverages: Tea and Coffee.	Home assignment on "Pulses and their economic uses".

Semester: 6th Semester (Major)

Name of Paper: Biophysics and Bioinformatics

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
3	Biophysics Unit 1: Scope and development of biophysics. pH and buffer solution in details.	
4	Unit 2: Laws of thermodynamics, concept of free energy, redox potential and bioenergetics (only high energy compound).	Seminar presentation on "Laws of thermodynamics and its application in biological field"
8	Unit 3: X-ray crystallography (XRD), Chromatography, laser and its biological applications. Florescence and its application, basic concept of NMR and ultra sound.	
3	Unit 4: Isotopes, types, their importance in biological studies, measure of radioactivity.	
4	Bioinformatics Unit 1: Fundamentals of bioinformatics: introduction, history and scope of bioinformatics, sources of information, internet, world wide web and web brouers.	
6	Unit 2: Biological database: introduction, basic concepts of primary and secondary databases; nucleic acid and protein sequence database (NCBI, genbank and SWISS-PROT); data mining and data mining tools (ENTREZ).	Home assignment on "Data mining and data mining tools".
8	Unit 3: Database search and sequence alignment, tools of sequence alignment – FASTA and BLAST; methods of sequence alignment.	
5	Unit 4: Phylogenetic analysis: basic concept, steps in evaluation of phylogeny and constructing phylogenetic trees.	

Semester: 6th Semester (General)

Name of Paper: BOTGT 601; Biochemistry, plant ecology and plant geography

Units Assigned: 2 (Unit 1 and 2)

Marks Assigned: 16

Class	Topic/Unit	Remarks
8	Biochemistry Unit 1: Basic principles of biochemistry, acid, base, pH and buffer (inorganic and organic) enzymes, (physiological properties), vitamins and coenzymes and their importance.	
12	Unit 2: General account of carbohydrates, fats, proteins, nucleic acids and their importance.	

DIGBOI COLLEGE, DIGBOI

Course Plan:- 2016-17

Name of the Teacher- Dulu Moni Das

Department: Botany

Course – Major/General:-Major

Paper Code:-101

Class/Semester- 1st semester (M)

Name of the Paper- Algae, Fungi and Lichen (Theory)

Units Assigned- 1, 2, 3(Fungi)

Marks Assigned:-20+5=25

Class	Topic/ Unit	Remarks
1.	General Characters of fungi & affinity with plants & animals.	Explanation, Oral Assessment
2.	Thallus organization & cell wall composition of fungi.	Notes
3.	Distribution of Fungi in India	Explanation
4.	Classification of Fungi	Explanation
5.	Classification of Fungi	Explanation
6.	Reproduction in Fungi	Explanation, Oral Assessment
7.	Reproduction in Fungi	Explanation
8.	Economic importance of Fungi	Notes
9.	Salient Features, reproduction and life history of <i>Albugo</i>	Explanation
10.	Salient Features, reproduction and life history of <i>Pythium</i>	Explanation
11.	General account on Zygomycetes	Explanation
12.	Salient Features, reproduction and life history of <i>Rhizopus</i>	Explanation
13.	General account on Ascomycetes	Explanation

14.	Salient Features, reproduction and life history of <i>Peziza</i>	Explanation
15.	General account on Basidiomycetes	Explanation
16.	General account on Basidiomycetes	Explanation
17.	Salient Features, reproduction and life history of <i>Puccinia</i>	Explanation
18.	Salient Features, reproduction and life history of <i>Polyporus</i>	Explanation
19.	Salient Features, reproduction and life history of <i>Cyathus</i>	Explanation
20.	Salient Features, reproduction and life history of <i>Agaricus</i>	Explanation
21.	General account on Deuteromycetes	Explanation, Oral Assessment
22.	General account on Deuteromycetes	Explanation
23.	Salient Features, reproduction and life history of <i>Aspergillus</i>	Explanation
24.	Salient Features, reproduction and life history of <i>Alternaria</i>	Explanation
25.	Salient Features, reproduction and life history of <i>Penicillium</i>	Explanation

Course – Major/ General:- Major

Paper Code:-102

Class/Semester- 1st semester (M)

Name of the Paper- Algae, Fungi and Lichen (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
1.	Introduction to Fungi	Explanation
2.	Preparation of Slides of Fungi	Practical
3.	Preparation of Slides of Fungi	Practical
4.	Preparation of Slides of Fungi	Practical
5.	Preparation of Slides of Fungi	Practical
6.	Preparation of Slides of Fungi	Practical
7	Practical on drawing Camera lucida diagram	Practical
8	Measurement of Spore by ocular micrometer	Practical

Course – Major/General:- General

Paper Code:-101

Class/Semester- 1st semester (G)

Name of the Paper- Lower Cryptogames(Theory)

Units Assigned- 1 (Mycology & Plant Pathology)

Marks Assigned- 12+3=15

Class	Topic/ Unit	Remarks
1.	General Characters of fungi & affinity with different groups	Explanations
2	General Characters of fungi & affinity with different groups	Explanations, Oral

		Assessment
3.	Thallus organization & cell wall composition of fungi.	Notes
4.	Classification of Fungi	Explanation
5.	Reproduction in Fungi	Explanation
6.	Economic importance of Fungi	Notes
7.	Salient Features, reproduction and life history of <i>Phytophthora</i>	Explanation
8.	Salient Features, reproduction and life history of <i>Synchytrium</i>	Explanation
9.	General account on Ascomycetes	Explanation, Oral Assessment
10.	Salient Features, reproduction and life history of <i>Peziza</i>	Explanation
11.	Salient Features, reproduction and life history of <i>Penicillium</i>	Explanation
12.	General account on Basidiomycetes	Explanation
13.	General account on Deuteromycetes	Explanations
14.	Symptoms of Plant diseases	Notes, Class test.
15	Control measures of plant diseases	Notes
16	Symptoms, C. O. and control measures of Bacterial diseases	Explanation
17	Symptoms, C. O. and control measures of Fungal diseases	Explanation
18	Symptoms, C. O. and control measures of viral diseases	Explanation

Course – Major/ General:-General

Paper Code:-102

Class/Semester- 1st semester (G)

Name of the Paper- Lower Cryptogames (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
1.	Introduction to Fungi	Explanation
2.	Preparation of Slides of Fungi	Practical
3.	Preparation of Slides of Fungi	Practical
4.	Study about bacterial plant diseases	Practical
5.	Study about Fungal plant diseases	Practical
6.	Study about Fungal plant diseases	Practical
7	Study about Fungal plant diseases	Practical
8	Study about Viral plant diseases	Practical

Course – Major/ General:-Major

Paper Code:-201

Class/Semester- 2nd semester (M)

Name of the Paper- Plant Pathology & Bryophyta (Theory)

Units Assigned- 1, 2, 3 & 4.

Marks Assigned- 24+6=30

Class	Topic/ Unit	Remarks
1.	Principals of Plant Pathology	Explanations

2.	Principals of Plant Pathology	Notes
3.	Classification of Plant Diseases	Explanation
4.	Symptoms of Plant diseases	Explanation, Oral Assessment
5.	Host Parasite interaction	Explanation
6.	Host Parasite interaction	Notes
7.	Management of Plant Diseases	Explanation
8.	Management of Plant Diseases	Notes, Oral Assessment
9.	Management of Plant Diseases	Notes
10.	Symptoms, C O and control measures of Late blight of Potato	Explanation
11.	Symptoms, C O and control measures of Ergot of Rye	Explanation
12.	Symptoms, C O and control measures of Loose Smut of Wheat	Explanation
13.	Symptoms, C O and control measures of Rusts of Wheat	Explanation
14.	Symptoms, C O and control measures of Rusts of Wheat	Notes
15.	Symptoms, C O and control measures of Red rot of Sugarcane	Explanation
16.	Symptoms, C O and control measures of Grey blight of tea	Explanation
17.	Symptoms, C O and control measures of Citrus Canker	Explanation
18.	Symptoms, C O and control measures of Tobacco Mosaic diseases	Explanation

Course – Major/ General:-Major

Paper Code:-201

Class/Semester- 2nd semester (M)

Name of the Paper- Plant Pathology (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
1.	Introduction to Phytopathology	Explanation
2.	Isolation Preparation of Slides of Parasitic Fungi	Practical
3.	Isolation Preparation of Slides of Parasitic Fungi	Practical
4.	Isolation Preparation of Slides of Parasitic Fungi	Practical
5.	Isolation Preparation of Slides of Parasitic Fungi	Practical
6.	Practical on drawing Camera lucida diagram	Practical
7.	Measurement of Spore by ocular micrometer	Practical
8.	Study about bacterial plant diseases	Practical
9.	Study about bacterial viral diseases	Practical

Course – Major/ General:-Major

Paper Code:-302

Class/Semester- 3rd semester (M)

Name of the Paper- Microbiology & Biotechnology (Theory)

Units Assigned- 1, 2, 3, 4, 5

Marks Assigned:- 32+8=40

Class	Topic/ Unit	Remarks
1.	History of Microbiology	Explanations
2.	Life & work of some notable Microbiologists	Notes
3.	Classification of Microorganism	Explanation
4.	Brief Knowledge about Cyanobacteria	Explanation
5.	Brief Knowledge about Virus	Explanation, Oral Assessment
6.	Brief Knowledge about Bacteriophage	Explanation Oral Assessment
7.	Brief Knowledge about Mycoplasma	Explanation Oral Assessment
8.	Principles of cultivation of Microorganisms	Notes
9.	Pure Culture Concept	Notes
10.	General Ecology of Soil Microorganism	Explanation
11.	Mycorrhiza	Explanation
12.	Bacteriorrhiza	Explanation
13.	Microbiology of Food and milk	Explanation & Notes
14.	Microbiology of water	Explanation & Notes
15.	Medical microbiology	Explanation
16.	Microbes related to Plant diseases	Explanation, & Notes

Course – Major/ General:-Major

Paper Code:- 302

Class/Semester- 3rd semester (M)

Name of the Paper- Microbiology (Practical)

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	Instruments used in Microbiology	Demonstration
2.	Culture Media preparation	Practical
3.	Serial dilution technique	Practical
4.	Pure Culture Technique	Practical
5.	Gram Staining method of bacteria	Practical
6.	Study about Curd bacteria	Practical
7.	Study about nodule bacteria	Practical

Course – Major/ General:-General

Paper Code:-301

Class/Semester- 3rd semester (G)

Name of the Paper- Morphology, Taxonomy and Reproduction of Angiosperm (Theory)

Units Assigned- 1 & 2

Marks Assigned- 12+3=15

Class	Topic/ Unit	Remarks
1.	Principals of Classification of Angiosperms	Explanations
2.	Linnaeus System of Classification	Explanations & Notes
3.	Bentham & Hooker's System of Classification	Explanations & Notes
4.	Engler & Prantal's System of Classification	Explanations & Notes
5.	Binomial Nomenclature	Explanation, Oral Assessment
6.	Identification & Classifications rules & norms	Explanation
7.	Morphological detail of Stem & Leaf	Explanation
8.	Morphological detail of Flower	Explanation
9.	Concept on Floral formula	Explanation, Oral Assessment
10.	Concept on Floral diagram	Explanation Oral Assessment

Course – Major/ General:- Major

Paper Code:-403

Class/Semester- 4th semester (M)

Name of the Paper- Cell Biology & Modern Laboratory Technique (Theory)

Units Assigned- 1

Marks Assigned- 16+4=20

Class	Topic/ Unit	Remarks
1.	Concept on Microscopy	Explanations, Oral Assessment
2.	Types of Microscopes, Working principals & Use	Explanations
3.	Separation techniques of Biomolecules	Explanation
4.	Chromatography types,	Explanation
5.	Centrifugation & Gel filtration	Explanation
6.	Spectrophotometry	Explanation
7.	Colorimetry	Explanation
8.	pH meter, BOD incubator, Autoclave, LAF Chamber, Hot Air Oven	Explanation
9.	Knowledge & Application of Computer in Biological science	Notes

Course – Major/ General:-Major

Paper Code:-404

Class/Semester- 4th semester (M)

Name of the Paper- Cell Biology & Modern Laboratory Technique (Practical)

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1.	Description of Instruments used in Biological Science	Demonstration
2.	Separation of Chlorophyll by Paper Chromatography	Practical
3.	Separation of amino acids by Paper Chromatography	Practical

Course – Major/ General:- Major

Paper Code:-401

Class/Semester- 4th semester (G)

Name of the Paper- Plant Physiology & Economic Botany (Theory)

Units Assigned- 1, 2, 3, 4, 5, 6

Marks Assigned-: 32+8=40

Class	Topic/ Unit	Remarks
1.	Water relation to Plant, Diffusion, Osmosis & imbibitions.	Explanations, Oral Assessment
2.	Absorption of Water	Explanation & Notes
3.	Ascent of Sap	Explanation & Notes
4.	Transpiration	Explanation & Notes
5.	Mineral nutrition	Explanation & Notes
6.	Translocation of Solute	Explanation
7.	Photosynthesis	Explanation, Oral Assessment
8.	Photosynthesis	Explanation
9.	Photosynthesis	Notes
10	Respiration in Plants	Explanation
11	Respiration in Plants	Notes
12	Phytohormones	Explanation & Notes
13	Phytohormones	Explanation & Notes
14	Physiology of Flowering	Explanation
15	Physiology of Flowering	Notes
16	Plant movement	Explanation
17	Plant movement	Notes

Paper Code:-402

Class/Semester- 4th semester (G)

Name of the Paper- Plant Physiology & Economic Botany (Theory)

Marks Assigned- 20+4=24

Class	Topic/ Unit	Remarks
1.	Experiment on Imbibitions	Practical
2.	Experiment on Plasmolysis	Practical
3.	Experiment on Transpiration	Practical
4.	Experiment on Transpiration	Practical
5.	Experiment on Photosynthesis	Practical
6.	Experiment on Photosynthesis	Demonstration

Course –Honours / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-506

Name of the Paper- Ecology & phytogeography

Units Assigned- 1, 2, 3, 4, 5

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Basic concept & introduction to ecology	Explanations
2.	Biotic & abiotic factors & interactions	Explanations
3.	Components of ecosystem	Explanations
4.	Pedology, Physical, chemical & biological structure of soil.	Explanations
5.	Soil profile	Explanations
6.	Role of soil in development of vegetation.	Explanations
7.	Water quality & characters.	Explanations
8.	Hydrological cycle	Explanations
9.	Water in development of vegetation & climate.	Explanations
10.	Light & temperature in development of vegetation	Explanations
11.	Fire in development of vegetation	Explanations
12.	Biotic interaction	Explanations
13.	Biotic interaction	Explanations
14.	Biotic interaction	Explanations
15.	Plant community	Explanations
16.	Synthetic characters of Plant community	Explanations
17.	Analytical characters of Plant community	Explanations
18.	Plant Succession	Explanations
19.	Plant Succession	Explanations
20.	Plant Succession	Explanations
21.	Biogeochemical cycle	Notes
22.	Biogeochemical cycle	Notes
23.	Biogeochemical cycle	Notes

24.	Adaptation in Hydrophytes	Explanations
25.	Adaptation in Xerophytes	Explanations
26.	Adaptation in Epiphytes & Halophytes	Explanations
27.	Ecosystem	Explanations
28.	Structure of Ecosystem	Explanations
29.	Function of Ecosystem	Explanations
30.	Energy flow in Ecosystem	Explanations
31.	Habitat degradation	Explanations
32.	Ecological issues & problems.	Explanations
33.	Global ecological problems.	Explanations
34.	Concept on EIA	Explanations
35.	Conservation Biology, Ex situ & in situ conservation.	Explanations
36.	WWF, IUCN, NWL, NBA	Explanations
37.	Concept on Biodiversity.	Explanations
38.	Flagship, Keystone & Endemic Species	Explanations
39.	Introduction to biodiversity.	Explanations
40.	Importance & conservation of biodiversity	Explanations
41.	Introduction to Phytogeography, Static & Dynamic Phytogeography	Explanations
42.	Phytogeographical regions of the world	PPT
43.	Phytogeographical regions of India	PPT
44.	Theories to explain distribution of Plants	Notes
45.	Origin of Life	Explanations
46.	Chemical origin of Life	Explanations
47.	Theories of organic Evolution	Explanations
48.	Theories of organic Evolution	Explanations
49.	Theories of organic Evolution	Explanations

Course –Honors / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-507

Name of the Paper- Ecology & phytogeography

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Instruments used in Plant ecology.	
2.	Practical related to plant ecology.	5 practicals
3.	Practical related to ecological adaptation.	4 Specimens
4.	Practical related to phytogeography.	Model submission

Course:-Honors/Generic –Generic

Class/Semester- 5th semester (G)

Paper code:-501

Name of the Paper- Cytogenetics, Evolution & Biostatistics

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Origin of Life	Explanations
2.	Chemical origin of Life	Explanations
3.	Theories of organic Evolution	Explanations
4.	Theories of organic Evolution	Explanations
5	Theories of organic Evolution	Explanations

Course –Honours/ Generic:- Generic

Class/Semester- 5th semester (G)

Paper code:-502

Name of the Paper- Cytogenetics, Evolution & Biostatistics

Class	Topic/ Unit	Remarks
1	Study about plant fossil	Demonstration
2.	Study about plant fossil	Demonstration

Course –Honours / Generic –Major

Class/Semester- 6th semester (M)

Paper code:- 606 Name of the Paper- Agrotechnology & Sustainable utilization of Plants.

Units Assigned- 1, 2, 3, 4, 5, 6.

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Centre of origin, Vavilov's concept.	Explanations
2.	Ethnobotany and its importance in Indian context.	Explanations
3.	Indigenous Knowledge System.	Explanations
4.	Agrotechnology & economic importance of cereals.	Notes
5.	Agrotechnology & economic importance of oil yielding plants.	Notes
6.	Agrotechnology & economic importance of Pulses.	Notes
7.	Agrotechnology & economic importance of beverages.	Notes
8.	Agrotechnology & economic importance of Vegetables.	Notes
9.	Agrotechnology & economic importance of Spices & condiments.	Notes
10.	Agrotechnology & economic importance of Spices & condiments.	Notes
11.	Agrotechnology & economic importance of timber yielding plants.	Notes
12.	Agrotechnology & economic importance of Aromatic & petrocrops.	Notes
13.	Agrotechnology & economic importance of Aromatic & petrocrops	Notes
14.	Domestication of Plants.	Explanations
15.	Germplasm & gene bank	Explanations
16.	Biofertilizer & biopesticides.	Explanations
17.	Organic farming.	Explanations
18.	Use of lower group of Plants.	Explanations
19.	Use of lower group of Plants.	Explanations

Course –Honours / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-607

Name of Paper- Agrotechnology & Sustainable utilization of Plants.

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Determination of pH of soil.	Practical
2.	Determination of WHC of soil.	Practical
3.	Determination of soil moisture.	Practical
4.	Determination of protein, fat & starch content of plant sample.	Practical
5.	Study of botanical character of useful plants.	15 nos.

Course –Honours / Generic –Major

Class/ Semester- 6th semester (M)

Paper code:-601

Name of the Paper- Ecology & phytogeography

Units Assigned- 1, 2, 3, 4, 5, 6

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Basic concept & introduction to ecology	Explanations
2.	Biotic & abiotic factors & interactions	Explanations
3.	Structure of Ecosystem	Explanations
4.	Function of Ecosystem	Explanations
5.	Succession in plants	Explanations
6.	Adaptation in plants	Explanations
7.	Pollution of air, water & soil	Explanations
8.	Green house effect	Explanations

9.	Ozone layer depletion	Explanations
10.	Deforestation, its cause & effects	Explanations
11.	Natural resource management	Explanations
12.	IUCN red list category	Explanations
13.	WWC, IUCN, NBWL, NBA	Explanations
14.	Concept on Biodiversity	Explanations
15.	Conservation Biology, Ex situ & in situ conservation	Explanations

Course –Honours / Generic –General

Class/Semester- 6th semester (M) Paper code:-602 Name of

the Paper- Ecology & phytogeography

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Instruments used in Plant ecology.	Demonstration
2.	Practical related to plant ecology.	2practicals

Name of the Teacher : Dr. Tilak Chandra Dutta

Course plan January to June,2016

Course Major

Class: 2nd Semester

Name of paper: Plant Pathology and Bryophytes

Units assigned: 1,2,3

Marks Assigned:30

Class	Unit/Course	Remarks
1	Unit-1 : General account Bryophytes	Targeted to complete the course 15 classes
2	Classifications	
3	distribution in India	

	Unit-2 :	
4	Evolution of sporophytes in Bryophytes	
5	spore dispersal mechanism ,	
6	Comparative account of the gametophyte	
	Unit-3:	
7,	A comparative knowledge of the structure	
8	and life history of the following types	
9	from the evolutionary point of view and	
	their ecology	
10	and economic importance.	
11	Riccia,	
12	Marchantia,	
13	Anthoceros,	
14	Shagnum,	
15	Polytricum	

Class :2nd Sem. General

Name of paper: Bryophytes, Pteridophytes and Gymnosperms

Units Assigned: Unit 1

Marks assigned: 15

Class	Unit/course	Marks
	Unit-1:	Targeted to complete the

1	A general account	course 7 classes.
2	the structures and life histories of the following;	
3	Riccia,	
4	Marchantia,	
6	Anthoceros,	
7	Polytricum	

4th Sem. Major

Name of paper: Cell Biology and Modern Laboratory technique

Units Assigned: Unit 4,5

Marks assigned: 8

Class	Unit/Course	Marks
1	Unit- 4:	10 classes needed to complete the course.
2 &4	Nucleoproteins	
	nature of genetic material.	
	Unit-5:	
5&6	Cell adhesion,	
7&8	Membrane transport,	
9&10	Signal transduction(G-Protein)	

Class: 4th Sem. General

Name of paper: Physiology and Economic Botany

Unit Assigned: 1

Marks Assigned: 20

Class	Unit/Course	Remarks
1 &2	Unit-1: A general knowledge of the following economically important plants with reference to their local names and plant parts used.	A total of 22 classes
3,4&5	Cereals: Rice, Wheat and Maize	
6,7	Pulses: Pea and Soyabean	
8,9,10	Oil Seeds: Mustard, Ground Nut, Coconut and Sunflower.	
11,12,13,14	Fibre Yielding Plants: Jute, Cotton, Ramie	
15,16,17,18	Medicinal Plants: Rawolfia, Swertia, Ocimum and Neem.	
19,20	Timber yielding Plants: Sal, Sisso, Teak, Holokh	
21,22	Non alcoholic beverages: Tea and Coffee.	

Class: 6th Sem. Major

Name of paper: Molecular Biology and Immunology

Units assigned: Molecular Biology: Unit: 1,2,3,4,5and Immunology Unit: 1,2,3

Marks Assigned: 60

Class	Unit/Course	Marks
	Molecular Biology: Unit-1:	27 Classes needed
1	Nucleic Acids,	
2	DNA as Genetic material,	
3	structure and functions of DNA	
4	Structure and functions of RNA.	
5	Watson and Crick Model of DNA,	
6	other forms of DNA(A-Z),	
7	Genome organization in prokaryotes	
8	Genome organization in eukaryotes.	
	Unit -2:	
9	Replication of DNA-Prokaryotes and eukaryotes,	
10	Transcriptions in prokaryotes and eukaryotes.	
	Unit-3:	
11	Features of genetic code,	
12	Wobble hypothesis,	
13	protein biosynthesis in prokaryotes	
14	Protein biosynthesis in eukaryotes .	
	Unit-4:	
15	Recombination in Prokaryotes,	
16	Transformation,	
17	Conjugation and Transduction,	

18	Concept of Transposons and Plasmids.	
	Unit-5:	
19	Regulation of gene expression in prokaryotes-	
20	Operon concept(Lac)	
	Immunology:	
	Unit-1:	
21	Plant health Management	
	Unit-2:	
22	Immunity and resistant in mammals,	
23	principles of antigens and antibodies reaction.	
	Unit-3:	
24	Interaction of plant with bacteria,	
25	Interaction of plants with Virus and Fungi;	
26	breeding for disease resistance,	
27	environment and immunity from infectious diseases in plants.	

Class: 6th Sem. General

Name of paper: Plant Ecology and Plant Geography

Units assigned: Unit- Plant ecology4

Marks Assigned:

Class	Unit/Course	Marks
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	Plant Ecology:	Total-9classes
	Ecology: Unit-4:	
1	Pollution; Air,	
2	Pollution ;Water,	
3	Pollution; Soil,	
4	Global Climate change ;	
5	Green House effect, Ozone Depletion,	
6	Acid Rain,	
7	Deforestation and consequences of Deforestation.	
	Plant Geography	
8	Unit-2: Endemism and endemic flora-	
9	A general account of endemic flora.	

Course Plan Agust. To Dec.,2016

Class: 1st Semester Major

Name of Paper :Algae, Fungi and Lichen

Units Assigned: 1,2,3

Marks Assigned: 25

Class	Unit/Course	Marks
	Unit-1:	20 classes

1	General characters of Algae	
2	classification of Algae	
3	and economic importance of algae;	
4	its phylogeny and distribution in India.	
	Unit-2:	
5	Vegetive structure: Cell and thallus structure ,	
6	algal chromatophores and pigments,	
7	range of thallus structure,	
8	reproduction, Vegetative, Asexual,	
9	Sexual and pattern of life cycle.	
	Unit-3:	
	A comparative knowledge of the following	
10	with special reference to the structure and	
11	life histories of the genera mention bellow.	
12	Myxophyceae: Nostoc and Anabeana;	
13	Chlorophyceae: Chorella, Volvox, Oedogonium,	
14	Coleochaete, Chara; Xanthophyceae: Vaucheria;	
15	Bacillariophyceae: A general account.;	
16	Phaeophyceae:	
17	Ectocarpus, and	
18	Fucus; Rhodophyceae:	
19	Polysiphonia,	
20	Batrachospermum	

Class: 1st Sem. General

Name of Paper;

Unit assigned:

Marks assigned:

Class: 3rd Semester Major

Name of Paper: Microbiology and Biotechnology

Unit assigned: Unit-1&2

Marks assigned:10

Class	Unit/Course	Remark
	Unit-1	Total 9 classes
1	Introduction to Biotechnology	
2	Scope of Biotechnology	
3	Recent advances in Biotechnology	
4	Application of Biotechnology in agriculture	
5	Application of Biotechnology in Industry	
6	Biofertilizers	
	Unit-2	
7	Genetic Engineering	
8	Scope and applications	
9	Merits and demerits	

Class:3rd Semester General

Name of paper: Morphology, Taxonomy, Development and reproduction of Angiosperms

Unit assigned: 1&2

Marks assigned:

Class	Unit/Course	Remark
	Development and Reproduction	Total 10 classes

	Unit-1	
1	Meristems	
2	Root and Shoot apices	
3	Tissue	
4	Tissue systems	
5	Primary Body	
6	Stelar structure	
	Unit-2	
7	The secondary growth	
8	Cambium and its Derivatives	
9	Anomalous tissues	
10	Periderm	

Class: 5th Semester Major

Name of Paper: Genetics, Plant breeding and Biostatistics

Unit assigned: Genetics Unit-1,2,3,4,5; Plant Breeding: 1,2; Biostatistics 1,2,3

Marks assigned: 60

Class	Unit/Course	Remarks
	Genetics:	Total 38 classes
1	Unit-1	
2	Mendel's Laws	
3	Critical appreciations of Mendel's Laws	
4	Gene interactions	

5	Alleles and multiple alleles	
6	Multiple genes	
	Linkage and crossing over	
7	Unit-2	
8	Sex determinations	
9	Sex linkage	
10	Sex limited traits	
11	Cytoplasmic inheritance	
12	Plastid and kappa particle inheritance	
	Unit-3	
13	Chromosomal mutation and gene mutation	
14	Biochemical Mutations	
	Unit-4	
15	Basic concept of gene	
16	Fine structure of gene	
17	Genetic engineering, Gene Cloning	
18	Concept of Trans gene	
	Unit-5	
20	Human genetics	
21	Karyotypes	
22	Genetic disorders	
	Plant Breeding	
	Unit-1	
23	Plant introduction	
24	Selection	
25	Hybridization	
26	Mutation breeding	

	Unit-2	
27	Invitro culture	
28	Techniques	
29	Applications of tissue culture	
	Biostatistics	
	Unit-1	
30	Applications of Biostatistics	
31	Collection, classification of data	
32	Frequency distribution	
	Unit-2	
33	Measure of central tendency	
34	Mean, Median and Mode	
35	Standard error and standard deviation	
	Unit-3	
36	Test of significance	
37	Chi square test	
38	Probability test	

Class: 5th Semester General:

Name of paper: Cytogenetics, evolution and Biostatistics

Unit assigned: Cytogenetics Unit-2 & Biostatistics Unit-1

Marks assigned:

Class	Unit/Course	Remarks
	Cytogenetics Unit-2	Total 15 class
1	Concept of polyploidy	
2	Application of polyploidy	

3	Mendel's Laws	
4	Linkage and Crossing over	
5	Chromosome mapping of genes	
6	Allele	
7	Mutation	
	Biostatistics,Unit-1	
8	Importance of Biostatistics	
9	Mean	
10	Median	
11	Mode	
12	Mean deviation	
13	Standard deviation	
14	Standard error	
15	Test of Significance	

Course Plan January to June,2017

Class: 2nd Semester Major

Name of paper:

Units Assigned:

Maks Assigned:30

Class	Unit/Course	
	Unit-1 :	14 classes
1	General account,	
2	classifications	

3	and distribution in India	
4	Unit-2 :	
5	Evolution of sporophytes and	
6	spore dispersal mechanism ,	
7	Comparative account of the gametophyte	
8	Unit-3:	
9	A comparative knowledge of the structure	
10	and life history of the following types from the	
11	evolutionary point of view	
12	and their ecology and	
13	economic importance.	
14	Riccia,	
	Marchantia,	
	Anthoceros,	
	Shagnum,	
	Polytricum	

Class :2nd Sem. General

Name of paper: Bryophytes, Pteridophytes and Gymnosperms

Units Assigned: Unit 1

Marks assigned: 15

Class	Unit/course	Marks
1	Unit-1:	Targeted to complete the course 7classes.
2	A general account	
3	the structures and life histories of the following;	
	Riccia,	

4	Marchantia,	
6	Anthoceros,	
7	Polytricum	

Course Plan August to Dec.,2017

Class: 1st Semester

Name of paper: Algae, Fungi and Lichen

Units assigned: 1,2,3

Marks Assigned:20

Class	Unit/Course	Remark
	Unit-1:	Total 20 classes
1	General characters,	
2	classification	
3	and economic importance of algae;	
4	its phylogeny and distribution in India.	
	Unit-2:	
5	Vegetive structure: Cell and thallus structure ,	
	algal chromatophores and pigments,	
6	range of thallus structure,	
7	reproduction, Vegetative, Asexual,	
8	Sexual and pattern of life cycle.	
	Unit-3	
9	:A comparative knowledge of the following classes with special reference to the structure and life histories of the genera mention bellow.	
10	Myxophyceae: Nostoc	
11	and Anabeana;	
12	Chlorophyceae: Chorella,	

13	Volvox, Oedogonium,	
14	Coleochaete, Chara;	
15	Xanthophyceae: Vaucheria;	
16	Bacillariophyceae: A general account.;	
17	Phaeophyceae: Ectocarpus, and	
18	Fucus ;	
19	Rhodophyceae: Polysiphonia,	
20	Batrachospermum	

COURSE PLAN

2016-17

**DEPARTMENT OF CHEMISTRY,
DIGBOI COLLEGE**

NAME OF THE TEACHER- MR. GOLAP KALITA

Course Plan Jun-Dec, 2016

Course –Major / NM – Major

Class/Semester- 1st semester,

Name of the Paper-MM-101, Inorganic Chemistry

Units Assigned- Section –Inorganic Chemistry

Marks assigned- 9

Class	Topic/ Unit	Remarks
1	Section II Inorganic Chemistry	
2	Periodic properties: - Effective nuclear charge (screening constant – Slater's rule only),	
3	Ionic and covalent radii	
4	Ionization potential and periodic variation	
5	Electron affinity and periodic variation	
6	Electro negativity –Pauling scaleMulliken's	
7	Allred-Rochow scales of electronegativity	
8	Mulliken's scale of electronegativity	

Name of the Teacher- Mr. Golap Kalita

Course — Non Major

Class/Semester- 1st semester,

Name of the Paper-NM-101, Section Inorganic Chemistry

Units Assigned- I

Marks assigned- 10

Class	Topic/ Unit	Remarks
1	Section A: Inorganic Chemistry-I Unit I: Atomic Structure: Electronic configuration of elements based upon electronic configuration in the periodic table	
2	Effective nuclear charge,	
3	Ionization energy,	
4	Electron affinity,	
5	Electronegativity,	
6	Redox potential.	

Jan-May, 2016

Name of the Teacher- Mr. Golap Kalita

Course– Major

Class/Semester- 3rd semester,

Name of the Paper-MM-301, Inorganic Chemistry

Units Assigned-II

Marks assigned- 12

Class	Topic/ Unit	Remarks
1	UNIT – II: Inorganic reaction mechanism	
2	Introduction to inorganic reaction mechanism	
3	Inert and labile complexes	
4	Association mechanism	
5	Dissociation and concerted paths mechanism	
6	Acid hydrolysis (with reference to cobalt complexes only).	
7	Base hydrolysis (with reference to cobalt complexes only).	
8	Substitution reaction in octahedral and square planar complexes.	
9	Substitution reaction in square planar complexes.	
10	Trans effect, Irving-William Series	

(Session Jun-Dec, 2016)

Name of the Teacher-Mr. Golap Kalita

Course MAJOR/ NM – Non-Major

Class/Semester- 5th Sem

Name of the Paper- NM 501, Inorganic Chemistry-II + Physical Chemistry-II

Units Assigned- I, Nuclear chemistry

Marks Assigned-10

Class	Topic/ Unit	Remarks
1.	Unit-I Nuclear Chemistry: Mass defect and binding energy, packing fraction	
2.	Stability of nucleus, neutron-proton ratio	
3.	Artificial radioactivity, nuclear fission	
4.	Nuclear reactors, separation of isotopes	
5.	Detection and measurement of radioactivity by GM counter.	
6.	Application of radio-isotopes in agriculture, medicine and industry.	
7.	Radiocarbon dating.	

Session Jun-Dec, 2016

Name of the Teacher- Mr. Golap Kalita

Course -Major

Class/Semester- 5th Sem,

Name of the Paper-MM 503, Inorganic Chemistry II

Units Assigned- I

Marks Assigned-15

Class	Topic/ Unit	Remarks
1.	UNIT –I: Organometallic compounds: Definition, electron count, 18 electron rule	
2.	Isolobal analogy	
3.	Compounds in catalysis ,Wilkinson’s catalyst	
4.	Vaska’s compound	
5.	HCo(CO) ₄	
6.	Metal carbonyls: Structure, bonding	
7.	IR spectral studies of terminal and bridged carbonyls.	
8.	Structure and bonding in some Metal –Olefins compound,	
9.	Structure and bonding in metal – ligand σ -bonded compounds	
10.	Structure and bonding in ferrocene	
11.	Oxidative addition	
12.	Reductive elimination reaction.	
13.	Uses of some organometallic	

NAME OF THE TEACHER-MRS. JONALI DUTTA

June 2016 – May 2017

Name of the Teacher-MRS. JONALI DUTTA

Course –MAJOR

Class/Semester-FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-II &III

Marks Assigned-16

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06
2	Vapour pressure, surface tension, determination	
3	viscosity, parachor-determination and application	
4	Newtonian and nonNewtonian liquid,	
5.	liquid crystals ,discussion	
Unit III – Solids		
1	Crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 10
2	Packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introduction to powder and single crystal methods of structure analysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors, semiconductors and insulators from band theory.	

June 2016 – May 2017

Name of the Teacher-MRS. JONALI DUTTA

Course –Non MAJOR

Class/Semester-FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-IV & V

Marks Assigned- 6 + 6

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06
2	Vapour pressure, surface tension, determination	
3	viscosity, parachor-determination and application	
4.	liquid crystals ,discussion	
Unit III – Solids		
1	Crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 06
2	packing of crystals, closed packed structure, radius ratio, crystal defect- point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introduction to powder and single crystal methods of structure analysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	Conductors, semiconductors and insulators from band theory.	

June 2016 – May 2017

NAME OF THE TEACHER: MRS.JONALI DUTTA

CLASS/SEM-FIFTH SEMESTER

PAPER-501 MM (Physical Chemistry)

MARKS ASSIGNED:18

Unit III: System of variable composition		
Class	Topic	Remarks
1	Thermodynamics, Partial Molar quantities, chemical potential	Marks 10
2	Gibbs Duhem equation, Effect of temperature and pressure, Activity	
3	fugacity, Concept of equilibrium state, derivation of expression of equilibrium constant,	
4	Temperature pressure and concentration dependence of equilibrium constant-Van't Hoff equation Le-Chatelier principle, effect of temperature, pressure and concentration, examples (qualitative treatment). 6. Question - Answer discussion	
Unit: II Solution		Marks 08
1	Introduction to dilute solutions, vapour pressure, lowering of vapour pressure, Raoult's and Henry's Law	
2	immiscible liquids, Nernst's Distribution law, derivation	
3	Solvent extraction	
4	Colligative properties, definition, examples	
5	Chemical potential	
6	Thermodynamic derivation of lowering of Vapour pressure	
7	Elevation of boiling point	
8	Depression of freezing point	
9	Osmotic pressure	
10	Question answer discussion and revision	

June 2016 – May 2017

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- Fifth

Name of the Paper- 507 (QM and Chemical bonding)

Units Assigned- II& III

Marks :33

Unit – II :Quantum Chemistry		
Class	TOPIC/UNIT	Remarks
1	Black body radiation : Planck's hypothesis, photoelectric effect, de Broglie hypothesis	Marks 15
2	Heisenberg's uncertainty principle. Schrodinger Wave Equation	
3	Operators, Postulates of quantum mechanics Normalization of wave functions- expectation values	
4	Interpretation of the wave function – orthogonal and normal wave functions. Schrodinger equation and its application	
5	Particle in a box. One dimension, Three dimension	
6	Energy levels, probability distribution functions. Nodal properties, degeneracy	
7	Qualitative treatment of hydrogen atom, Energy levels and quantum numbers	
8	The radial and angular part of wave functions, two dimensional plots of probability density.	
9	Stern Gerlach experiment, electron spin and spin quantum numbers,	
10	Pauli's exclusion principle – Helium Atom	
11	(i) rigid rotator	
12	ii) harmonic oscillator	
13	Revision	
Unit:III:Chemical Bonding		Marks:08
1	Valence bond and molecular orbital, comparison With examples	
2	LCAO – MO treatment of H ₂	
3	MO Method of H ₂ molecules ion, Valence bond treatment of H ₂	
4	Localized and non localized molecular orbitals of Homonuclear and hetero nuclear diatomic molecules	

5	MO diagram of H ₂ , N ₂ , NO, CO, HF, CN	
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June 2016 – May 2017

Name of the Teacher- Mrs Jonali Dutta

Course –Non Major

Class/Semester- Fifth Semester

Name of the Paper- 501, PHYSICAL CHEMISTRY

Units Assigned- II& IV

Marks :13

Unit –II Electrochemistry		
class	UNIT/TOPIC	
1	Reversible and irreversible cells, Concept of EMF of a cell.	Marks -6
2	Measurement of EMF of a cell. Nernst equation and its importance.	
3	Types of electrodes. Standard electrode potential and salt bridge	
4	pH determination using hydrogen electrode and quinhydrone electrode	
5	Commercial applications of galvanic cell, dry cell, lead storage battery,	
6	fuel cell	
7	NUMERICALS, DISCUSSION	
Unit IV Photochemistry		
Class	UNIT/TOPIC	Remarks
1	Absorption of light, Laws of photochemistry	Marks -5
2	Lambert Beer's law,	
3	Quantum yield, Quantum efficiency,	
4	Fluorescence, phosphorescence	
5	Chemiluminescence, photosensitized reaction	
	UNIT: I CONDUCTANCE	
1	Applications of conductance measurements: determination of degree of ionization of weak electrolytes, water,	Marks:2
2	Solubility and solubility products of sparingly soluble salts, ionic product of	
3	Hydrolysis constant of a salt. Conductometric titrations (only acid-base).	

JAN 2017 – MAY 2017-

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- Second semester

Name of the Paper- 201 MM, (PHYSICAL CHEMISTRY)

Units Assigned- II

Marks :12

Unit II – Ionic equilibrium		
Class	Unit/topic	Remarks
1	Strong and weak electrolyte with modern classification of electrolytes (true and potential electrolyte)	Marks: 12
2	Factors affecting degree of ionization, ionization constant, ionic product of water,	
3	Degree of ionization, ionization of weak acids and bases, pH scale, common ion effect.	
4	Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis	
5	pH for different salts	
6	Buffer solution, derivation of Henderson equation and its applications	
7	Buffer capacity, buffer range, buffer action.	
8	Solubility and solubility product of sparingly soluble salts	
9	Application of solubility product principle	
10	Selection of indicators and their limitations.	
11	Qualitative treatment of acid-base titration curves. Theory of acids	
12	DISCUSSION&REVISION	

JAN 2017 – MAY 2017

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- IV Semester

Name of the Paper- 401 MM(Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 15 + 6

Unit I: Unit III- Electrochemical cells		Remarks
Class	Name of the Topic	
1	Quantitative aspects of Faraday's laws of electrolysis potentials	Marks:15
2	Concept of oxidation/reduction of half cells, Numericals	
3	application of electrolysis in metallurgy and industry, electrolytic and galvanic cells,	
4	standard electrode potential, Nernst Equation types of electrodes-	
5	Hydrogen, calomel, quinhydrone and Glass electrodes	
6	E.M.F of a cell and its measurement, free energy, entropy and enthalpy of cell reactions,	
7	pH determination using hydrogen, Sb/Sb ₂ O ₃ electrode, glass, quinhydrone electrodes,	
8	Concentration cell with and without transference-	
9	liquid junction potential	
10	Potentiometric titration	
11	Storage cells- Lead storage cell, mechanism of charging and	
12	fuel cells- hydrogen-oxygen cell	
UNIT: II Conductance		Marks: 6
1	Application of conductance measurement: i) degree of dissociation of weak electrolytes	
2	ii) ionic product of water iii) solubility and solubility product of Sparingly soluble salts iv) Hydrolysis constant of aniline hydrochloride,	
3	Conductometric -Acid Base and precipitation	
4	Question Answer discussion	

JAN 2017 – MAY 2017

Name of the Teacher- Mrs Jonali Dutta

Course – Non major

Class/Semester- IV Semester

Name of the Paper- 401 NM (Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 21

Unit –I : Solution		
Class	Topic/unit	Remarks
1	Types of solutions, concentration units	Marks:8
2	Solution of gases in liquids-Henry's law. Solution of liquids in liquids	
3	Ideal solution-Raoult's law- Non ideal solution.	
4	Distillation of solutions, Lever rule, Azeotropes,	
5	Partial miscibility of liquids. Critical solution temperature.	
6	Immiscibility of liquids TheNernst distribution law and its applications	
7	Principle of steam distillation	
8	Solvent extraction	
9	Solutions of solids in liquids the solubility curves,discussion	
Unit – II Ionic Equilibrium		
1	Ionization,Strong and weak electrolytes, degree of ionization,	8Marks: 8
2	Factors affecting degree of ionization constant and ionic product of water.	
3	Ionization of weak acids and weak bases. pH and its determination	
4	pH scale, common ion effect.	
5	Salt hydrolysis – calculation of hydrolysis constant, degree of hydrolysis	
6	pH for different salts.	
7	Solubility and solubility product of sparingly soluble salts-	
8	Applications of solubility product	
9	Buffer solutions	
UNIT-Second law of thermodynamics		
1	Second law of thermodynamics, Spontaneous and Non-Spontaneous processes cyclic process	Marks: 5
2	Carnot cycle,	
3	Entropy, Entropy change in reversible and irreversible processes and for ideal gas,	
4	Concept of work function and free energy	
5	Q/ANS	

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JAN 2017 – MAY 2017

Name of the Teacher-Mrs. Jonali Dutta

Course —MAJOR

Class/Semester-VI Semester

Name of the Paper- 601 (M) (Physical Chemistry)

Units Assigned-I&V

Marks :I&V:20

UNIT :1:Photochemistry		
Class	Topic/unit	Remarks
1	Absorption of light,Photochemicalreaction,Laws of photochemistry	
2	Beer lambert's Law,EinsteinLaw,Numericals	Marks:08
3	Quantum Yield,Determination,Reasons for high and low quantum yield	
4	Photodimerisation,Quenching,Combination of hydrogen and chlorine,H ₂ and Br ₂ ,Dissociation of HI,photosensitizedreaction,spin multiplicity	
5	Fluorescence and phosphorescence	
6	Chemiluminescence,Bioiluminescence	
7	Photoelectric effect,Photovoltaic cell	
8	Lasers,Numericals	
UNIT: V :Statistical Thermodynamics		
1	Statistical methods,Microand macro states,Ensembles	Marks:12
2	Relation between entropy and thermodynamic probality,Stirling approximation ,	
3	Boltzman distribution law	
4	Partition Function,Internalenergy,Entropy Heat capacity	
5	M.B.Statistics	
6	Bose –Einstein Statistics	
7	Fermi-Dirac Statistics Thermodynamic functions and molar partition function	
8	Translational Partition function function from particle in one dimensional box	

9	Vibrational Partition Rotational Partition function	

JAN 2017 – MAY 2017

Name of the Teacher-Mrs. Jonali Dutta

Course —Major

Class/Semester-VI Semester

Name of the paper:607(M) (Quantum Chemistry)

UNIT:I,II,III,IV:

Marks:26

UNIT:I&II:General Principle and Microwave Spectroscopy		
CLASS	UNIT/TOPIC	REMARKS
Unit IV Electronic spectroscopy		
Class	Electromagnetic radiation,Different types of spectra,and spectroscopy-An introduction	Marks 8+2=10
1	The Beer – Lambert Law, molar absorption	
2	coefficient MO energy level Marks 8	
3	Selection rules for electronic transitions	
4	Franck-Condon principle,	
5	Solvent effect ,bathochromic andhypsochromic shift.	
6	Chromophores, auxochromes	
7	Vibrational structures	
8	Revision	
UNIT:III :Microwave Spectroscopy		
9	Microwave spectroscopy,rigid diatomic atomic molecule,	Marks-8
10	transitions between rotational energy levels,rotational constant	
11	Intensities of spectral lines	
12	Calculation of bond length of diatomic molecule	
13	Isotropic substitution	
14	Numericals and discussion	
UNIT:III:Raman Spectroscopy		
1	Raman Effect,Stokes and antistokes lines	Marks-8
2	Classical and quantum mechanical theories	
3	Polarizability tensor	

4	Structure elucidation by Ramanspectroscopy (AB, A2B, and AB3)	
5	stretching frequencies of bonds and functional groups	
6	Q/ANS. DISCUSSION	

NAME OF THE TEACHER- NEELAKSHI HAZARIKA

Course Plan Jun-Dec, 2016

Course –Major / NM – Major

Class/Semester- 1st semester,

Name of the Paper-MM-101, Inorganic Chemistry

Units Assigned- All

Marks assigned- 18

Class	Topic/ Unit	Remarks
1	Bonding and structure: Electrovalent bond, covalent bond	
2	Covalent ionic resonance	
3	Partial ionic character in covalent bonds	
4	lattice energy, bond length	
5	bond angle and bond energy.	
6	Valence Bond Theory for H ₂ molecule	
7	Valence Bond Theory for H ₂ molecular ion	
8	Molecular orbital theory and its application	
9	Drawbacks of Valence Bond Theory	
10	MOT for hydrogen molecule	
11	LCAO and MO diagram of homo diatomic molecules	
12	LCAO and MO diagram of hetero diatomic molecules	
13	VSEPR theory and its applications	
14	VSEPR theory and its applications	

Course Plan Jun-Dec, 2016

Course– NonMajor

Class/Semester- 1st semester,

Name of the Paper-NM-101, Section Inorganic Chemistry

Units Assigned- II

Marks assigned- 17

Class	Unit II: Chemical Bonding and Molecular Structure: Ionic Bonding: Energy consideration in ionic bonding,	Remarks
1	Lattice Energy and Solvation Energy	
2	importance of Lattice energy and Solvation energy in the context of Stability and Solubility of ionic compounds.	
3	Polarizing power and polarizability.	
4	Fajan's rule	
5	dipole moment and percentage ionic character.	
6	Hydrogen Bonding.	
7	Unit II: Chemical Bonding and Molecular Structure: Ionic Bonding: Energy consideration in ionic bonding,	

8	Covalent Bonding: VB Approach	
9	Concept of hybridization, sp , sp^2 , sp^3 , sp^3d , sp^3d^2 and dsp^2	
10	VSEPR Theory. Resonance and Resonance energy	
11	Study of some inorganic and organic compounds (O_3 , NO_3^- , CO_3^{2-})	
12	Study of some inorganic and organic compounds(SO_4^{2-} , $RCOO^-$, C_6H_6).	
13	Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals,	
14	non-bonding combination of orbitals,	
15	MO treatment of homonuclear diatomic molecules	
16	MO treatment of and heteronuclear diatomic molecules such as CO, NO and NO^+	
17	Covalent Bonding: VB Approach	
18	Concept of hybridization, sp , sp^2 , sp^3 , sp^3d , sp^3d^2 and dsp^2	
19	VSEPR Theory. Resonance and Resonance energy	
20	Study of some inorganic and organic compounds (O_3 , NO_3^- , CO_3^{2-})	
21	Study of some inorganic and organic compounds(SO_4^{2-} , $RCOO^-$, C_6H_6).	
22	Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals,	

Jan-May, 2016

Name of the Teacher- NEELAKSHI HAZARIKA

Course– Major

Class/Semester- 3rd semester,

Name of the Paper-MM-301, Inorganic Chemistry

Units Assigned- All

Marks assigned- 36

Class	Topic/ Unit	Remarks
1	UNIT – I:Coordination compounds: Types of ligands: monodentate, bidentate, ambidentate,	
2	Polydentate and macro cyclic ligand.	
3	Nomenclature of complex compounds, Isomerism in 4- and 6-coordinate compounds	
4	Inner complex and chelates.	
5	Effective atomic number rule	
6	Valence Bond Theory	
7	Application of Valence Bond Theory in tetrahedral complexes	
8	Application of Valence Bond Theory in octahedral complexes	
9	Drawbacks of Valence Bond Theory	
10	Crystal field splitting in Octahedral complexes	
11	Crystal field splitting in tetrahedral complexes	
12	Crystal field splitting in tetragonal and square complexes	
13	MO and introduction to ligand field theories and their applications.	
14	Spectroscopic terms,	

15	RS coupling,	
16	Mullikan's symbol (A, B, E, T)	
17	Spectrochemical and nephelauxetic series	
18	Electronic spectra of simple Td and Oh complexes	
19	Selection rules and Orgel diagram (d1 to d9 system).	
20	Magnetic properties: Paramagnetism, diamagnetism, magnetic properties of octahedral complexes	
21	Antiferromagnetism.	
22	UNIT – III:Chemistry of d- and f- block elements, Electronic structure, oxidation state, ionic radii	
23	Lanthanide and Actinide contraction	
24	Separation of lanthanides	
25	UNIT – III:Chemistry of d- and f- block elements, Electronic structure, oxidation state, ionic radii	
26	Lanthanide and Actinide contraction	
27	Separation of lanthanides	

(Session Jun-Dec, 2016)

Name of the Teacher-NEELAKSHI HAZARIKA

Course MAJOR/ NM – Non-Major

Class/Semester- 5th Sem

Name of the Paper- NM 501, Inorganic Chemistry-II + Physical Chemistry-II

Units Assigned- II, III

Marks Assigned- 22

Class	Topic/ Unit	Remarks
1.	Unit-II Preparative Chemistry Preparation, properties and uses of the following compounds : Lithium aluminium hydride	
2.	potassium ferro and ferricyanide	
3.	sodium cobaltinitrite	
4.	Sodium thiosulphate, Nessler's reagent,	
5.	Sodium borohydride, silica gel,	
6.	Pb containing paints	
7.	Zn containing paints	
8.	Unit-III Bioinorganic Chemistry:Role of zinc	
9.	Role of iron	
10.	Role of cobalt	
11.	Role molybdenum	
12.	Sodium, potassium in biological system.	
13.	Role of Mg ⁺⁺ in chlorophyll.	
14.	Role of Ca in blood clotting	
15.	Poisoning due to heavy metal ion -Mercury	
16.	Cadmium poisoning	
17.	Unit-II Preparative Chemistry Preparation, properties and uses of the following compounds : Lithium aluminium hydride	
18.	potassium ferro and ferricyanide	

19.	sodium cobaltinitrite	
20.	Sodium thiosulphate, Nessler's reagent,	
21.	Sodium borohydride, silica gel,	
22.	Pb containing paints	
23.	Zn containing paints	

Session Jun-Dec, 2016

Name of the Teacher- NEELAKSHI HAZARIKA

Course –MAJOR/ NM– Major

Class/Semester- 5th Sem,

Name of the Paper-MM 503, Inorganic Chemistry II

Units Assigned- All

Marks Assigned-48

Class	Topic/ Unit	Remarks
1.	UNIT –I: Organometallic compounds: Definition, electron count, 18 electron rule	
2.	Isolobal analogy	
3.	Compounds in catalysis ,Wilkinson's catalyst	
4.	Vaska's compound	
5.	HCo(CO) ₄	
6.	Metal carbonyls: Structure, bonding	
7.	IR spectral studies of terminal and bridged carbonyls.	
8.	Structure and bonding in some Metal –Olefins compound,	
9.	Structure and bonding in metal – ligand σ -bonded compounds	
10.	Structure and bonding in ferrocene	
11.	Oxidative addition	
12.	Reductive elimination reaction.	
13.	Uses of some organometallic	
14.	UNIT – II: Transition metal clusters: Definition of cluster, metal – metal bond in cluster,	
15.	Synthesis of metal carbonyl cluster of Cr, Fe and Mo (only low nuclearity clusters up to 4 metal atoms).	
16.	Closed shell electronic requirement for cluster compounds – rules for Polyhedral Skeletal Electron Pair Theory.	
17.	Nitrosyl compounds: Synthesis, properties and structures of nitrosyls of Fe, Co and Ni.	
18.	UNIT – III: Error in quantitative analysis: Accuracy, precession	
19.	Deviation, standard deviation, Numericals	
20.	Classification of errors, minimization of errors,	
21.	Significant figures.	
22.	Indicators: Choice of indicators in neutralization reactions.	
23.	Redox, adsorption and complexometric	
24.	Adsorption indicator	
25.	Complexometric indicator	
26.	UNIT – IV: Organic reagents in inorganic analysis :- Cupferron, dithizone oxine	
27.	benzoin- α - oxime,	

28.	1- nitroso-2- naphthol, diphenyl carbazide,	
29.	Diphenyl carbazone, salicylaldehyde,	
30.	1,10- phenanthroline, magnesium,	
31.	thiourea, zinc uranyl acetate,	

Session JUN- DEC, 2016

Name of the Teacher-NEELAKSHI HAZARIKA

Course –MAJOR/NM– Major

Class/Semester- 5th Semester,

Name of the Paper- MM 507, Symmetry and Quantum Chemistry

Units Assigned- Unit I

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Unit – I: Symmetry and Group theory: Symmetry elements and symmetry operations	
2.	Definition of group, symmetry group	
3.	point group and space group.	
4.	Perspective sketch and point group of some common molecules, H ₂ , HF,	
5.	CO ₂ , C ₂ H ₂ ,	
6.	C ₂ H ₄ , CHCl ₃ ,	
7.	PCl ₅ , NH ₃	
8.	BF ₃ , [PtCl ₄] ²⁻ , BrF ₅	
9.	symmetry and mathematical tools, matrix algebra,	
10.	reducible and irreducible representation, great orthogonality theorem	
11.	Character table for C _{2v}	
12.	Character table for C _{3v}	
13.	Determination of Γ_i for C _{2v}	
14.	Determination of Γ_i C _{3v} point groups.	

Jan-May, 2017

Name of the Teacher- NEELAKSHI HAZARIKA

Course –MAJOR/ NM– NonMajor

Class/Semester- 2nd semester,

Name of the Paper-NM-201, Section Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	Unit-I Coordination Chemistry: Review of Werner's theory. Types of ligands, monodentate, bidentate	
2	ambidentate and polydentate ligands, π Acceptor and macrocyclic ligands.	
3	IUPAC Nomenclature of Co-ordination compounds.	
4	IUPAC Nomenclature of Co-ordination compounds.	
5	Isomerism of 4-and 6- coordinate compounds.	
6	Isomerism of 4-and 6- coordinate compounds.	

7	Introduction to Valence Bond	
8	Application of VBT	
9	Introduction to Crystal Field theory.	
10	CFT in octahedral complexes	
11	CFT in tetrahedral complexes	
12	Application of dimethyl glyoxime, EDTA, 8-hydroxy quinoline,	
13	Use 2,2-bipyridyl, and ethylenediamine in analysis.	
14	Unit-II Chemistry of non-metals Boron: Preparation, structure and bonding of diborane	
15	Silicon: Structure, properties and use of silicon carbide and silicon polymers (linear).	
16/17	Structure, properties and use of silicon polymers (linear)	
18	Nitrogen: Hydroxylamine, Hydrazine, preparation, properties, uses and electronic structure.	
19	Hydrazoic acid; preparation, properties, uses and electronic structure.	
20	Rare gases- Xenon compounds.	
21	Preparation and properties of xenon compounds	
22	Preparation and properties of xenon compounds	
23	Structure determination of xenon compounds with the help of VSEPR	
24	Phosphorous: Structures of oxides and oxyacids.	
25	Unit-III Inorganic Material Chemistry Zeolites, it's structure and properties	
26	Ceramics and its preparation	
27	Manufacturing of glass and its types	
28	Silicate minerals, it's properties and uses	
29	Cement – composition, raw materials, manufacturing process	
30	Setting of cement	
31	Types of Inorganic metal oxides	
32	Superconductor	
33	Synthesis, Structure and Application of Fullerenes	
34	Unit-IV General principles of metallurgy Physico-Chemical methods involved in metallurgy	
35	Concentration, calcinations, reduction	
36	roasting, zone refining, solvent extraction	
37	hydrometallurgy and electrochemical methods	
38	Metallurgy of gold,	
39	Metallurgy of nickel	
40	Metallurgy of thorium	
41	Metallurgy uranium and manganese	
42	Metallurgy of manganese	

Jan-May, 2017

Name of the Teacher- NEELAKSHI HAZARIKA

Course –MAJOR/NM–Major

Class/Semester- 2nd semester,

Name of the Paper-MM-201, Section II (Inorganic Chemistry)

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	UNIT – I: Non Transition elements: Electronic structure, general Properties and comparative study of group of non transition elements.	
2	Noble Gas : Compounds of Xenon only	
3	Boron: Wade's rule, Nomenclature of closo, nido and arachno boranes,	
4	Structure of boron hydrides (B_2H_6), metalloborane and metallocarboranes.	
5	Preparation, structure and use.of Borazine	
6	Preparation, structure and use.of phosphazine	
7	Preparation, structure and use of S_4N_4	
8	Preparation, structure and use of (SN)x	
9	Carbon : Fullerenes (C_{60}) preparation and properties	
10	Silicon: Silicones, classifications and structure of silicates.	
11	Zeolites, use of Zeolites as catalyst and molecular sieve	
12	Aluminosilicates	
13	Nitrogen: Preparation and properties of hydroxylamine	
14	Preparation and properties of Hydrazine	
15	Preparation and properties of hydrazoic acid.	
16	Phosphorus: Phosphines,	
17	oxy acids of phosphorus,	
18	organophosphorus compounds.	
19	Theory of reduction (Thermodynamic approach), role of carbon and other reducing agents,	
20	Electrolytic reduction, roasting and calcinations.	
21	Method of purification and refining of metals, zone refining	
22	Vacuum arc process, ion exchange,	
23	Solvent extraction and electrolytic method,	
24	Van – Arkel process and hydrometallurgy.	
25	Extraction of and study of some important compounds : Cr, chromyl chloride, lead chromate, potassium dichromate	
26	Extraction of the following metals and study of some of their important compounds : Mn, manganese dioxide, $KMnO_4$	
27	Extraction of and study of some of some important compounds : Mo, Ammonium molybdate	
28	Extraction of and study of some important compounds : Co, sodium cobaltinitrite, cobalt nitrate	

29	Extraction of and study of some important compounds : Ni, Ni-DMG	
30	Extraction of and study of some of compounds : V, vanadium pentoxide	

JAN-MAY, 2017

Name of the Teacher-NEELAKSHI HAZARIKA

Course –MAJOR/ Non Major

Class/Semester- 6th SEMESTER,

Name of the Paper- MM 603, Inorganic Chemistry III

Units Assigned- All

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	UNIT-I: Bio inorganic Chemistry Metal ion in biological system	
2.	Biological role of iron	
3.	Biological role of copper	
4.	Biological role of cobalt	
5.	Biological role of zinc	
6.	Biological role of molybdenum.	
7.	Metalloprotein and metalloenzymes, therapy.	
8.	Physiology of hemoglobin & myoglobin,	
9.	Plastocyanin, it's structure and function	
10.	Vitamin B12, it's structure and function.	
11.	Carbonic anhydrase, it's structure and function	
12.	Nitrogenase it's structure and function,	
13.	Metal ion in medicine -- cisplatin and carboplatin.	
14.	Use of EDTA in chelation	
15.	Role of alkali and alkaline earth metals	
16.	UNIT-II: Introduction to material chemistry	
17.	Idea about supra molecular interaction.	
18.	Solid state reactions	
19.	Nano materials – synthesis and characterization.	
20.	C – C composite	
21.	Polymer and nanocomposite	
22.	Introduction of chemistry of clay (Kaolinite, Montmorillonite and Laponite)	
23.	UNIT – III: Chromatographic Methods Paper chromatography	
24.	Thin layer chromatography	
25.	Column chromatography	
26.	Gas chromatography – separation of compounds, development and Rf values	
27.	HPLC – principle only.	
28.	UNIT IV: Industrial chemistry:	

	Industrial water treatment: Demineralized (DM) water and effluent treatment.	
29.	Various types of cements, their composition,	
30.	Manufacturing of cement	
31.	Setting of cement	
32.	Ceramics	
33.	Paints: Constituents, role of binder and solvent	
34.	lead and zinc containing paints.	
35.	Introduction to Chemical Toxicology: Metal poisoning due to Pb	
36.	Metal poisoning of Cd	
37.	Metal poisoning of Hg	
38.	hazard from radioactive fallout	

Jan-May, 2017

Name of the Teacher- NEELAKSHI HAZARIKA

Course –MAJOR/ NM– Major

Class/Semester- 6th semester,

Name of the Paper-MM 607, Molecular Spectroscopy

Units Assigned- I, III, V

Marks Assigned- 22

Class	Topic/ Unit	Remarks
1.	Unit I- General Principles Interaction of electromagnetic radiation with molecules and various types of spectra, Selection rules.	
2.	Unit-III Infrared spectroscopy Classical equation of vibration, vibrational energies of diatomic molecules	
3.	zero point energy, Concepts of normal vibration	
4.	force constant, effect of isotopic substitution,	
5.	Vibrational frequency, Fundamental frequencies, overtones	
6.	hot bands	
7.	Degree of freedom of polyatomic molecules,	
8.	concept of group frequencies.	
10.	Numericals of IR	
11.	Unit V: Spin resonance spectroscopy Principle of NMR,	
12.	Larmour precession,	
13.	chemical shift and low resolutions spectra	
14.	Numericals of NMR	
15.	Different scales, spin-spin coupling and high resolution spectra	
16.	Interpretation of PMR spectra of ethanol,	
17.	1- and 2-chloropropane, acetaldehyde,	
18.	cyanohydrin and 1,2 & 1,3-dichloropropane.	
19.	Electron spin resonance (ESR) spectroscopy and its principle	

20.	hyperfine structure	
21.	ESR of simple free radicals methyl, Deuterated methyl	
22.	ESR of simple free radicals propyl, ethyl	
23.	ESR of copper (II) compounds. L-12, Marks: 10	
24.	Difference between NMR and ESR	
25.	Numericals of ESR	

NAME OF THE TEACHER- DR NAYAN JYOTI KHOUND

June 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major

Class/Semester- 1st Semester

Name of the Paper- 101 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 10

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	

June 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major

Class/Semester- 1st Semester

Name of the Paper- 101 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 10

Unit I: Kinetic Theory of Gases		Marks Assigned-
10		
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	

June 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major

Class/Semester- 2nd Semester

Name of the Paper- 201 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 14

Unit I: Chemical Thermodynamics –I		Marks Assigned- 14
Class	Topic	Remarks
1.	Extensive and intensive properties of a system,	
2.	thermodynamic processes: cyclic, reversible, irreversible processes,	
3.	Thermodynamic function, complete differential, Zeroth law of thermodynamics.	
4.	First law of thermodynamics-internal energy, enthalpy, molar heat capacities,	
5.	relation between C_p and C_v , work of expansion in reversible and irreversible process, adiabatic	
6.	Joule Thomson effect, calculation of Joule Thomson co-efficient for ideal and Vander Waal's gas.	
7.	Thermo chemistry- Hess's law,	
8.	Kirchhoff's law relation of reaction enthalpy with internal energy,	
9.	Bond energy and Bond dissociation energy	
10.	Bond energy Calculation from thermo chemical data.	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	

June 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major

Class/Semester- 3rd Semester

Name of the Paper- 301 (Organic Chemistry)

Units Assigned- I

Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms	
3.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution vs elimination.	
5.	Haloform reaction	
6.	Aryl halides: Preparation from diazonium salts	
7.	Nucleophilic Aromatic Substitution SNAr intermediates.	
8.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
9.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
10.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
11.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
12.	Organometallic Compounds of Mg Use in synthesis of organic compounds.	
13.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
14.	Previous year Question paper discussion	

June 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non-Major

Class/Semester- 3rd Semester

Name of the Paper- 301 (Organic Chemistry)

Units Assigned- I

Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation	
2.	Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
3.	Nucleophilic substitution reactions: SN1 Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution reactions: SN2 Mechanisms with stereochemical aspects	
5.	Nucleophilic substitution reactions: SNi Mechanisms with stereochemical aspects	
6.	Nucleophilic substitution vs elimination	
7.	Haloform reaction	
8.	Aryl halides: Preparation from diazonium salts	
9.	Nucleophilic Aromatic Substitution SNAr intermediates.	
10.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
11.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
12	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
13	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
14	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
15	Previous year Question paper discussion	
16	Previous year Question paper discussion	

June 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOOND

Course –Major

Class/Semester- 4th Semester

Name of the Paper- 401 (Physical Chemistry)

Units Assigned- I + II

Marks Assigned- 20 + 6

Unit II: Conductance		Marks Assigned- 20
Class	Topic	Remarks
1.	Arrhenius theory of electrolytic dissociation	
2.	conductivity, equivalent and molar conductivity	
3.	conductivity, equivalent and molar conductivity and their variation with dilution strong electrolytes	
4.	conductivity, equivalent and molar conductivity and their variation with dilution for weak electrolytes	
5.	molar conductivity at infinite dilution	
6.	kohlrausch law of independent migration of ions	
7.	Debye-Huckel – Onsagar equation,	
8.	Wien effect, Debye –Falkenhagen effect, Walden's rules.	
9.	Ionic velocities,	
10.	mobilities and their determinations	
11.	Transference numbers and their relation to ionic mobilities,	
12.	determination of transference numbers using Hittorf	
13.	determination of transference numbers using moving boundary methods	
14.	determination of transference numbers using Hittorf and moving boundary methods, ,	
15.	anomalous transference number	
16.	application of conductance measurement: i) degree of dissociation of weak electrolytes,	
17.	ii) ionic product of water	
18.	iii) solubility and solubility product of sparingly soluble salts	
19.	iv) Hydrolysis constant of aniline hydrochloride	
20.	v) Conductometric titration (Acid Base and precipitation)	
21.	Previous year Question paper discussion	
Unit I : Chemical Thermodynamics		Marks Assigned- 06
1	Second law of thermodynamics,	
2	Carnot's theorem	

3	Carnot cycle, efficiency of heat engines,	
4	thermodynamic scale of temperature	
5	Nernst heat theorem, consequence of the theorem,	
6	third law of thermodynamics,	
7	Determination of absolute entropies of pure substance	
8	Previous year Question paper discussion	

June 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course –Non Major

Class/Semester- 4th Semester

Name of the Paper- 401 (Physical Chemistry)

Units Assigned- III + IV(a)

Marks Assigned- 10 + 12

Unit II: Chemical Kinetics		Marks Assigned- 10
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
10.	Collision theory of bimolecular reactions, its limitation,	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	
Unit IV(a) : Chemical Thermodynamics		Marks Assigned- 12
1	Thermal equilibrium and zeroth law of thermodynamics- concept of temperature	
2	Mechanical work, SI sign convention. 1st law of thermodynamics, internal energy, enthalpy, reversible and irreversible processes	
3	calculation of W, Q, ΔU , ΔH for expansion of ideal gas, isothermal work and enthalpy	
4	relation between enthalpy change, and entropy change,	
5	molar heat capacities, relation between C_p and C_v ,	
6	adiabatic processes- relation between P, V and T	
7	Joule-Thomson effect	
8	liquefaction of gases, conversion of heat into work, efficiency of heat engine	
9	Enthalpy of reaction,	

10	Types of Enthalpy of reaction,	
11	Thermodynamical equation	
12	variation of enthalpy of reaction with temperature-Kirchhoff's equation	
13	enthalpy of different processes	
14	Hess law, calculations based on Hess law.	
15	Previous year Question paper discussion	

June 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I +IV + V

Marks Assigned- 15 + 07 + 08

Unit I: Chemical Kinetics		Marks Assigned- 15
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Evaluation of rate constant by integrated equation method & graphical method, Guggenheim method (1st order reaction),	
10.	Rate laws and mechanism, steady state approximation.	
11.	Rate equation of first order, opposite, parallel, consecutive reaction,	
12.	Rate equation of chain reactions, chain branching, explosion limit, hydrogen – bromine thermal reaction,	
13.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
14.	Collision theory of bimolecular reactions, its limitation,	
15.	Activated complex theory, Eyring equation, Lindeman's theory of unimolecular gas phase reaction.	
16	Question paper discussion	
Unit IV: Surface Chemistry		Marks Assigned- 07
1	Adsorption and types of adsorption	
2	Physical and chemical adsorption of gases on solid surface	
3	Adsorption isotherms & types of adsorption isotherm	
4	Freundlich equation, Langmuir adsorption equation.	
5	Gibbs adsorption equation	

6	Determination of surface area of an adsorbent	
7	application of adsorption in chemical analysis and in industry,	
Unit V: Colloidal State		Marks Assigned- 08
1	Colloid and types of colloids	
2	Physical and electrical properties of colloids	
3	Electro kinetic phenomenon- electrophoresis, electro-osmosis,	
4	Electrical double layer and zeta potential, theory of stabilities of colloids,	
5	Protective action of Lyophilic sol-gold number,	
6	Determination of Avogadro's number	
7	Coagulation of colloids, Schultz – Hardy rule, association of colloids, emulsions	
8	Micelles and their structure, critical micelles concentration,	
9	Donnan membrane equilibria	
10	Question paper discussion	

Year: 2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I + III + IV

Marks Assigned- 05 + 05 + 04

Unit I: Conductance		Marks Assigned- 05
Class	Topic	Remarks
1.	Conductivity, equivalent and molar conductivity	
2.	Their variation with dilution for weak and strong electrolytes.	
3.	Kohlrausch law of independent migration of ions.	
4.	Transference number and its experimental determination using Hittorf and Moving boundary methods.	
5.	Ionic mobility.	
6.	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts,	
7.	Applications of conductance measurements: determination of degree of ionic product of water, hydrolysis constant of a salt.	
8.	Conductometric titrations of acid - base	
Unit III: Adsorption & Catalysts		Marks Assigned- 05
1	Adsorption & types of adsorption.	
2	Differences between chemisorptions and Physical adsorption	
3	Freundlich adsorption isotherm and Langmuir adsorption isotherm, application of adsorption.	
4	Catalysis & Types of catalysis	
5	Homogeneous heterogeneous catalysis, acid-base catalysis, catalytic promoter, poisoning, negative catalysis ,	
6	enzyme catalysis characteristics of enzyme catalysis ,Theories of catalysis.	
7	Question discussion	

Unit IV: Phase rule		Marks Assigned-
04		
1	Statement of phase rule, definition of phase, components and degrees of freedom with examples	
2	Application of phase rule	
3	Phase diagram of water and sulphur system.	
4	Phase diagram of Pb –Ag system.	

2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major

Class/Semester- 6th Semester

Name of the Paper- 601 (Physical Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 08 + 08 + 12

Unit II: Macromolecules		Marks Assigned- 08
Class	Topic	Remarks
1.	Polymer and their classification	
2.	Step reaction polymerization & Addition polymerization,	
3.	Mechanism and kinetics of free radical polymerization,	
4.	Mechanism and kinetics anionic polymerization	
5.	Mechanism and kinetics of cationic polymerization	
6.	Weight and Number average molecular weight,	
7.	Viscometric and Osmometric methods of molecular weight determination,	
8.	Degree of polymerization & Carother equation,.	
9.	Zeigler Natta catalysts, Co-polymerisation	
10.	Question paper discussion	
Unit III: Catalysis		Marks Assigned- 08
1	Catalysis and its types	
2	Criteria of catalysis,	
3	Homogeneous and heterogeneous catalysis,.	
4	Acid – Base catalysis	
5	Effect of temperature on surface reactions	
6	Effect of particle size and efficiency of nano particles as catalysts,	
7	Autocatalysis & catalytic poison,	
8	Enzyme catalysis-mechanism	
9	Michaelis-Menten equation	
10	Question discussion	
Unit IV: Phase Equilibria		Marks Assigned- 12
1	Definition of phase components, degree of freedom	
2	Thermodynamic derivation of phase rule,	
3	application of phase rule to one component-water and sulphur,	
4	Phase diagram of simple eutic Pb-Ag, & KI-H ₂ O system	
5	Phase diagram of two component systems with congruent melting point (Zn-Mg) system	
6	Phase diagram of two component systems incongruent melting point (Na ₂ SO ₄ -H ₂ O) system	
7	Interpretation of vapour pressure composition and temperature- composition phase diagram	
8	Distillation of liquid mixtures and azeotropic mixture.	

9	Clapeyron equation, Clausius - Clapeyron equation, their derivation and application	
10	Question paper discussion	

2016 to May 2017

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major

Class/Semester- 6th Semester

Name of the Paper- 601 (Organic Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 05 + 06

Unit II: Organic Chemistry of Life		Marks Assigned- 05
Class	Topic	Remarks
1.	classification, preparation and properties of Amino acids	
2.	Glycine, Alanine and Phenylalanine	
3.	(Strecker synthesis and Gabriel phthalimide method).	
4.	Elementary ideas of peptides and proteins.	
5.	Elementary ideas of nucleoside, nucleotide,	
6.	Elementary ideas of nucleic acid (DNA, RNA	
7.	nucleic acid (DNA, RNA	
8.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
9.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
10.	Reactions of amino acids	
Unit III: Polymers		Marks Assigned- 06
1	Polymer and their classification	
2	Step reaction polymerization & Addition polymerization,	
3	Weight and Number average molecular weight,	
4	Viscometric and Osmometric methods of molecular weight determination,	
5	Question Paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- First Semester

Name of the Paper- C-102 (Physical Chemistry)

Units Assigned- I + II

Marks Assigned- 18 + 08

Unit I: Gaseous State		Marks Assigned- 18
Class	Topic	Remarks
1.	Kinetic Theory of gases	
2.	Collision frequency, collision number, mean free path	
3.	Viscosity of gases and its pressure and temperature dependence	
4.	Maxwell distribution of velocities	
5.	Most probable velocity, average velocity, RMS velocity	
6.	Degree of freedom	
7.	Law of equipartition of energy	
8.	Deviation from ideal behaviour Cause of deviation	
9.	Numerical and questions	
10.	Compressibility of factor Z	
11.	Vander Waal equation & Other equation of real gases	
12.	Boyle's temperature	
13.	Isotherm of real gases	
14.	Continuity of states	
15.	Critical state and Vander Waal constants	
16.	Reduced equation of states	
17.	Law of corresponding states	
18.	Viscosity of gases and effect of Pressure & Temperature on it	
19.	Previous year question paper solved	
20.	Previous year question paper solved	
Unit II: Liquid State		Marks Assigned- 08
Class	Topic	Remarks
1.	Qualitative treatment of structure of liquid	
2.	Vapour pressure and surface tension of liquid	
3.	Coefficient of viscosity and effect of various solutes on it	
4.	Units and significance of physical properties of liquid	
5.	Viscosity of liquid and comparison with gases	
6.	Cleaning action of detergents	
7.	Qualitative discussion of structure of water	
8.	Previous year question paper solved	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 3rd Semester

Name of the Paper- C-303 (Physical Chemistry)

Units Assigned- I +II + III

Marks Assigned- 15 + 12 +12

Unit I: Phase Equilibria		Marks Assigned- 15
Class	Topic	Remarks
1.	Phase Rule & Concept of phases, components & degree of freedom	
2.	Application of Phase rule	
3.	Application of Phase rule	
4.	Derivation of Gibbs Phase rule	
5.	Derivation of Gibbs Phase rule	
6.	Phase diagram of Water system	
7.	Phase diagram of Sulphur system	
8.	Phase diagram of Eutectic system	
9.	Phase diagram of Lead Silver system	
10.	Phase diagram of Congruent system	
11.	Phase diagram of Zinc Magnesium system	
12.	Phase diagram of Zinc Magnesium system	
13.	Phase diagram of Incongruent system	
14.	Phase diagram of Sodium Sulphate Water system	
15.	Phase diagram of Sodium Sulphate Water system	
16.	Clausius Clayperon Rule	
17.	Application of Clausius Clayperon Rule	
18.	Application of Clausius Clayperon Rule	
19.	Numerical solved	
20.	Previous year question paper solved	
Unit – II Chemical Kinetics		Marks Assigned- 12
1	Rate and Unit of a chemical Reaction	
2	Order and Molecularity of a reaction	
3	Differential and integrated form of first order reaction	
4	Differential and integrated form of zero order reaction	
5	Differential and integrated form of second order reaction	
6	Experimental determination of rate laws	
7	Experimental determination of rate laws	
8	Experimental determination of half lives	
9	Numerical solving	
10	Kinetics of Opposing reaction	

11	Kinetics of Parallel reaction	
12	Kinetics of Consecutive reaction	
13	Steady state approximation and Chain Reactions	
14	Previous year question paper solved	
15	Discussion and problem/ question of the studied topic	
Unit II: Catalysis		Marks Assigned- 12
Class	Topic	Remarks
1.	Definition and types of catalysts	
2.	Specificity and selectivity of catalysts	
3.	Mechanism of catalyzed reaction on solid surface	
4.	Effect of particle size and efficiency of nanoparticles as catalysts	
5.	Enzyme catalysis	
6.	Michaelis Menten catalysis	
7.	Acid base catalysis	
8	Question paper solved	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Generic (CBCS)

Class/Semester- 3rd Semester

Name of the Paper- C-303 (Physical Chemistry)

Units Assigned- II + III

Marks Assigned- 06 + 06

Unit II: Phase Equilibria		Marks Assigned- 6
Class	Topic	Remarks
1.	Phases, components and degrees of freedom of a system,	
2.	Application of phase rule	
3.	Gibbs Phase Rule and its thermodynamic deviation.	
4.	Phase diagrams of water and sulphur system	
5.	Phase diagram of lead –silver, system	
6.	Phase diagram of FeCl ₃ -H ₂ O system	
7.	Phase diagram of Na-K only system	
8.	Question paper discussion	
Unit III: Conductance		Marks Assigned- 6
1	Conductivity, equivalent and molar conductivity	
2	Their variation with dilution for weak and strong electrolytes.	
3	Kohlrausch's law of independent migration of ions.	
4	Transference number and its experimental determination using Hittorf and Moving boundary methods.	
5	Ionic mobility.	
6	Applications of conductance measurements: determination of degree	

	of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts,	
7	Applications of conductance measurements: determination of degree of ionic product of water, hydrolysis constant of a salt.	
8	Conductometric titrations of acid - base	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 5th Semester

Name of the Paper- C-502 (Physical Chemistry)

Units Assigned- III

Marks Assigned- 12

Unit III: Photochemistry		Marks Assigned- 12
Class	Topic	Remarks
1.	Characteristics of electromagnetic radiation	
2.	Lambert – Beer’s law and its limitations	
3.	Physical significance of absorption coefficients	
4.	Laws of photochemistry, low and high quantum yield	
5.	Actinometry	
6.	Photochemical equilibrium	
7.	Differential rate of photochemical reaction	
8.	Photosensitized reaction	
9.	Quenching	
10.	Photochemical reaction in biochemical processes	
11.	Photo stationary states	
12.	Chemiluminescence	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 5th Semester

Name of the Paper- C-DSE 501 (Analytical Methods in Chemistry)

Units Assigned- I +II + III

Marks Assigned- 20 + 08 +10

Unit I: UV Visible and IR spectrometry		Marks Assigned- 20
Class	Topic	Remarks

1.	Origin of spectra, interaction of radiation with matter,	
2.	Fundamental laws of spectroscopy and selection rules,	
3.	Beer-Lambert's law and its validity	
4.	UV-Visible Spectrometry: Basic principles of instrumentation	
5.	Choice of source, monochromator and detector for single and double beam instrument	
6.	Basic principles of quantitative analysis:	
7.	Estimation of metal ions from aqueous solution,	
8.	Geometrical isomers,	
9.	Keto-enol tautomers.	
10.	Determination of composition of metal complexes using Job's method of continuous variation and mole ratio method.	
11.	Determination of composition of metal complexes using Job's method of continuous variation and mole ratio method.	
12.	Question discussion and solve	
13.	Flame Atomic Absorption and Emission Spectrometry	
14.	Basic principles of instrumentation	
15.	Choice of source, monochromator, detector, choice of flame and Burner designs.	
16.	Techniques of atomization and sample introduction;	
17.	Method of background correction,	
18.	Sources of chemical interferences and their method of removal.	
19.	Techniques for the quantitative estimation of trace level of metal ions from water samples.	
20.	Question discussion	
Unit – 4 Electro-analytical methods		Marks Assigned- 08
1	Electro-analytical methods,	
2	Classification of electro-analytical methods,	
3	basic principle of pH metric titration	
4	basic principle of potentiometric titration.	
5	basic principle of conductometric titrations.	
6	Techniques used for the determination of equivalence points.	
7	Techniques used for the determination of equivalence points.	
8	Techniques used for the determination of pKa values.	
9	Techniques used for the determination of pKa values.	
10	Question paper discussion	
Unit II: Separation Techniques		Marks Assigned- 10
Class	Topic	Remarks
1.	Solvent extraction& Classification,	
2.	Solvent extraction: principle and efficiency of the technique.	
3.	Mechanism of extraction: extraction by solvation and chelation.	
4.	Technique of extraction: batch, continuous and counter current extractions.	
5.	Technique of extraction: continuous extractions.	
6.	Technique of extraction: counter current extractions.	
7.	Qualitative and quantitative aspects of solvent extraction	
8	Extraction of metal ions from aqueous solution,	

9	Extraction of organic species from the aqueous and non-aqueous media.	
10	Question discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 2nd Semester

Name of the Paper- C-202 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 26

Unit I: Chemical Thermodynamics		Marks Assigned- 26
Class	Topic	Remarks
1.	Introduction to Thermodynamics	
2	Intensive and extensive variables;	
3	State and Path functions;	
4	Isolated, closed and open systems;	
5	Zeroth law of thermodynamics.	
6	First law: Concept of heat, q, work, w, internal energy, U,	
7	Statement of first law;	
8	Enthalpy, H, relation between heat capacities,	
9	Calculations of q, w, U and H for reversible, irreversible and free expansion of gases (ideal and van der Waals) under isothermal condition	
10	Calculations of q, w, U and H for reversible , irreversible & free expansion of gases (ideal and van der Waals) under adiabatic conditions	
11	Thermochemistry: Heats of reactions:	
12	Standard states; enthalpy of formation of molecules	
13	Ions and enthalpy of combustion and its applications;	
14	bond energy, bond dissociation energy and resonance energy	
15	Calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data,	
16	Effect of temperature (Kirchhoff's equations) and pressure on enthalpy of reactions.	
17	Adiabatic flame temperature & explosion temperature.	
18	Concept of entropy; thermodynamic scale of temperature,	
19	Statement of the second law of thermodynamics;	
20	Molecular and statistical interpretation of entropy.	
21	Calculation of entropy change for reversible and irreversible processes.	
22	Statement of third law,	
23	Concept of residual entropy,	
24	Calculation of absolute entropy of molecules.	
25	Gibbs and Helmholtz energy;	
26	Variation of S, G, A with T, V, P;	

27	Free energy change and spontaneity.	
28	Joule-Thomson coefficient	
29	Relation between Joule-Thomson coefficient and other thermodynamic parameters	
30	Question discussion	
31	Inversion temperature;	
32	Gibbs-Helmholtz equation;	
33	Numericals solving	
34	Maxwell relations; thermodynamic equation of state	
35	Question paper solving and discussion	
36	Question paper solving and discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Generic (CBCS)

Class/Semester- 2nd Semester

Name of the Paper- C-201 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 10

Unit I: Chemical Energetics		Marks Assigned- 10
Class	Topic	Remarks
1.	Review of thermodynamics	
2.	System and Functions of thermodynamics	
3.	Laws of Thermodynamics.	
4.	Important principles and definitions of thermochemistry.	
5.	Concept of standard state	
6.	standard enthalpies of formations, integral and differential enthalpies of solution and dilution.	
7.	bond energy, bond dissociation energy and resonance energy	
8.	Calculation of bond energy, bond dissociation energy and resonance energy from thermo chemical data.	
9.	Variation of enthalpy of a reaction with temperature– Kirchhoff's equation.	
10.	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 4th Semester

Name of the Paper- C-403 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 22

Unit I: Conductance Marks Assigned- 22		
Class	Topic	Remarks
1.	Arrhenius theory of electrolytic dissociation.	
2.	Conductivity, equivalent and molar conductivity	
3.	Their variation with dilution for weak and strong electrolytes.	

4.	Molar conductivity at infinite dilution.	
5.	Kohlrausch law of independent migration of ions.	
6.	Debye-Huckel-Onsager equation,	
7.	Wien effect, Debye-Falkenhagen effect,	
8.	Walden's rules.	
9.	Ionic velocities, mobilities and their determinations,	
10.	Transference numbers and their relation to ionic mobilities,	
11.	Determination of transference numbers using Hittorf method	
12.	Determination of transference numbers using Moving Boundary methods.	
13.	Applications of conductance measurement: (i) degree of dissociation of weak electrolytes,	
14.	(ii) ionic product of water	
15.	(iii) solubility and solubility product of sparingly soluble salts,	
16.	(iv) conductometric titrations,	
17.	(iv) conductometric titrations,	
18.	& (v) hydrolysis constants of salts.	
19.	Numerical	
20.	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Generic (CBCS)

Class/Semester- 4th Semester

Name of the Paper- C-401 (Physical Chemistry)

Units Assigned- I (Section B)

Marks Assigned- 08 + 06

Unit I: Kinetic Theory of Gases		Marks Assigned- 08
Class	Topic	Remarks
1.	Kinetic Theory of Gases: Postulates of Kinetic Theory of Gases and derivation of the kinetic gas equation.	
2.	Deviation of real gases from ideal behaviour, compressibility factor, causes of deviation.	
3.	Van der Waals equation of state for real gases. Boyle temperature	
4.	Critical phenomena, critical constants and their calculation from Van der Waals equation.	
5.	Andrews isotherms of CO ₂ .	
6.	Maxwell Boltzmann distribution laws of molecular velocities and molecular energies and their importance.	
7.	Temperature dependence of these distributions. Most probable, average and root mean square velocities.	
8.	Collision number and mean free path of molecules.	
9.	Viscosity of gases, effect of temperature & pressure on coefficient of viscosity	
10.	Questions discussion	
11.		

Unit II: Liquids		Marks Assigned-
06		
1	Liquid and its physical properties	
2	Surface tension and its determination using stalagmometer.	
3	Viscosity of a liquid and determination of coefficient of viscosity using Ostwald viscometer.	
4	Effect of temperature on surface tension of a liquid	
5	Effect of temperature on coefficient of viscosity of a liquid	
6	Questions discussion	

NAME OF THE TEACHER: DR. BISHWAJIT SAIKIA

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **1stSemester**

Name of the Paper: **MM-101 (Section -III Organic Chemistry)**

Units Assigned: **I + II**

Marks Assigned: **15 + 12**

Class	Topic	Remarks
Unit I: Basics of Organic Chemistry		
1.	Organic Compounds: Natural sources, classification and Nomenclature	
2.	Hybridization: Shape of molecules, Influence of hybridization on bond properties	
3.	Electronic displacements: Inductive, Electromeric, Resonance, Mesomeric effects and Hyperconjugation and their applications. Dipole moment.	
4.	Organic acids and bases: Their relative strength, hard and soft acids and bases.	
5.	(Homolytic and Heterolytic fission, Electrophiles and Nucleophiles: Nucleophilicity and basicity.	
6.	Reactive intermediates: Carbocations, carbanions, free radicals, arbenes, nitrenes, benzyne, Types, Shape and their relative Stability.	
7.	Energy profile diagrams of one step, two steps and three steps reactions, Rate limiting steps. Activation Energy. Kinetically and thermodynamically controlled reactions.	
Unit II: Stereochemistry		
1.	Elements of symmetry and their application in simple organic molecules.	
2.	Definition and classification of stereoisomerism	
3.	Representation of organic molecules in three & two dimension: Fischer Projection, Newman projection, Saw horse and flying wedge projection formula and their interconversions.	

4.	Optical isomerism: Concepts of asymmetry, dissymmetry, optical activity, Specific rotation, Chirality, enantiomers, Diastereomers, racemic mixture, racemization and Resolution,	
5.	Erythro forms, Meso structures & Epimers. Relative and absolute configuration: D/L and R/S designations. Walden inversion and asymmetric synthesis.	
6.	Geometrical Isomerism: Restricted rotation about C=C bonds, physical and chemical properties of diastereoisomers, determination of configuration of geometrical isomers: cis-trans isomerism, syn-anti and E/Z notation with CIP rules.	
7.	Geometrical isomerism in oximes and alicyclic compounds.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **1stSemester**

Name of the Paper: **NM-101 (Section C: Organic Chemistry)**

Units Assigned: **VI + VII + VIII**

Marks Assigned: **10 + 12 + 5**

Class	Topic	Remarks
Unit VI: Introduction to Organic Chemistry		
1.	Importance of Organic Chemistry & organic systems to human beings & society. Electronic displacements: Inductive effect, Electrometric effect, Resonance and hyperconjugation.	
2.	Mechanism of organic reactions: Cleavage of Bonds- Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules- Nucleophiles and electrophiles.	
3.	Reactive Intermediates- Carbocations, carbanions, free radicals, carbenes & nitrenes.	
4.	Strength of organic acids and bases: comparative study with emphasis on factors affecting pka values.	
Unit VII: Stereochemistry		
1.	Conformations w.r.t. ethane, butane and cyclohexane (axial and equatorial bonds). Interconversion of wedge formula, Newman, Sawhorse and Fischer projection representation.	
2.	Concept of symmetry: Elements of symmetry (Centre of inversion, axis of rotation, plane of reflection and improper axis of rotation) applied to organic molecules.	
3.	Optical isomerism: Concept of chirality (with two stereogenic centres) diastereomers, threo and erythro, meso compounds, enantiomerism, CIP Rules, R/S Nomenclature (up-to two chiral carbon atoms) Resolution of enantiomers and Racemisation.	

4.	Geometrical isomerism: □-diastereoisomerism, Determination of configuration of geometric isomers. E&Z system of Nomenclature.	
Unit VIII: Aliphatic Hydrocarbons		
1.	Alkanes (upto 5 carbons) Preparation:- Catalytic hydrogenation, Wurtz reaction, Kolbe's Synthesis, from Grignard reagent.	
2.	Corey-House Synthesis. Reactions: Free radical Substitution: Halogenations	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **2ndSemester**

Name of the Paper: **MM-201 (Section–III Organic Chemistry)**

Units Assigned: **I + II + III**

Marks Assigned: **8 + 6 + 8**

Class	Topic	Remarks
Unit I: Carbon- Carbon sigma bonds		
1.	Chemistry of Alkanes: Formation of alkanes with special emphasis on Corey House Synthesis	
2.	Wurtz reaction, Wurtz-Fittig reaction. Reactions of alkanes: Free Radical substitution:- Halogenations-relative reactivities and selectivity.	
3.	Formation of alkenes and alkynes by Elimination: Mechanism of E1., E2, E1cB reactions. Saytzeff and Hoffmann elimination	
4.	Special emphasis on preparation of alkenes by syn- elimination:- pyrolysis of esters, Chugaev, Wittig, Heck reaction.	
5.	Reaction of alkenes: Addition Reaction- Electrophilic and free radical additions, their mechanisms. (Markonikoff/ Anti Markonikoff addition)	
6.	Regioselectivity (directional selectivity), and stereoselective of addition reactions. Mechanism of oxymercuration–demercuration, Hydroboration-Oxidation, Ozonolysis, reduction (catalytic and chemical).	
7	Syn and Anti hydroxylation (oxidation), simple effect of stereo selectivity and stereo specificity.	
8	Reactions of Alkynes: Acidity, Electrophilic and Nucleophilic additions, Hydration to form carbonyl compounds. Alkylation of terminal alkynes.	
Unit II: Cycloalkanes and conformational analysis		

1.	Synthesis and reactions of three, four, five and six membered cycloalkanes, Their relative stability, Baeyer strain theory. Sachse-Mohr theory.	
2.	Conformational analysis of Alkanes: (ethane & butane) Relative stability, Energy diagram.	
3.	Cyclohexane: Chair, Boat and Twist boat forms, Relative stability with energy diagram, axial and equatorial bonds including perspective representation and Newman projections. Conformation & conformational analysis of monosubstituted cyclohexane derivative.	
Unit III: Aromatic Hydrocarbons		
1.	Aromaticity: Huckel's rule, aromatic characters of arenes, benzenoid, non-benzenoid- aromatic compounds and heterocyclic and polynuclear hydrocarbons with suitable examples. Antiaromaticity and nonaromaticity	
2.	Electrophilic Aromatic Substitution: Halogenation, nitration, sulphonation and Friedel-Craft's alkylation / acylation with their mechanism. Activation / deactivation of aromatic ring and directing effects of groups. Partial rate factor (O/P ratio)	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **3rd Semester**

Name of the Paper: **MM-303 (Organic Chemistry-I)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Chemistry of Halogenated Hydrocarbons		
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid).	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects and effect of solvent. Nucleophilic substitution vs elimination. Haloform reaction.	
3.	Aryl halides: Preparation from diazonium salts. Nucleophilic aromatic Substitution SNAr, Benzyne intermediates.	
4.	Relative reactivity of alkyl, allyl / benzyl, vinyl and aryl halides towards nucleophilic substitution reactions. Organometallic Compounds of Mg and Li - Use in synthesis of organic compounds.	
Unit II: Chemistry of C-O Bond		
1.	Alcohols: Preparation, properties and relative reactivity of 1°, 2°, 3° alcohols. Bouveault Blanc Reduction and Baeyer-Villiger Oxidation Preparation and properties of Glycol: Oxidation by OsO4, alkaline, KMnO4, periodic acid and lead tetracetate. Pinacol Pinacolone rearrangement with mechanism	
2.	Trihydric alcohol: Glycerol: preparation & properties. Phenols: preparation and properties: -acidity- comparison with alcohol.	

	Substitution reaction, Reimer- Tiemann and Kolbe-Schmidt reaction, Fries rearrangement with mechanism.	
3.	Other aromatic Hydroxy compounds: Cresol, nitrophenols, picric acid, benzyl alcohol, dihydric phenols. Ethers and Epoxides: Preparation and reactions with acids.	
Unit III: Carbonyl Compounds: Aldehydes and ketones (aliphatic and aromatic)		
1.	Structure, Preparation and Reactions, Relative reactivity of aldehydes, ketones. Nucleophilic addition reactions.	
2.	Mechanism of Aldol, Benzoin, Stobbe, Darzen glycidic ester condensation, Perkin, Cannizzaro reaction. Beckmann and Benzil-Benzilic acid rearrangement, substitution, oxidation and reduction (Clemmensen, Wolf-Kishner and M P V reduction) Addition reactions of unsaturated carbonyl Compound: Michal addition.	
3.	Unsaturated aldehydes (Acrolein, Crotonaldehyde, Cinnamaldehyde) Unsaturated ketone (MVK).	
Unit III: Carboxylic acid and their derivatives		
1.	Preparation and properties and reactions of, monocarboxylic acids: effect of substituent on acidity, HVZ reaction and Schmidt reaction. Typical reactions and uses of dicarboxylic acids, Hydroxy acids, Unsaturated acids-: Succinic, phthalic, lactic, malic, tartaric, citric, maleic and fumaric acids.	
2.	Preparation and reactions of acid chlorides, anhydrides, esters, amides: Mechanism of acidic and alkaline hydrolysis of esters.	
3.	Claisen Ester Condensation, Dieckmann and Reformatsky Reaction, Hofmann bromamide degradation, Curtius rearrangement.	
Unit III:		
1	Sulphur containing compounds: Preparation and reactions of Thiols, Thioethers and sulphonic acids.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **3rd Semester**

Name of the Paper: **NM-301 (Organic Chemistry-I)**

Units Assigned: **I + II + III**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Aliphatic Hydrocarbons: Alkenes & Alkynes		
1.	Alkenes (upto 5 carbons) Preparation- Elimination reaction- Mechanism of E1, E2, E1cB.	
2.	Dehydration of alcohols and dehydrohalogenation of alkyl halides- Saytzeff's & Hoffmann's rule.	
3.	Reactions: cis-addition (alk. KMnO ₄) and trans addition (bromine). Addition of HX (Markownikoff's and anti-Markownikoff's addition). Hydration, Hydroxylation by Osmium tetroxide, Hydroxylation via epoxydation, Ozonolysis. Oxymercuration-demercuration, hydroboration-oxidation.	
4.	Alkynes (up-to 5 carbons) Preparation: Acetylene from CaC ₂ and conversion into higher alkynes: by dehydrohalogenation of tetra	

	halides, dehydrohalogenation of vicinal-dihalides. Reactions-Formation of metal acetylides, addition of bromine and alkaline KMnO ₄ , ozonolysis and oxidation with hot alk. KMnO ₄ .	
Unit II: Aromatic Hydrocarbons		
1.	Preparation (only benzene) from phenol by decarboxylation, from acetylene, from benzenesulphonic acid.	
2.	Reactions-Electrophilic substitution in benzene- nitration, halogenations, sulphonation, Friedel-Craft alkylation and acylation with mechanism.	
Unit III: Alkyl and Aryl halides		
1.	Alkyl halides- Nucleophilic Substitution Reactions (S _N 2, S _N 1, & S _N i) Preparation: from alkenes and alcohols	
2.	Reactions;: Hydrolysis, nitrite and nitro formation, nitrile and isonitrile formation. Williamson's Synthesis: elimination vs Substitution	
3.	Aryl halides Preparation (chloro, bromo, iodo benzene only): From phenol, Sandmeyer & Gattermann reaction.	
4.	Reactions (chlorobenzene): Aromatic nucleophilic substitution (replacement by -OH) and effect of nitro substituent. Reactivity and relative strength of carbon-halogen bond in alkyl, allyl, benzyl and vinyl and Aryl halide.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **4th Semester**

Name of the Paper: **MM-403 (Organic Chemistry-II)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **6 + 10 + 8 + 6 + 10 + 8**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Keto-enol tautomerism, Preparation and properties of Acetoacetic ester and diethyl malonate.	
2.	Knoevenagel Condensation	
Unit II: Nitrogen containing functional groups		
1.	Effect of substituent and solvent on basicity. Preparation and properties: Gabriel Phthalimide synthesis and Hoffmann bromamide degradation, carbylamines reaction, Mannich Reaction, Hoffmann's Exhaustive methylation, Hoffmann-Elimination Reaction.	
2.	Distinction between 1 ^o , 2 ^o and 3 ^o amines with Hinsberg reagent and nitrous acid. Nitro and nitroso compounds, Nitriles and isonitriles, cyanates and isocyanates: Preparation and important reactions.	
3.	Diazomethane and diazoacetic ester with synthetic application. Diazonium salts: Preparation and their synthetic applications.	
Unit III: Amino acids and proteins		
1.	Amino Acids and their classification, synthesis and Ionic properties, Reactions, Zwitter ions, pK _a values, isoelectric point & electrophoresis. Study of peptides: Determination of their primary structure: end group analysis, Principles of peptide synthesis.	

2.	Proteins: Their classification and biological importance. Elementary idea on Primary, Secondary, Tertiary and Quaternary structure of proteins, α - helix and β -pleated sheet structure, tertiary structure of proteins.	
Unit IV: Polynuclear Aromatic Hydrocarbons		
1.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbons: naphthalene, anthracene and phenanthrene.	
2.	Important derivatives of Naphthalene and Anthracene.	
Unit V: Heterocyclic Compounds		
1.	Classification, Nomenclature and structure. Aromaticity in 5-membered and 6-membered rings containing one heteroatom.	
2.	Synthesis, reactions, properties of furan, pyrrole (Paal-knorr synthesis), thiophene, pyridine (Hantzsch synthesis), quinoline (Skraup synthesis, Knorr quinoline synthesis, Pfitzinger reaction) and isoquinoline (Bischler-Napieralski reaction).	
Unit VI: Heterocyclic Compounds		
1.	Natural occurrence, General structural features, Isolation and their physiological action.	
2.	Hoffmann's Exhaustive Methylation with special reference to coniine, nicotine.	
3.	Emde' modification. Medicinal importance of Nicotine, Hygrine, Quinine, Morphine, Cocaine and Reserpine.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **5thSemester**

Name of the Paper: **MM-505 (Organic Chemistry-III)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **8 + 12 + 10 + 10 + 8**

Class	Topic	Remarks
Unit I: Pericyclic reactions		
1.	Definition. The conservation of orbital symmetry, Woodward-Hofmann Rules, HOMO-LUMO approach.	
2.	Cyclo addition reactions: (2+2) and (2+4) cycloadditions. Diels Alder Reaction, 1,3- dipolar cycloaddition, Sigma tropic rearrangements-Cope and Claisen rearrangement, electrocyclic reactions.	
Unit II: Bio-molecules		
1.	Carbohydrates- Occurrence, classification and biological importance, General properties of glucose and fructose (open and cyclic structure).	
2.	Monosaccharides: Constitution and absolute configuration of glucose and fructose, Epimerization, Mutarotation	
3.	Determination of ring size of glucose. Haworth projections and conformational structures. Ascending and descending in monosaccharides, Interconversions of Aldoses and Ketoses.	

Unit III: Nucleic acids & Enzymes		
1.	Components of Nucleic acids, Nucleosides and Nucleotides. Structure Synthesis and Reactions of Adenine, Guanine, Cytosine, Uracil & Thymine. Polynucleotides: Structure of DNA (Watson – Crick Model) and RNA, Genetic code. Biological roles of DNA and RNA, Replication. Transcription and Translation (elementary idea only)	
2.	Enzymes and their functions as catalyst – Classification- Active site, Specificity, Mechanism of Enzyme action, Co-enzyme, Application of Enzymes.	
Unit IV: Pharmaceutical compounds: Structure and Importance		
1.	Introduction to natural and synthetic medicinal compounds: Azadirachtin (neem), Curcumin(haldi), Vitamin C- their medicinal values, Drug action. Classification, structure, preparation and therapeutic uses of Antipyretics: Paracetamol.	
2.	Analgesic: Aspirin, Ibuprofens (with green synthesis)	
3	Antimalerials: Chloroquine. Antacids: Ranitidine, Antibacterial: povidone –Iodine solutions, Sulphanilamide and other sulphad rugs. An elementary treatment of Antibiotics and detailed study of chloramphenicol.	
Unit V: Terpenes		
1.	Occurrence, classification Isoprene Rule. Elucidations of structure and synthesis of Citral, Neral and α -Terpineol).	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **6th Semester**

Name of the Paper: **MM-605 (Organic Chemistry IV)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **10 + 10 + 4 + 8 + 10 + 6**

Class	Topic	Remarks
Unit I: Disconnection approach in organic synthesis		
1.	Elementary idea about disconnection, functional group interchange (FGI), functional group addition (FGA).	
2.	Synthon and synthetic equivalent, simple examples of reaction leading to C-C bond formation (Corey-House, Wittig & aldol condensation)	
3	Retrosynthesis of monofunctionalised compounds.	
Unit II: Spectroscopy		
1.	UV-visible Spectroscopy: Application of Woodward rules for calculation of λ_{max} for the following system: α,β -unsaturated aldehydes, ketones.	
2.	IR Spectroscopy: Application in functional group analysis.	
3.	NMR Spectroscopy: Anisotropic Effects in Alkenes, Alkynes, carbonyl compounds and benzene. Study of simple NMR spectra.	

	Applications of IR, NMR and UV in Structural Identification of Simple Organic Molecules.	
Unit III: Lipids		
1.	Classification of Oils and Fats and their vegetable origin, structure of common fatty acid present. Structure, properties and biological importance of triglycerides and phosphoglycerides.	
2.	Change of flavor of oils, Reversion and Rancidity, Saponification value and Iodine number.	
Unit IV: Dyes		
1.	Classification, elementary idea of color and constitution, Chemistry of Dying. Synthesis and application of- Azo dyes-Methyl Orange and Congo red Triphenyl Methane Dyes-Malachite Green.	
2.	Rosaniline and Crystal Violet. Phthalein Dyes- Phnolphthalein and Fluorescein. Vat Dyes: Alizarin and Indigotin.	
Unit V: Polymers		
1.	Types of polymers- Isotactic, syndiotactic and atactic polymers.	
2.	Preparation and applications of plastics- Thermo-setting (Urea-formaldehyde, Phenol-formaldehyde, polyurethanes and thermo softening (PVC, Polythene) polymer additives.	
3	Synthetic fibers: Rayon, Nylon-6, terylene, Fabrics- natural and synthetic (acrylic, polyamido, polyester).	
4	Rubbers-natural and synthetic: Buna-S, chloroprene and neoprene, vulcanization.	
Unit VI: Green Chemistry		
1	Introduction to the principles of green chemistry – Twelve Principles.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **6thSemester**

Name of the Paper: **NM-601 (Organic Chemistry-II)**

Units Assigned: **I + II + III**

Marks Assigned: **4 + 5 + 7**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Synthesis of ethylacetoacetate (Claisen ester condensation), Diethylmalonate .Synthetic uses of ethylacetoacetate and diethylmalonate. Keto – enol Tautomerism.	
Unit II: Compounds containing more than one functional group		
1.	Hydroxy acid - Lactic and Tartaric acidsDicarboxylic acids- (Oxalic, Malonic, Succinic and Pthalic acid) and Citric acid.	

2.	Acrolein, Crotonaldehyde, Cinnamaldehyde, Acrylic acid, Crotonic acid, Maleic acid and Fumaric acid	
Unit III: Preparation, properties and reaction of the following Organic Compounds		
1.	Aromatic Sulphonic acids- Benzene sulphonic acid, nitro sulphonic acid, amino sulphonic acid, sulphuryl chloride, saccharin, chloramines-T.	
2.	Aromatic nitro compounds- Nitrobenzene, Dinitrobenzene, Nitro toluene, TNT, Reduction of nitro compounds in different conditions.	
3	Heterocyclic compounds- preparation and properties of five and six membered heterocyclic compounds: pyrrole, thiophene, furan, pyridine.	
4	Polynuclear Hydrocarbon : preparation and properties of naphthalene and anthracene	

COURSE PLAN

(YEAR 2016-17)



DEPARTMENT OF COMMERCE
DIGBOI COLLEGE, DIGBOI

Stream: Commerce (Marketing)
Name of the Faculty: Dr. Deborshee Gogoi

Course –General

Class/Semester- B. Com 1stSemester

Name of the Paper- **Business Law**

Units Assigned- Unit 3 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Negotiable Instrument Act 1881	Unit 3
2.	Meaning & Characteristics	
3.	Detailed discussion on Promissory Note	
4.	Detailed discussion on Bills of Exchange	
5.	Detailed discussion on Cheque, types of crossing, effects of crossing	
6.	Promissory Notes vs. Bills of Exchange vs. Cheque	
7.	Presumptions associated with Negotiable instrument	
8.	Group Discussions	
9.	Tutorial	
1.	Industrial Disputes Act, 1948	Unit 4
2.	Meaning- industry, Industrial Disputes, Workmen, Employer, wages	
3.	Types Disputes, reasons for industrial disputes	
4.	Lockout, valid lockout, prohibition of lockout, penalty	
5.	Strikes, valid strikes, types, prohibition of strikes	
6.	Layoff and retrenchment	
7.	Compensation	

Course – General

Class/Semester- B. Com 2ndSemester

Name of the Paper- **Principles of Business Management**

Units Assigned- Unit 1 & 4

Marks Assigned- 18= 18

Class	Topic/ Unit	Remarks
1.	Management- definition, concept, characteristics, benefits	Unit 1
2.	Classical Approach to management- Scientific Management, Administrative Management & Bureaucratic Model	
3.	Neo-Classical Theory of management, Characteristics	
4.	Behavioural Approach and Human Relation Approach	
5.	Modern Theory of Management- Characteristics	
6.	System Approach, Contingency Approach	
7.	Contribution of Henry Fayol towards development of Management thoughts	
8.	Motivation- Meaning, Characteristics	Unit-4
9.	Theories of motivation- Maslow's Need Hierarchy Theory	
10.	McGregor's Theory X & Y	
11.	Herzberg's Hygiene Theory	
12.	Leadership, Concept, qualities of a good leader, Leadership styles	
13.	Managerial Control	
	Need for control, steps in controlling	
	Methods of Controlling	

Course – Pass Course

Class/Semester- B. Com 3rd Semester

Name of the Paper- **Human Resource Management**

Units Assigned- Unit 2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	HRP- Introduction, Quantitative & Qualitative dimensions	Unit 2
2.	Job analysis – job description and job specification, need, features	
3.	Recruitment – Concept	
4.	Recruitment- Need and Importance	
5.	Sources of Recruitment- Internal and External	
6.	Selection – Concept and process	
7.	Methods of selection	
8.	test and interview	
9.	placement and induction	

Course – Honours

Class/Semester- B. Com 3rd Semester

Name of the Paper- **Principles of Marketing**

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Introduction: Nature and scope of marketing	Unit 1
2.	Marketing Concepts	
3.	Marketing vs Selling	
4.	Marketing Environment	
5.	Marketing Research	
6.	Importance of Marketing	
7.	Online Marketing	
8.	Case studies	
9.	Product- Introduction and Characteristics	Unit 3
10.	Types of Products- Consumer, shopping and speciality	
11.	Product Mix	
12.	Packaging, Branding and labeling	
13.	New Product Development	
14.	Marketing strategies with regard to NPDP	
15.	Price- Importance	
16.	Factors influencing pricing decisions	
17.	Objectives of Pricing	
18.	Methods of Pricing	

Course – General

Class/Semester- B. Com 4th Semester

Name of the Paper- **Indian Banking System (IBS)**

Units Assigned- Unit 1 and 4

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Banking- Meaning & Definition, Role of banking in Indian economy	Unit 1
2.	Development of Banking sectors in India	
3.	India's Foreign Trade in global context.	
4.	Infrastructure Support for Export Promotion: Export Promotion Councils; Commodity boards/ product export development authorities;	Unit 4
5.	Specific service institutions;	
6.	State trading organizations;	
7.	Export and Trading Houses.;	
8.	Export Processing Zones/Special Economic Zone (EPZ/SEZ);	
9.	Export Oriented units (EOUs).	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Consumer Behaviour**

Units Assigned- Unit 3

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Socio-Cultural Factors of Consumer Behaviour	Unit 3
2.	Socio-Cultural Factors of Consumer Behaviour	
3.	Buyers' Black Box	
4.	Role of Culture in Consumer Behaviour	
5.	Role of Sub-Culture in Consumer Behaviour	
6.	Role of Social Class in Consumer Behaviour	
7.	Reference groups and their role in consumer behaviour	
8.	Family and its role in consumer behaviour	
9.	Role of rules and status in consumer behaviour	
10.	Revision and doubt clearing	
11.	Discussion of important questions and answers	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Service Marketing**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Nature & Types of services	Unit 1
2.	Difference between Services and goods marketing	
3.	Service Marketing Triangle	
4.	Service Marketing- Origin & Growth	
5.	Classification of Services	
6.	Macro & Micro Environments for Service Marketing	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Company Law**

Units Assigned- Unit 3 & 4

Marks Assigned- 20+20= 40

Class	Topic/ Unit	Remarks
1.	Company Meetings:Types	Unit 3
2.	Requisites of a valid meeting	
3.	AGM, Legal provisions associated with holding of AGM, business transacted	
4.	EGM, Legal provisions associated with holding of EGM, business transacted	
5.	Statutory Meeting	
6.	Board Meeting, legal provisions associated with holding of Board meeting	
7.	Company Management – Board of Directors	Unit 4
8.	Directors- Appointment, qualification, disqualification, removal, duties	
9.	Managing Directors- Appointment, qualification, disqualification, removal	
10.	Winding up- modes of winding up	
11.	Effects of winding up	
12.	Powers and duties of liquidators	

Course – Non-Honours

Class/Semester- B. Com 5th Semester

Name of the Paper- **Principles of Marketing**

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Introduction: Nature and scope of marketing	Unit 1
2.	Marketing Concepts	
3.	Marketing vs Selling	
4.	Marketing Environment	
5.	Marketing Research	
6.	Importance of Marketing	
7.	Online Marketing	
8.	Case studies	
9.	Product- Introduction and Characteristics	Unit 3
10.	Types of Products- Consumer, shopping and speciality	
11.	Product Mix	
12.	Packaging, Branding and labeling	
13.	New Product Development	
14.	Marketing strategies with regard to NPD	
15.	Price- Importance	
16.	Factors influencing pricing decisions	
17.	Objectives of Pricing	
18.	Methods of Pricing	

Course –Honours

Class/Semester- B. Com 5thSemester

Name of the Paper- **Retail Management**

Units Assigned- Unit 1 and Unit 2

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Retailing Concept	Unit 1
2.	Indian Retailing Overview	
3.	Nature and Scope of Retailing	
4.	Significance of Retailing	
5.	Reasons for growth of retailing	
6.	Emerging trends in retailing	
7.	Emerging trends in retailing	
8.	Concept and overview of e-tailing	
9.	Logistic issues	Unit 3
10.	Inventory Management	
11.	Warehousing	
12.	Transportation	
13.	Store Location	
14.	Revision and doubt clearing	

Course – SEC

Class/Semester- B. Com 4thSemester

Name of the Paper- **Retail Management**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Store based retailing: Meaning, Characteristics, Merits, Demerits	Unit 3
2.	Non-Store based retailing: Meaning, Characteristics, Merits, Demerits	
3.	Vertical Marketing System	
4.	Vertical Marketing System	
5.	Retailing Life Cycle	
6.	Retailing Life Cycle	

Course –NON-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- **Rural Marketing**

Units Assigned- Unit 1, 2, 3 and 4

Marks Assigned- 20+20+20+20=80

Class	Topic/ Unit	Remarks
1.	Indian Rural Market Overview	Unit 1
2.	Rural Marketing Meaning and Significance	
3.	Nature and Scope of Rural Marketing	
4.	Evolution of Rural Marketing	
5.	Dynamics in rural marketing	
6.	Dynamics in rural marketing	
7.	Revision and doubt clearing	
8.	Group Discussion	
9.	Class Assignment	
10.	Class Assignment	
11.	Rural Marketing Environment	Unit 2
12.	Rural Marketing Environment	
13.	Rural Marketing Environment	
14.	Influence of geographical factors on marketing operations	
15.	Influence of geographical factors on marketing operations	
16.	Influence of economic factors on marketing operations	
17.	Influence of economic factors on marketing operations	
18.	Influence of socio-cultural factors on marketing operations	
19.	Influence of socio-cultural factors on marketing operations	
20.	Influence of other factors on marketing operations	
21.	Market Segmentation	Unit 3
22.	Rural Market Segmentation	
23.	Pre-requisites of effective segmentation	
24.	Pre-requisites of effective segmentation	
25.	Approaches to rural segmentation	
26.	Approaches to rural segmentation	
27.	Influence of market segmentation in rural marketing	
28.	Influence of market segmentation in rural marketing	
29.	Case studies	
30.	Doubt clearing and revision	
31.	Rural Marketing Strategies	Unit 4
32.	Product Planning for rural marketing	
33.	Product features for rural marketing	
34.	Distribution channels	
35.	Pricing issues in rural marketing	
36.	Logistics issues in rural marketing	
37.	Doubt clearing and revision	

Course –Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Advertising Management**

Units Assigned- Unit 1 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Advertising Planning	Unit 1
2.	Decision Making in Advertising	
3.	Development of advertising programme	
4.	Market Segmentation	
5.	Selection of Advertising Media	
6.	Types of advertising media	
7.	Relative advantages of advertising media	
8.	Relative disadvantages of advertising media	
9.	Doubt Clearing and Revision	
10.	Doubt Clearing and Revision	
11.	Advertising Agency	Unit 4
12.	Role of advertising agency	
13.	Services provided by advertising agency	
14.	Types of advertising agency	
15.	Selection of advertising agency	
16.	Relationship with clients	
17.	Doubt clearing and revision	
18.	Ad-made show	
19.	Ad-made show	
20.	Ad-made show	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Basics of Academic Project Preparation**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Introduction to Research:	Unit 1
2.	Types of research projects	
3.	Fact, concept and theories;	
4.	Planning the research project-essential ingredients of planning;	
5.	Developing research questions.	
6.	Research Design-Components.	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Small Business Management**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Small Business – Micro and small enterprise – concept, definition, characteristics and rationale.	Unit 1
2.	Relationship between large and small enterprise.	
3.	Different types of micro and small enterprise and their distinctive characteristics.	
4.	Role of small business – a brief global perspective with special reference to Indian economy.	
5.	Features of Micro, small and medium enterprise Act 2006, governing the promotion and management of Micro and small enterprise in India.	
6.	Industrial policies of the Central and state Govt. governing the promotion and management of Micro and small enterprise in N. E. India with special reference to Assam	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **International Business**

Units Assigned- Unit 1 and 4

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	India's Foreign Trade- An Introduction	Unit 1
2.	Trends and Developments; Commodity composition and direction;	
3.	India's Foreign Trade in global context.	
4.	Infrastructure Support for Export Promotion: Export Promotion Councils; Commodity boards/ product export development authorities;	Unit 4
5.	Specific service institutions;	
6.	State trading organizations;	
7.	Export and Trading Houses.;	
8.	Export Processing Zones/Special Economic Zone (EPZ/SEZ);	
9.	Export Oriented units (EOUs).	

Stream: Commerce (Accounting & Finance)
Name of the Faculty: Pradip Chandra Das

Course-No: 203

Class/ 2th Semester (H)

Name of the Paper: Corporate Accounting.

Units Assigned: II & III

Mark Assigned=40

Class	Topic/Units	Remarks
1.	Define current Assets,	
2	What is mean by Non-current Assets?	
3	What is meant by Current Liabilities?	
4	State the accounting treatment of preliminary expenses.	
5	Treatment of proposed dividend in Company final Account.	
6	Corporate dividend Tax, Interim Dividend	
7	State the statutory provisions relating to operations and presentation of Balance sheet of a listed Company under Companies Act, 2013.	
8	State the statutory provisions relating to preparation and presentation of statement of profit and Loss of a listed Companies Act, 2013	
9	Meaning of Amalgamation, Absorption and Reconstruction	
10	Objectives of Amalgamation	
11	Types of Amalgamation.	
12	Concepts and accounting treatment as per Accounting Standard:14 (ICAI)	
13	Accounting entries of Transferor/vendor Company	
14	Accounting entries of Transferee/ purchasing Company	
15	Calculation of Purchase considerations.	
16	Intrinsic value Method, Net worth (or Net assets) method	
17	Net payment method & share Exchange Method	
18	Practical question solved (Transferee Company)	
19	Practical question solved (Transferor Company)	
20	Meaning of Internal Reconstruction	
21	Internal Reconstruction of Company (Scope)	
22	Accounting treatment of internal reconstruction	
23	Alteration of share capital	
24	Increase/decrease share capital,	
25	Procedure of capital Reduction.	
26	Reduction of share capital under section 100 to 105.	

Course-No: 404

Class/4th Semester (H)

Name of the Paper: Security Analysis & Portfolio Management.

Units Assigned: I

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Definition of investment and an overview of the investment process	
2	various investment opportunities/alternatives investment.	
3	Differentiating between investors, gamblers, and speculators	
4	Variation of fixed , variable and convertible securities	
5	Measurement of Risk factor	
6	Assessment of risk and evaluation of return i.e. risk and return factor.	
7	various funding sources used by the investment	
8	Explain a variety of methods to demonstrate the process of funding measurement through time.	
9	Measurement of the time factor and determination of the capital interest rate	
10	Systematic and unsystematic Risk.	
11	Fundamental Analysis.	
12	Technical Analysis	
13	Market efficiency in various forms.	
14	Practically invested by the investor in financial instruments like the stock market and the Tata Digital fund. Life SBI. Birla sun life and Bajaj Alliance etc.	

Course-No.401

Class/ 4th Semester (H)

Name of the Paper: Cost Accounting.

Units Assigned: III

Marks Assigned: 20

<u>Class</u>	<u>Topic</u>	<u>Remarks</u>
<u>1</u>	Meaning Overhead cost. Fixed overhead cost , Semi-fixed overhead cost and variable overhead cost.	
<u>2</u>	Definition of overhead cost, objects and Importance of overhead cost.	
<u>3</u>	Classification of overhead cost	
<u>4</u>	The various bases for apportionment of overheads to cost centres.	
<u>5</u>	Overhead absorption:	
<u>6</u>	Various methods of absorption of the factory Overheads Techniques to control administrative overhead	
<u>7</u>	Selling and distribution overheads	
<u>8</u>	Examples of over absorption & under absorption	
<u>9</u>	Reasons of under or over absorption heads.	
<u>10</u>	Practical problem with solution of production Unit Method	
<u>12</u>	Practical problem with solution of Hourly Rate Methods	
<u>13</u>	Practical of Machine hour rate method solved.	

Course-No: 403

Class/4th Semester (H)

Name of the Paper: Auditing

Units Assigned: II

Marks Assigned: 20

Class	Topic/Units	Remarks
1	What is Audit procedure?	
2	Meaning of Routine Cheeking. Object of routine checking.	
3	Function of routine checking.	
4	Advantages and disadvantages of routine checking.	
5	.Scope of routine checking	
6	Test checking is necessary for auditor	
7	Importance of test checking,	
8	Auditing Techniques (Vouching, verification, valuation, confirmation and analysing)	
9	Object of vouching	
10	Verification and valuation of Assets.	
11	Verification of liabilities	
12	Types of evidence for audit procedure.	

Course No: 603

Class/6th Semester (H)

Name of the Paper: Indian Financial System

Units Assigned: II

Class	Topic/Units	Remarks
1	What do you mean by Banking Institution?	
2	What is Banking institution? , define Co0mmercial Bank.	
3	Present structure of commercial Bank (Scheduled of commercial Bank.)	
4	Role or Function of commercial bank.	
5	Sources and application of funds.	
6	Meaning of Rural banking. Objectives of Rural Banking	
7	Importance of rural banking.	
8	NABARD an Indian agricultural bank.	
9	NABARD's function in the agricultural industry.	
10	RBI is chief or Central bank. Object of central bank.	
11	Need of a Central Bank or Reserve Bank of India	
12	Functions of RBI	
13	Monetary policy of Reserve bank of India.	
14	Object of Reserve bank of India.	

Course-No: 602

Class/6th Semester (H)

Name of the Paper: Financial Statement Analysis

Units Assigned: 20

Class	Topic/Units	Remarks
1	Concept of Corporate Social Responsibility.	
2	Famous Quotes about Responsibility	
3	Object of Corporate Social Responsibility.	
4	Four dimension of Corporate Social Responsibility	
5	Political & Religious Beliefs on CSR.	
6	Benefits of CSR	
7	Business impact on CSR	
8	Driving forces behind CSR	
9	TYPES OF CSR	
10	Triple bottom line of CSR.	
11	Reporting of Corporate Social Responsibility.	
12	Impact on society of Corporate Social Responsibility	
13	Reporting of Corporate Governance	
14	Quality of Good Governance	
15	Object of Good Governance.	
16	Status of corporate Reporting in India.	
17	Object of Corporate Social Responsibility.	
18	Reporting of Corporate Social Responsibility.	
19	Impact on society of Corporate Social Responsibility	

Course-No 601

Class/ 6th Semester

Name of the Paper: Income Tax

Units Assigned: I, II, III, IV & V

Marks Assigned: 80

Class	Topic/Units	Remarks
1	Basic concepts of Income Tax,	
2	History of Income Tax	
3	Meaning of Income tax, objectives of Income Tax	
4	Scope of Income Tax, Advantages of Income Tax	
5	Heads of income Tax under section 14	
6	Agricultural income section 2(1A)	
7	Liable to pay tax, Persons under income Tax Act	
8	Assessee in person, Deemed Assessee , Assessee in default,	
9	Assessment Year, Previous year	
10	Total income, Gross total income	
11	Meaning of residential status and Tax liability	
12	Classification according to the residential status ; Resident and non-resident	
13	Determination of Residential status of an Assessee.	
14	Different taxable entities from the point of view of residence	
15	Determination of Basic condition and additional condition	

16	Meaning of person of Indian origin	
17	Resident and ordinarily resident.	
18	Residential status of Hindu Undivided Family.	
19	Determination of Tax Liabilities on the basis of residence.	
20	Meaning of tax liability of different types of Incomes.	
21	Exempted Income under section-10	
22	Tax Holiday for industrial Units in Trade Zones,	
23	Tax holiday for newly established units in Special Economic Zones,	
24	Tax holiday for 100% export oriented undertakings	
25	Meaning of salary, Tax free salary, surrenders salary.	
26	Computation of income from salaries, component of salaries	
27	Profits in lieu of salary	
28	Gratuity: gratuity received from Govt./Local Authorities.	
29	Gratuity received under payment of gratuity Act.	
30	Different types of salary, Advance, arrear leave salary etc.	
31	Calculation of pension, annuity, leave encashment	
32	Allowances to employees i.e. Fully exempted allowance, partly exempted allowance and fully taxable allowance.	
33	Meaning of perquisites, perquisites in respect of motor cars	
34	Perquisites taxable for all employees.	
35	Rent free house: furnished and unfurnished accommodation.	
36	Provident funds facilities for employees	
37	Deduction from salary. Deduction u/s 80c	
38	Meaning of house property. Essential conditions	
39	Income not taxable UNDER THE HEAD Income from House property.	
40	Meaning of Annual value, Gross annual value.	
41	Determination of the gross annual value of a let out property.	
42	Deduction from annual value.	
43	Computation of Income from House Property for different categories of properties	
44	Recovery of unrealised rent. Inadmissible deductions	
45	Treatment of income from Co-own property.	
46	Deemed ownership, Exempted Property income	

Course-No 103

Class/ 1st Semester (General & speciality)

Name of the Paper: Financial Accounting.

Units Assigned: IV & Tally

Marks=20

Class	Topic/Units	Remarks
1	Introduction to Branch	
2	Objective of Branch Accounting	
3	Types of Branches	
4	Concept of dependent branches,	
5	Accounting aspects.	
6	Goods-in-transit, Cash-in Transit/Remittance in transit, inter branch transfer, Normal loss, Abnormal Loss.	
7	Journal Entries in the Books of Head Office Under Debtors or Synthetic system	
8	Missing figure relating to petty cash/branch stock.	
9	Stock & Debtors system.	
10	Branch final Account System	
11	Whole sale basis system.	
12	Independent branches	
13	Concept Accounting treatment	
14	Important adjustment entries	
15	Preparation of consolidated profit and loss account and balance sheet.	
16	Objectives of sending Goods to branches at invoice price/ selling price	
17	Problem solving from question paper	
18	Final examination question paper 2011, 2012, 2013	
19	Final examination question paper: 2014, 2015, 2016	

Course-No: 301

Class/3rd Semester (H)

Name of the Paper: Advance Financial Accounting

Units Assigned: II

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Meaning of insurance, objectives of insurance	
2	Definition of insurance, element of insurance contract	
3	Meaning of various insurance terms	
4	Insurance regulatory and Development Authority	
5	Types of insurance: life insurance, General insurance.	
6	Books maintained under life Insurance business.	
7	Ascertainment of profit in life insurance business.	
8	Preparation of Revenue Account(Policyholders Account: Non-technical)	
9	Explanation of items in the Revenue Account that's Claims, Surrender value.	
10	Bonus in reduction of premium	
11	Premium, Consideration for annuities granted.	
12	Re-insurance /Commission on Re-insurance Accepted/Ceded	
13	Preparation of Profit and loss Account (Shareholders Account: non technical)	
14	Preparation of Balance sheet of life insurance company.	

Course-No:302

Class/3rd Semester (H)

Name of the Paper: Financial Management

Units Assigned: II, III

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Meaning of investment decision techniques.	
2	Capital budgeting is a predetermine cost.	
3	Method of capital budgeting i.e. traditional & Modern	
4	Cost of capital and its measurement	
5	Meaning of leverage	
6	Types of leverage	
7	Determination of Financial leverage	
8	Combined leverage and optimal leverage	
9	Capital structure	
10	Practical problem with solution (Pay back period method)	
11	Net present value method (Solved Practical problem)	
12	Meaning of working capital, definition of working capital	
13	Objectives of working capital	
14	Concept , need and influencing factors of working capital	
15	Estimation of working capital	
16	Sources of Working Capital.	
17	Types of working capital	
18	Advantages and disadvantages of working capital	

Course-No 504

Class/5th Semester (H)

Name of the Paper: Direct Tax-I.

Units Assigned: I, II, III , IV & V

Marks Assigned:

Class	Topic/Units	Remarks
1	Concepts of income tax	
2	An overview of income tax law in india	
3	Basic concepts: Income, Agricultural income,	
4	Person and Assessee	
5	Assessment year, Previous year, Gross total income.	
6	Total income, Maximum marginal rate of tax.	
7	Revised Gross total income and total income PAN(Permanent Account Number)	
8	Residential status: Assessment year, Nationality, Physical Presence.	
9	Testing the fulfilment of Basic conditions and additional conditions.	
10	Scope of total income	
11	Income exempted under section 10	

12	Income from salary: Meaning of Salary, Gross Salary.	
13	Basic Salary, Gross Salary and Net Salary.	
14	Profits in Lieu of Salary, Gratuity.	
15	Pension, Annuity	
16	Leave Encashment Sec 10 (10AA)	
17	Allowances to employees: Fully Exempted Allowances, Partly Exempted Allowances Fully Taxable Allowances.	
18	HRA: Allowances.	
19	Perquisites: Example of perquisites.	
20	Perquisites Exempted from Tax.	
21	Perquisites Taxable for All Employees.	
22	Rent free House: Furnished and Unfurnished Accommodation.	
23	Entertainment Allowances.	
24	Valuation of perquisites in respect of Motor Car.	
25	Deduction on account of Professional Tax Paid.	
26	Standard deduction Section -16(ia).	
27	Income From house property.	
28	Introduction to House Property, Essential Conditions of House Property.	
29	Types of Income from house property not chargeable to Tax.	
30	Meaning of Annual Value.	
31	Gross Annual Value	
32	Determination net Annual Value.	
33	Treatment of Unrealised rent.	
34	Interest on loan taken or money borrowed for the property.	
35	Interest for preconstruction periods.	
36	For House property Self occupied for Residential Purposes	
37	Direct tax authorities	
38	Duties and responsibilities of Director	
39	Powers of Directors, Income tax officer, inspector.	
40	Functions of various authorities	
41	Appellate tribunals	

Stream: Commerce (Accounting & Finance)
Name of the Faculty: Dr. Sampreeti Boruah

Class/Semester-B.com 1st semester

Name of the Paper-Financial Accounting

Units Assigned- I& IV

Marks Assigned- 40

Class	Topics	Remarks
1.	Issue of syllabus and Meaning and scope of accounting	
2.	Basic accounting concept and conventions	
3.	Accounting standard-concepts	
4.	Users of financial accounting information and their needs. Qualitative characteristics of accounting information, functions	
5.	Advantages and limitations of accounting. Branches of accounting. Bases of accounting; cash basis and accrual basis.	
6.	Financial accounting standards: IFRS, IndAS	
7.	Accounting standard	
8	Accounting Process and Revision	
9.	Royalty meaning, minimum rent, short working, excess	
10.	Recoupment of short working	
11	Practical problems of royalty accounts	
12	Practical problems of royalty accounts	
13	Practical problems of royalty accounts	
14	Practical problems of royalty accounts	
15	Sub lease- meaning, practical problem	
16	Practical problems of royalty accounts sub lease	
17	Practical problems of royalty accounts	
18	Revision & previous year question paper solving	
19	previous year question paper solving	
20	Class test	

Name of the Paper- Corporate Accounting
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 2nd Semester
 Units Assigned- I
 MarksAssigned- 20

Class	Topics	Remarks
1.	Introduction to course, accounting for share capital	
2.	Company meaning definition, share, debenture	
3.	Share, share capital – types, issue of share	
4.	Accounting for issue of share, journal entries	
5.	Problems related with issue of share, pro rata allotment	
6.	Share forfeiture, and reissue of share	
7.	Practicing problems of Share forfeiture, and reissue of share	
8.	Practicing problems of Share forfeiture, and reissue of share	
9.	Book building, process, bonus share-meaning, benefits, right share	
10.	Practical of bonus share	
11.	Buy back of share,	
12.	Practical of buy back of shares	
13.	Practicing problems	
14.	Practicing problems	
15.	Debenture – meaning, type, accounting entries	
16.	Practicing problems of issue and redemption of debenture	
17.	Redemption of debentures sinking fund method	
18.	Practicing problems	
19.	Practicing problems	
20.	Practicing problems of previous year papers	
21.	Revision.	

Name of the Paper-Advance Financial Accounting

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 3rdSemester

Units Assigned- I & IV

MarksAssigned- 40

Class	Topics	Remarks
1.	Definition and meaning of banking, terms related to banking	
2.	Books to be maintained; classification of Advances, provisioning of advances	
3.	Slip system of banking, advantages and disadvantages, e-banking	
4.	Problems of provisioning	
5.	Discount on bills discounted, rebate on bill discounted	
6.	Preparation of profit and loss account of banking	
7.	Problems of profit and loss account of banking	
8.	Problems of profit and loss account of banking	
9.	Preparation of balance sheet of banking.	
10.	Problems of profit and loss account of banking.	
11.	Problems of profit and loss account and balance sheet of banking	
12.	Problems of profit and loss account of banking	
13.	Revision and test	
14.	Test	
15.	Investment accounting-meaning, advantages and disadvantages, features	
16.	Cum interest and ex interest–meaning and problem	
17.	Cum dividend and ex dividend–meaning and problem	
18.	Problems of investment accounting	
19.	Problems of investment accounting	
20.	Problems of investment accounting	
21.	Problems of investment accounting	

Name of the Paper- Financial Management
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 3rd Semester
 Units Assigned- II & IV
 Marks Assigned- 40

Class	Topics	Remarks
1.	Financial Management-overview	
2.	Dividend policy-Residual Approach,	
3.	Modigliani & miller theory	
4.	Practical problems related with MM model	
5.	Walter Model and Practical	
6.	Gordon's Model	
7.	Factors affecting dividend decision	
8.	Types of dividend and forms	
9.	Optimal payout ratio	
10.	Revision of models and class test	
11.	Retained Earnings-meaning, advantages & disadvantages	
12.	Working capital- meaning, importance	
13.	Concept of working capital- balance sheet concept	
14.	Operating cycle concept- practical	
15.	Need of working capital, types	
16.	Factors influencing working capital	
17.	Sources of working capital	
18.	Estimation of working capital	
19.	Practical problems	
20.	Practical problems	
21.	Practical problems	
22.	Practical problems	
23.	Revision and discussion.	
24.	Student presentation	
25.	Class test	

Name of the Paper- Cost Accounting
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 4th Semester
 Units Assigned- I & III
 MarksAssigned-40

Class	Topics	Remarks
1.	Cost accounting- meaning, definition, nature, scope	
2.	Cost, costing advantages, disadvantages, differences	
3.	Cost concepts, cost classification,	
4.	Cost concepts, cost classification	
5.	Costing system, installation	
6.	Method of costing, techniques, cost standard	
7.	Preparation of cost sheet	
8.	Preparation of cost sheet	
9.	Preparation of cost sheet	
10.	Revision and Test	
11.	Overhead–meaning, definition, importance	
12.	Classification of overhead cost	
13.	Codification of overheads, allocation and apportionment of overhead	
14.	Reapportionment of overhead	
15.	Problems of apportionment and reapportionment	
16.	Problems of apportionment and reapportionment	
17.	Absorption of overhead	
18.	Absorption of overhead-problems	
19.	Activity based costing	
20.	Problems of absorption of overhead	
21.	Revision, Practicing previous year question paper	
22.	Class test	

Name of the Paper - SAPM

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 4th Semester

Units Assigned- II, III & IV

MarksAssigned- 60

Class	Topics	Remarks
1.	Overview of the syllabus, meaning of security analysis, portfolio management, investment, risk, return	
2.	Portfolio management, types, traditional portfolio management	
3.	Modern portfolio management, Markowitz model	
4.	Diversification, methods, needs	
5.	Markowitz efficient frontier	
6.	Sharpe's single index model, combination of different securities	
7.	Practical problems of combining two securities	
8.	Practical problems of combining three securities	
9.	Markowitz model revision and criticism	
10.	Revision and class test	
11.	Capital asset pricing model- assumption, practical	
12.	Characteristics line- security marker line, capital market line	
13.	Arbitrage pricing model- assumptions, practical	
14.	Factor model- one factor, multiple factor	
15.	Revision	
16.	Portfolio performance evaluation- methods, style comparison, benchmark	
17.	Performance evaluation models- practical	
18.	Performance evaluation models- practical	
19.	Component of performance evaluation	
20.	Revision of models	
21.	Viva- voce	
22.	Students presentation	
23.	Class test	

Name of the Paper- Management Accounting
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 5th Semester
 Units Assigned- I, II, III & IV
 MarksAssigned-80

Class	Topics	Remarks
1.	Management Accounting-meaning, definition, nature, scope	
2.	Objectives or role of management Accounting	
3.	Functions of Management Accounting,	
4.	Tools and techniques of management accounting	
5.	Distinction among financial, cost and management accounting	
6.	Role of management accountant and installation of management accounting system	
7.	Revision and group discussion	
8.	Class test	
9.	Absorption costing-meaning, advantages and disadvantages	
10.	Marginal costing–meaning, needs, advantages & disadvantages, difference between absorption and marginal costing.	
11.	Ascertainment of profit under marginal system	
12.	Breakevenanalysis,cost-volumeprofitanalysis,contribution,marginofsafety	
13.	Problems of marginal costing	
14.	Problems of marginal costing	
15.	Problems of marginal costing	
16.	Previous year question paper	
17.	Application of marginal costing-fixation of selling price, make or buy decision	
18.	Change of product mix,	
19.	Doubt clearing sessions	
20.	Budgeting- meaning, budgetary control, objectives	
21.	Types of budget, fixed budget – practical	
22.	Flexible budget- practical	
23.	Practical problem	
24.	Functional budget – practical	
25.	Practical problem	
26.	Practical problem	
27.	Practical problem	
28.	Zero base budgeting	
29.	Responsibility accounting	
30.	Performance budgeting	
31.	Revision and test	

32	cash flow statement – meaning, objectives,	
33	Fund from various activities, Performa	
34	Practical problems	
35	Practical problems	
36	Practical problems	
37	Practical problems	
38	Fund flow statement – meaning, objectives, difference between cash flow and fund flow	
39	Sources and application of fund, Performa	
40	Practical problems	
41	Practical problems	
42	Practical problems	
43	Practical problems	
44	Viva and presentation	
45	Revision and test	

Name of the Paper- Direct Tax 2

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 6th Semester

Units Assigned- I, II, III, & IV

Marks Assigned- 80

Class	Topics	Remarks
1.	Tax introduction, heads/source of income, gross total income	
2.	Income from business or profession –Introduction, definition Basis of charge sec.28	
3.	Allowable expenses From sec.30 to 35. Including block of assets	
4.	Allowable expenses from 36 to 37. Provisions relating to depreciation, additional Depreciation	
5.	Deductions under sec.40	
6.	Special provision for computing income on estimated basis under sections.44 AD and 45AE	
7.	Computation of income from business.	
8.	Problem related to Profits and Gains to Business Income	
9.	Problem related to Profits and Gains to Business Income	
10.	Problem related to Profits and Gains from Professional income of Medical Practitioner.	
11.	Problem related to Profits and Gains from Professional income of lawyer	
12.	Problem related to Profits and Gains from Professional income of Chartered Accountant.	

13	Previous year question paper solved	
14	Practical problems	
15.	Revision and test	
16.	Capital gain-definition, basis of charge, capital assets	
17.	Period of holding, transfer, transaction not regarded as transfer sec.46 & 47	
18.	Computation of capital gain both long term and short term, indexed cost of acquisition And improvement	
19.	Problems of capital gain, capital gain exempt from tax	
20.	Exemptions in respect of certain capital gain u/s 10 & 54	
21.	Problems related to Capital Gain.	
22.	Income from other sources-definition, specific incomes and other income.	
23	Problems related within come from other source and discussion.	
24	Carry forward and set off of losses definitions and provisions of inter-source set off	
25	Provision for Inter-head set off and problems.	
26	Practical problem	
27	Practical problem	
28	Unabsorbed depreciation	
29	Unabsorbed depreciation	
30	Tax planning, tax avoidance, tax evasion	
31	Difference between Tax planning, tax avoidance, tax evasion	
32	Tax planning for salaries assesses	
33	Tax planning for corporate assesses	
34	Revision and doubt clearing	
35	Previous year question paper discussion	
36	ITR filing	
37	Evaluation	

Name of the Paper- Financial Statement Analysis

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 6th Semester

Units Assigned-I & III

Marks Assigned- 40

Class	Topics	Remarks
1.	Financial statement- meaning, types, users, advantages.	
2.	Financial statement analysis- meaning, significance, limitation	
3.	Methods of financial statement analysis	
4.	Comparative statement- profit & loss- practical	
5.	Comparative balance sheet- meaning- practical	
6.	Practical problem	
7.	Common size profit and loss account	
8.	Common size balance sheet	
9.	Practical problem	
10.	Practical problem	
11.	Practical problem	
12.	Trend analysis	
13.	Value added statement	
14.	Economic value-added statement	
15.	Revision	
16.	Financial reporting- meaning, importance	
17.	Purpose of financial reporting	
18.	Corporate social responsibility- meaning, applicability, provisions	
19.	CSR disclosures and provision	
20.	CSR activities, Funding and use of unspent money	
21.	Corporate governance- meaning, importance	
22.	Corporate governance in India	
23.	Corporate governance models	
24.	Previous year question paper discussion	
25.	Student presentation	
26.	Student presentation	

Name of the Paper- Indian Financial System
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 6th Semester
 Units Assigned- III & IV
 Marks Assigned- 40

Class	Topics	Remarks
1.	Financial system- meaning, Indian financial system	
2.	Component of Indian financial system	
3.	Financial market- meaning, types	
4.	Money market- meaning, features, Indian money market,	
5.	Instruments of money market	
6.	Capital market- meaning, features,	
7.	Functions of capital market	
8.	Types of capital market- new issue market	
9.	Secondary market- stock exchange, functions	
10.	Role of stock exchange	
11.	Merchant banking- meaning, functions,	
12.	Underwriters	
13.	Marketable and nonmarketable securities	
14.	Revision and discussion	
15.	Security Exchange Board of India- meaning, organization, objectives	
16.	Functions of SEBI	
17.	Mutual fund- meaning, nature	
18.	Types of mutual fund schemes	
19.	Role of mutual fund in India	
20.	Revision	
21.	Seminar presentation	
22.	Seminar presentation	
23.	Viva- voce	
24.	Class test and discussion	

Course Plan
2016 (JULY - DEC)
1st Semester
Economics Major
Paper: ECO1:01: Microeconomics – I

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Approaches to Economics	A N Chakraborty
12	Unit 2: Theory of Consumer Behaviour	A.Buragohain
12	Unit III: Analysis of Consumer's Demand	Subhashish Gogoi
10	Unit IV: Theory of Production	Subhashish Gogoi
12	Unit V: Theory of Cost	A N Chakraborty

2016 (JAN - JUNE)
2nd Semester
Economics Major
PAPER 2.01 (MACROECONOMICS)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: National Income Accounting	M M Gogoi
10	Unit 2: Theories of Aggregate Income and Employment	A.Buragohain
11	Unit III: Theories of Consumption Function and Investment Spending	Pummy Singha
10	Unit IV: Rate of interest and IS-LM Analysis	A.Buragohain
10	Unit V: Exploring the Macroeconomics of an Open Economy	M M Gogoi

2016 (JULY - DEC)3rd Semester

Economics Major

PAPER 3.01(MICROECONOMICS-II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Pricing in Product markets	Dr. M.Sharma
8	Unit 2: Pricing with Market Power	Dr. M.Sharma
10	Unit III: Monopolistic Competition and Introduction to Oligopoly	Dr. M.Sharma
12	Unit IV: Theory of Factor Pricing	A.Buragohain
11	Unit V: General Equilibrium and Economic Efficiency	A.Buragohain

2016 (JULY - DEC)3rd Semester

Economics Major

PAPER 3.02 (STATISTICAL METHODS IN ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Measures of Central Tendency and Dispersion	AN Chakraborty
8	Unit 2: Elementary Probability Theory	Subhashish Gogoi
10	Unit III: Sampling	Subhashish Gogoi
12	Unit IV: Correlation and simple regression	AN Chakraborty
8	Unit V: Index Numbers	AN Chakraborty

2016 (JAN - JUNE)4th Semester

Economics Major

PAPER 4.01 (MATHEMATICS FOR ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Sets and Set Operations	A N Chakraborty
11	Unit 2: Elements of Matrix Algebra and Input- Output Analysis	Pummy Singha
8	Unit III: Differential Calculus and its Economic Applications	Pummy Singha
10	Unit IV: Integral Calculus and its Economic Applications	A N Chakraborty
9	Unit V: Differential and Difference Equations	A N Chakraborty

2016 (JAN - JUNE)4th Semester

Economics Major

PAPER 4.02 (PUBLIC ECONOMICS – THEORETICAL ISSUES)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Role and significance of Public Finance	Dr. M Sharma
10	Unit 2: Public Revenue: Sources of Public Revenue,	Dr. M Sharma
8	Unit III: Public Expenditure	Dr. M Sharma
8	Unit IV: Public Debt: Role and Purpose	Pummy Singha
5	Unit V: Public Enterprises	Pummy Singha

2016 (JULY - DEC)5th Semester

Economics Major

PAPER 5.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – I)

No of Class	Unit No and Title	Name of the teachers
5	Unit 1: Development: Meaning and Measurement	Dr. M Sharma
11	Unit 2: Obstacles to Development	Dr. M Sharma
7	Unit III: Poverty, Inequality and Unemployment	Dr. M Sharma
10	Unit IV: Theories of Economic Growth	Subhashish Gogoi
9	Unit V: Development Theories: Theories of Persistence of Underdevelopment	Subhashish Gogoi

2016 (JULY - DEC)5th Semester

Economics Major

PAPER 5.02 (PUBLIC ECONOMICS: POLICY ISSUES)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Structure, Pattern and Policies of Taxation in Developing Economies	AN Chakraborty
9	Unit 2: Trend and Pattern of Public expenditure in India	AN Chakraborty
7	Unit III: Budget System and Policy	AN Chakraborty
5	Unit IV: Fiscal Policy: Its role and objectives	Pummy Singha
8	Unit V: Fiscal Federalism: Principles of Allocation of Resources	Pummy Singha

2016 (JULY - DEC)5th Semester

Economics Major

PAPER 5.03 (HISTORY OF ECONOMIC THOUGHT)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Pre-Classical and Classical Economic Thought	A Buragohain
8	Unit 2: Reaction against Classicism	A Buragohain
9	Unit III: The Reconstruction of Economic Science	A Buragohain
10	Unit IV: Keynesian Economic Thought	A Buragohain
11	Unit V: Indian Economic Thought	A Buragohain

2016 (JULY - DEC)5th Semester

Economics Major

PAPER 5.04 (MONETARY THEORIES AND FINANCIAL MARKETS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Theories of demand for and supply of money	M M Gogoi
8	Unit 2: Inflation and Deflation	Subhashish Gogoi
9	Unit III: Business Cycle: Meaning, types and phases	Subhashish Gogoi
7	Unit IV: Banking: Scheduled commercial banks	M M Gogoi
6	Unit V: Financial Markets	M M Gogoi

2016 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Planning: Concept and Justification	Pummy Singha
10	Unit 2: Role of Agriculture in Economic Development	A Buragohain
8	Unit III: Role of Industries in the Development Process	A Buragohain
11	Unit IV: India in the Global Economy:	A Buragohain
7	Unit V: Economic Problems of North-East India	Pummy Singha

2016 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.02 (ENVIRONMENTAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Basic Concepts: Ecology, Environment and Economy	A Buragohain
12	Unit 2: Market Failure: Concept and Common Sources of Market Failure	Pummy Singha
11	Unit III: Solution to the Environmental problems	Pummy Singha
10	Unit IV: Sustainable development	A Buragohain
8	Unit V: Global and Local Environmental Concerns	A Buragohain

2016 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.03 (INTERNATIONAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: International Economics and Trade Theories	AN Chakraborty
8	Unit 2: Terms of Trade and Gains From Trade	AN Chakraborty
9	Unit III: International Trade Policy:	MM Gogoi
10	Unit IV: Foreign Exchange Markets and Exchange Rates	MM Gogoi
7	Unit V: Evolution of International Monetary System:	MM Gogoi

2016 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.04 (ECONOMIC ISSUES OF ASSAM)

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Economic Characteristics of Assam	MM Gogoi
10	Unit 2: Agriculture: Trends and Pattern of Production	MM Gogoi
9	Unit III: Industry: Problems and prospects of Industrial development of Assam	A Buragohain
7	Unit IV: Infrastructure: Economic Infrastructure of the State	A Buragohain
10	Unit V: Economic Problems of Assam	A Buragohain

Course Plan
2016 (JULY - DEC)

1st Semester

Economics Non-Major

PAPER 1.01 (MICROECONOMIC THEORY)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction to Microeconomics	M M Gogoi
12	Unit 2: Consumer"s behaviour	M M Gogoi
12	Unit III: Producer"s Behaviour	AN Chakraborty
9	Unit IV: The Theory of Firm	Subhashish Gogoi
9	Unit V: Theories of Distribution	Subhashish Gogoi

2016 (JAN - JUNE)

2nd Semester

Economics Non-Major

PAPER 2.01 (MACROECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction to Macroeconomics and National Income Accounting	M M Gogoi
11	Unit 2: Theory of Money: Demand for and supply of money	M M Gogoi
10	Unit III: Theories of Employment and Income	Subhashish Gogoi
8	Unit IV: Banking: Types and role of bank	AN Chakraborty
10	Unit V: International Trade and Balance of Payment Analysis	AN Chakraborty

2016 (JULY - DEC)
3rd Semester
Economics Non-Major
 PAPER 3.01 (Public Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Nature and scope of Public Finance	M M Gogoi
8	Unit 2: Public Revenue- Sources, Tax and Non-Tax Revenue	M M Gogoi
12	Unit III: Public Expenditure and Public Debt	AN Chakraborty
10	Unit IV: Budget System and Fiscal Policy	AN Chakraborty
12	Unit V: Indian Public Finance	AN Chakraborty

2016 (JAN - JUNE)
4th Semester
Economics Non-Major
 PAPER 4.01 (Issues of Indian Economy)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Major features of Indian economy with special reference to Assam	AN Chakraborty
7	Unit 2: Basic issues in agriculture at national level and in Assam	Pummy Singha
12	Unit III: Industry and tertiary sectors in India	Pummy Singha
7	Unit IV: Industry, trade and commerce in Assam	Pummy Singha
8	Unit V: Economic Planning and Economic Reforms	AN Chakraborty

2016 (JULY - DEC)

5th Semester

Economics Non-Major

PAPER 5.01 (Elementary Statistics for economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction: Definition of statistics, uses and abuses of statistics	Dr. M Sharma
10	Unit 2: Measurement of central tendency	Dr. M Sharma
10	Unit III: Measures of dispersion	Dr. M Sharma
8	Unit IV: Index numbers	Subhashish Gogoi
6	Unit V: Interpolation	Subhashish Gogoi

2016 (JAN - JUNE)

6th Semester

Economics Non-Major

PAPER 6.01 (Development Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Growth and Development: Growth	Pummy Singha
7	Unit 2: Theories of Economic Development and Economic Growth	Pummy Singha
8	Unit III: Human Resource Development and Manpower Planning	Pummy Singha
10	Unit IV: Sectoral Analysis of Development:	MM Gogoi
6	Unit V: Economic Development and Planning:	MM Gogoi

**COURSE PLAN
2016-2017**

**DEPARTMENT OF EDUCATION
DIGBOI COLLEGE**

Course plan -2016-17**Name of the Teacher-PRADIP DUTTA**

Course –General

Semester-I

Name of the paper- foundation of Education-101

Units Assigned-II & V

Aims of Education

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit-II	Remarks
1	Determinants of Aim	
2	Philosophical	
3	Social	
4	Economical	
5	Importance of philosophical aim	
6	Importance of social aim	
7	Importance of economical aim	
8	Different aim of education	
9	Individual and social	
10	Moral and aesthetic aim	
11	Democratic aim	
12	Educational aim with reference to the future	
Unit -V	Curriculum and evaluation	
Serial number of classes	Topic/ Unit	Remarks
1	Meaning and definition of curriculum	
2	Modern concept of curriculum	
3	Modern concept of co-curricular activities	
4	Types of curriculum	
5	National curriculum	
6	Meaning and need of examination	
7	Meaning and need of evaluation	
8	Types of examination	
9	Essay type	
10	Short answer type	
11	Objective type	
12	Technique of examination	
13	Oral	
14	Written	
15	Practical	
16	Tools of examination	
17	Questionnaire	
18	Cumulative record	

Name of the Teacher-PRADIP DUTTA

Course –Major

Semester-I

Name of the paper- philosophical foundation of Education-101

Units Assigned-III & IV

Aims of Education

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit-III	Remarks
1	Determinants of Aim	
2	Philosophical	
3	Social	
4	Economical	
5	Technological	
6	Importance of social aim	
7	Importance of economical aim	
8	Some important aim aim of education	
9	Individual and social	
10	Moral and aesthetic aim	
11	Vocational aim	
12	Discussion	
Unit –IV	Indian schools of philosophy	
Serial number of classes	Topic/ Unit	Remarks
1	Meaning of philosophy & Indian philosophy	
2	Yoga philosophy	
3	Meaning and nature	
	Educational implications	
4	Vedanta philosophy	
5	Importance of Vedanta philosophy	
6	Advaita Vedanta	
7	Educational implications	
8	Budhism	
9	Four noble truth	
10	Educational implications	
11	Relevance in present education	
12	Discussion	

Class/Semester-II-general Name of the paper- Educational psychology -201

Units Assigned-I –psychology and education

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Concept of psychology and education	
2	Some important schools of psychology	
3	Behaviorism	
5	Gestaltism	
6	Psychoanalysis	
7	Importance of psychological thinking in education	
8	Educational psychology	
9	Concept and scope	
10	Importance of educational psychology	
11	Functions of educational psychology in classroom teaching	
Unit –II	Developmental psychology	
1	Meaning and nature of development	
2	Physical development in infancy	
3	Mental in infancy	
4	Social in infancy	
5	Emotional in infancy	
6	Physical development in childhood	
7	Mental in childhood	
8	Social in childhood	
	Emotional in childhood	
9	Physical development in adolescence	
10	Mental in adolescence	
11	Social in adolescence	
12	Emotional in adolescence	
13	Home ,school and society as a factor of learning	
14	School as a factor of learning	
15	Role of heredity and environment	

Class/Semester-II-major

Name of the paper- sociological foundation of education-202

Units Assigned-I –political ideologies and education

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Education for democratic pattern of society	
2	Role of education in Democratic pattern of society	
3	Totalitarianism and Education	
5	Role of education in Totalitarian of society	
6	Communitistic political ideology	
7	Communitistic political ideology and role of education	
8	Education for socialistic pattern of society	
9	Education for secular society	
10	Discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 4th

Name of the Paper- ELTM401- **DIGITAL ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1	Decimal-Binary conversion	
2	Octal and Hexadecimal number system and their conversion to Decimal	
3	BCD number, compliment Technique, Floating point number	
4	Boolean postulates from basic gates, properties of Boolean algebra,	
5	De morgaris theorems	
6	simplification of compound expressions, sum of product and products of sum form	
7	Minimisation by the use of Karnaugh's map for 2, 3, 4, 5 and 6 variables.	
8	Need of Coding, Weighted codes (BCD), Excess - 3 code	
9	Gray code and conversion. Alpha numeric code- ASCII and EBCDIC	
10	Decimal to binary encoder, octal to binary encoder.	
11	Basic Logic operation, AND, OR, NOT, NAND, NOR, XOR, gates	

12	Universal gates, Truth tables, Bipolar logic families, DTL families	
13	RTL families, TTL families, Schottky TTL	
14	Emitter coupled logic (ECL), NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
15	Emitter coupled logic (ECL), NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
16	NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
17	Combinational and sequential circuits	
18	flip-flops, NAND flip-flop	
19	NAND flip-flop, SR flip-flop	
20	NAND flip-flop, SR flip-flop	
21	Clocked SR flip-flop	
22	D-latch, JK flip-flop	
23	Master-slave flip-flop.	
24	Asynchronous counter	
25	Asynchronous decade counter	
26	Synchronous counters	
27	Up/down counters	
28	Self stopping counter	
29	Sequential counter design procedure and applications	
30	Sequential counter design procedure and applications	
31	Serial in shift registers	

32	Serial in shift registers	
33	Parallel-in shift register	
34	Universal shift register	
35	3-bits CMOS shift register	
36	Half adder	
37	Full adder	
38	parallel binary adder	
39	Half subtractor. Full subtractor	
40	Parallel subtractor, subtraction using full adder	
41	Introduction, RAM, ROM, PROM	
42	Introduction, RAM, ROM, PROM	
43	EPROM, EAPROM,	
44	Secondary memory, floppy, Hard disk, Magnetic storage.	
45	Secondary memory, floppy, Hard disk, Magnetic storage.	
46	Digital to analog converter,	
47	Weighted Register DAC	
48	R-2R ladder DAC	
49	Analog to digital converter, Successive approximation ADC,	
50	Parallel ADC, Dual slope ADC	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM603- **POWER ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Concepts of power diodes and power transistors	
2	Concept of thyristor technology, ratings, symbol, characteristics, turn on methods and turn off methods of thyristors	
3	Concept of thyristor technology, ratings, symbol, characteristics, turn on methods and turn off methods of thyristors	
4	diacs,	
5	SCS, SVS,	
6	SVS, SBS,	
7	LASCR	
8	triacs	
9	MOSFETS	
10	MOSFETS	
11	Internal power dissipation	
12	Internal power dissipation and need for heat sinks for these devices.	
13	Basic structure, principle of operation and VI characteristics of UJT	
14	Explanation of working of UJT as relaxation oscillator and its use in thyristor	
15	Explanation of working of UJT as relaxation oscillator and its use in thyristor	
16	Working principle of converters single phase half wave and full wave	

17	Working principle of converters three phase half wave and full wave	
18	Working principle of converters three phase half wave and full wave	
19	Half controlled, full controlled principle of operation of basic inverter circuit	
20	Half controlled, full controlled principle of operation of basic inverter circuit	
21	Half controlled, full controlled principle of operation of basic inverter circuit	
22	Chopper circuit	
23	Chopper circuit	
24	Principle of working of AC Phase control circuit	
25	Principle of working of AC Phase control circuit	
26	Three terminal voltage regulator ICs (positive, negative and variable applications)	
27	Block diagram of a regulated power supply	
28	Concepts of cv, cc and foldback limiting	
29	Concepts of cv, cc and foldback limiting	
30	Short circuit and overload protection	
31	Major specifications of a regulated power supply and their significance (line and load regulation, output ripple and transients)	
32	Major specifications of a regulated power supply and their significance (line and load regulation, output ripple and transients)	
33	Basic working principles of a switched mode power supply	
34	Concept of floating and grounded power supplied and their interconnections to obtain multiple output supplied.	

35	Concept of floating and grounded power supplied and their interconnections to obtain multiple output supplied.	
36	Brief idea of CVT, UPS and dual tracking power supply.	
37	Brief idea of CVT, UPS and dual tracking power supply.	
38	Principle of operation and working of following switching circuits	
39	Automatic battery charger, Voltage regulator	
40	Emergency light, Time delay relay circuit	
41	Fan speed control, Temperature control	
42	Speed control of DC and small DC motors	
43	SMPS, UPS	
44	Static sensitive electronics Components, EC, (National Electrical Code)	
45	Tagging of wiring or equipment	
46	Equipment hazardous when turned off,	
47	Ground faults, Isolation transformers	
48	Ground blocks and rods, Electrical or chemical fire extinguishers,	
49	Ground blocks and rods, Electrical or chemical fire extinguishers,	
50	Metal chains—ornamentation hazards, Electrical shock, Leaded solder	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 2nd Sem

Name of the Paper- ELTG201- **Network Analysis**

Units Assigned- 2

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1	Poles and Zero's in the complex plane Complex frequency and the s-plane	
2	Poles and Zero's in the complex plane Complex frequency and the s-plane	
3	properties of poles and zeros in the complex plane	
4	properties of poles and zeros in the complex plane	
5	Network functions for one port and two port networks	
6	Network functions for one port and two port networks	
7	poles and zeros of network functions	
8	poles and zeros of network functions	
9	restrictions on locations of poles and zeros	
10	restrictions on locations of poles and zeros	
11	Time domain response from pole and zero plot	
12	Time domain response from pole and zero plot	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 4th Sem

Name of the Paper- ELTG401- **Digital Electronics**

Units Assigned- 3

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1	Combinational and sequential circuits	
2	flip-flops, NAND flip-flop	
3	SR flip-flop. Clocked SR flip-flop, D-latch	
4	JK flip-flop. Master-slave flip-flop	
5	Edge-triggered devices, Application of flip-flops	
6	Monostable and Astable multivibrators.	
7	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 6th Sem

Name of the Paper- ELTG601- **Electromagnetic and wave propagation**

Units Assigned- 1,2

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
2	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
3	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	

4	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
5	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
6	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
7	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
8	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
9	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
10	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
11	Coulomb's law, Gauss's law, applications	
12	concept of electric potential, work & energy in electrostatics	
13	electrostatics field in matter	
14	concept of electric displacement, Lorentz force	
15	bio-savart's law, Ampere's law	
16	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
17	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
18	Faraday's law of electromagnetic induction.	
19	Revision	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 6th Sem

Name of the Paper- RMEG601- **Repairing of Television and Computers**

Units Assigned- 3, 4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
1	Colour TV receivers- Primary colours	
2	mixing of colours, saturation, luminance, luminance signal colour different signals.	
3	Colour picture tube- Different types of tubes	
4	PIL, Trinitron, purity and convergence, degaussing	
5	PIL, Trinitron, purity and convergence, degaussing	
6	PIL, Trinitron, purity and convergence, degaussing	
7	Chroma section of Colour TV, colour signal matrix, RGB matrix.	
8	Chroma section of Colour TV, colour signal matrix, RGB matrix.	
9	Fault finding and rectification of colour TV receivers trouble shooting.	
10	Fault finding and rectification of colour TV receivers trouble shooting.	
11	The Main working functions of LCD TV.	
12	Concepts of Dish TV, Magic box	

13	Computer Software: Different type of computer software,	
14	formatting and installation of software	
15	Computer hardware identification: RAM, CPU,	
16	ROM, hard disc,	
17	SMPS and ICs.	
18	Computer Monitor's working function, Testing procedures.	
19	Computer Monitor's working function, Testing procedures.	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 1st

Name of the Paper- ELTM101- **ELECTRONICS MATERIALS & COMPONENTS**

Units Assigned- Unit- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Classical free electron theory	
2	Electrical and thermal conductivity of metals	
3	Relaxation time and mean free path	
4	Qualitative discussion of the bloch function	
5	Qualitative discussion of the bloch function, Kronig – Penny model	
6	Kronig – Penny model, E – K diagram	

7	Reduced zone representation, Brillouin zone	
8	Concept of effective mass and holes	
9	Brief idea of dielectric materials	
10	Spontaneous polarization	
11	Conductivity of metals	
12	Ohm's law	
13	Relaxation time & Collision time & Mean free path	
14	Electron scattering and resistivity of metals	
15	Heat developed in current carrying conductor	
16	Superconductivity (introduction), Hall effect	
17	Introduction to magnetic material	
18	Origin of dipole moment, Classification of Magnetic Material	
19	Origin of Magnetic moment	
20	Origin of dia, para, ferro and anti ferro magnetism and their comparison	
21	Origin of dia, para, ferro and anti ferro magnetism and their comparison	
22	Ferromagnetic materials	
23	Ferromagnetic materials and Saturation Magnetisation	
24	Saturation Magnetisation, Curie Temperature	
25	Curie Temperature	
26	Conductor, Insulator, Properties of insulator	
27	Insulation resistance, dielectric strength	
28	Dielectric constant, Polarization	
29	Polarization mechanism and total polarization	

30	Ferroelectric Materials	
31	Spontaneous Polarization	
32	Curie – Weiss Law, Classification	
33	Curie – Weiss Law, Classification	
34	Piezoelectricity	
35	Piezoelectricity	
36	Dielectrics in Alternating fields	
37	Dielectrics in Alternating fields	
38	Temperature and Frequency dependence of dielectric constant	
39	Temperature and Frequency dependence of dielectric constant	
40	Revision	
41	Electrical and electronics components, Classification and properties	
42	Resistance, Low resistance, effect of temperature on resistance	
43	Power rating, fixed and variable resistor, colour code, tolerance,	
44	Combination of resistors, varactor and thermistor	
45	Concept of capacitor and capacitance, parallel plate capacitor	
46	Energy store in capacitor, Paper capacitor, electrolytic capacitor, Tantalum and ceramics capacitors	
47	Air capacitor (gang and field type), voltage rating in circuit(CR, LC, LCR), combination of capacitor	
48	Inductance, inductive reactance, self & mutual reactance,	
49	Solenoids, iron core and ferrite core inductors, coefficients of inductors, quality factor	
50	Resonance circuits, couple circuits, variable inductor, combination of inductor	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM501- **ANALOG COMMUNICATION**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Signals and their classification	
2	Fourier analysis of Signals, Fourier Series representation of Signals(Continuous-Time periodic signals)	
3	Fourier Series representation of Signals(Continuous-Time periodic signals)	
4	Convergence of the Fourier series, Properties of continuous-Time Fourier series	
5	Properties of continuous-Time Fourier series	
6	Fourier Transform representation of signals(Aperiodic signals)	
7	Periodic signals, Properties of Continuous-time Fourier transform,)	
8	Periodic signals, Properties of Continuous-time Fourier transform,), Time domain and frequency domain. Sampling theorem.	
9	Time domain and frequency domain. Sampling theorem, Different types of noise	
10	Time domain and frequency domain. Sampling theorem, Different types of noise	
11	TTL and CMOS families and their comparison.	
12	Thermal, Shot Flicker noise, signal to noise ratio	

13	Noise factor, noise temperature, Friss formula	
14	Need of modulation, Amplitude modulation, Expression for AM	
15	Expression for AM and spectrum, modulation index and percentage modulation	
16	Generation of AM, non-linear devices	
17	Basic principle of DSB, SSB, VSB (Vestigial Side Band modulation)	
18	Frequency and Phase modulation	
19	Modulation index and frequency spectrum	
20	Equivalence between FM and PM, Generation of FM (direct and indirect methods).	
21	Linear diode detector	
22	Detection characteristics of diode and its uses	
23	Diode for automatic volume control, square law diode detection	
24	Frequency demodulation, discriminator	
25	Comparison between AM, FM and PM.	
26	Communication channels for AM and FM broadcast	
27	Communication channels for AM and FM broadcast	
28	AM transmitter: Low level and high level modulation, FM transmitter	
29	FM transmitter, Receiver parameters: sensitivity, selectivity and fidelity	
30	FM transmitter, Receiver parameters: sensitivity, selectivity and fidelity	
31	Super Heterodyne Receiver,	
32	Double Conversion Receiver	

33	AM receivers, FM receivers.	
34	Frequency Division Multiplexing.	
35	Radio reception at different frequencies,	
36	Reflected wave, ground wave	
37	Line of sight and through satellite aerials-radiation resistance	
38	Power radiated effect of earth.	
39	Picture elements, principle of image transmission	
40	TV camera tubes image orthicon & vidicon	
41	Electron beam scanning, synchronization-horizontal & vertical synchronization pulses	
42	Blanking horizontal & vertical	
43	Telephony, Telegraphy	
44	Radar, block diagram of pulsed & CW radar transmitter & receiver	
45	Radar range equation, power & frequency consideration	
46	e-mail , fax, internet	
47	Mobile communication, basic principle of satellite communication	
48	IMPATT, TRAPAIT diode	
49	BARTTT diodes, basic idea of gun & PIN diodes	
50	Basic idea of travelling wave tubes(TWT)	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 1st

Name of the Paper- ELTG101- **PHYSICS AND SEMICONDUCTOR**

Units Assigned- 2,6

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1	Inadequacies of classical mechanics, wave particle duality,	
2	Davisson and gramer's experiments, Group and Phase velocities	
3	de-Broglie waves, wave packet.	
4	Revision	
5	Fundamentals of quantum mechanics,	
6	Heisenberg uncertainty principle, concept of wave function, Postulates of quantum mechanics,	
7	Schrodinger equations and application to potential problems (in one dimensional box).	
8	Schrodinger equations and application to potential problems (in one dimensional box).	
9	Tunnel diode, Breakdown diodes,	
10	Transistor types, forward and reverse biased diode,	
11	common base, common emitter and common collector configurations,	

12	common base, common emitter and common collector configurations,	
13	equivalent circuits,	
14	characteristic curves of transistor,	
15	current amplification factors,	
16	working principles of FET,	
17	MOSFET	
18	MOSFET	
19	UJT.	
20	UJT.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned- 1,4

Marks Assigned- 13

Class	Topic/ Unit	Remarks
1	Power supply: The ideal rectifier,	
2	Half-wave rectifier, Full-wave rectifier	
3	Bridge rectifier, voltage doubler, capacitive filter,	
4	L-section filter, pi-section filter,	
5	controlled rectifiers, Electronic regulated power supply	

6	Feedback amplifiers - The feedback concept, feedback network, advantage of negative feedback's	
7	characteristics of negative feedback amplifiers, effect of negative feedback an input and output impedances and on bandwidth	
8	high input impedance transistor circuits,	
9	emitter follower and biasing,	
10	cascade configuration,	
11	Design of RC - coupled cascaded audio amplifiers,	
12	Basic design considerations for preamplifiers.	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 5th

Name of the Paper- ELTG501- **Electronics communication**

Units Assigned- 4

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1	Parameters of radio receiver, regenerative receivers,	
2	tuned radio receiver, super heterodyne receiver,	
3	FM receiver, Telephone receiver Picture elements,	
4	principle of image transmission, TV camera tubes-Image orthicon and Videocon,	

5	Image orthicon and Videocon,	
6	Electron beam scanning synchronization	
7	separation of horizontal and vertical pulses,	
8	TV Bandwidth and channels	
9	TV transmitter, and receiver,	
10	Colour TV,	
11	Colour TV transmitter and receiver	
12	Picture tube.	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –RMEG

Class/Semester- 5th

Name of the Paper- RMEG501- **BASICS OF ELECTRONICS & ELECTRONIC DEVICES**

Units Assigned- 1,2,4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
1	Electrical and electronics materials and components,	
2	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
3	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	

4	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
5	Definition of circuits, series circuits, parallel circuits	
6	Series and parallel circuits	
7	Combination of circuit, Ohm's Law.	
8	Transformers and Power supply: Different type of transformers, Basic rectifier circuits	
9	Half wave, full wave and bridge rectifiers	
10	Half wave, full wave and bridge rectifiers	
11	filter circuits, their uses and applications	
12	Zener diode as regulators	
13	Description of different type of power supply, power supply used in TV and computers,	
14	switch mode power supply (SMPS), Principle of SMPS, types, block diagram of SMPS	
15	switch mode power supply (SMPS), Principle of SMPS, types, block diagram of SMPS	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 2nd

Name of the Paper- ELTM201- **SEMICONDUCTOR & DEVICES**

Units Assigned- Unit- ALL

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1	Energy band in solids (metal, semiconductor and insulators)	
2	Conductors and insulators,	
3	Charge carriers in intrinsic semiconductors	
4	Charge carriers in extrinsic semiconductors	
5	Donor and acceptor impurities	
6	P-type semiconductors	
7	N- type semiconductors	
8	Majority and minority charge carriers	
9	Fermi level in semiconductors	
10	Fermi level in semiconductors	
11	Mobility current density	
12	Conductivity	
13	Revision	
14	PN junction	
15	Space charge region in a semiconductor junction	
16	Potential and field in P-N junction	
17	forward bias	
18	reverse bias	
19	Q-point and load line of a diode	
20	Q-point and load line of a diode	
21	Reverse breakdown avalanche	
22	Zener diode, breakdown voltage	
23	Special diodes-varactor diode	

24	Tunnel diode, Schottky diode	
25	Schottky diode, LED.	
26	PNP and NPN transistor	
27	Transistor biasing ,	
28	Transistor circuit configuration(CB, CE, CC)	
29	Transistor circuit configuration(CB, CE, CC)	
30	Transistor circuit configuration(CB, CE, CC)	
31	Relation between α and β	
32	Leakage current, thermal runaway	
33	Static characteristics (CB & CE).Emitter follower	
34	Field effect transistor, JFET	
35	MOSFET, types of MOSFET	
36	UJT (Construction, working and I-V characteristics of UJT)	
37	Basic construction and Characteristics of Thyristor, Semiconductor Controlled Device(SCR)	
38	Basic construction and Characteristics of Thyristor, Semiconductor Controlled Device(SCR)	
39	Introduction to integrated circuit technology	
40	Monolithic IC technology of substrate preparation,	
41	Monolithic components in ICs (resistor, capacitor)	
42	Inductance simulation in ICs, integrated circuit processing,	
43	Oxidation, diffusion, photo-lithography, epitaxy	
44	Fabrication of semiconductor diode	
45	Fabrication of transistor	
46	MOS transistor fabrication, Moore's Law,	

47	Medium Scale Integration (MSI), Large Scale Integration (LSI)	
48	Very Large Scale Integration (VLSI), Ultra Large Scale Integration (ULSI)	
49	Giant Scale Integration (GSI)	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM601- **ELECTROMAGNETIC, WAVE PROPAGATION & ANTENNA**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Equation of continuity, displacement current	
2	Maxwell equation, scalar and vector potential	
3	Gauss transformations, Poynting theorem,	
4	Conservation of energy and momentum for electromagnetic fields	
5	Maxwell's wave equation, the plane wave	
6	Polarization of electromagnetic waves, linear and circular polarization,	
7	Reflection, refraction and dispersion,	
8	Polarization by reflection and total internal reflection.	

9	Electromagnetic waves in the non-conducting media	
10	Reflection & transmission at oblique incidence, Snell's law, Fresnel's equation	
11	Brewster's angle, electromagnetic waves in conducting media	
12	Skin depth, reflection & transmission at a conducting surface	
13	Basic concept of transmission line, low & high frequency transmission line	
14	Distributed parameters, types of transmission line	
15	Voltage & current relation on radio frequency transmission line	
16	Characteristics impedance, transmission line as circuit element	
17	Voltage & current relation with distance from load end or receiving end	
18	Line terminator, propagation constant	
19	Conditions for distortion less transmission with minimum attenuation	
20	Loss free line, short circuit & open circuit lines	
21	Standing wave ratio, phase factor	
22	Reflection & transmission co-efficient	
23	Transmission Line matching	
24	Maximum power transfer	
25	Smith chart and its application	
26	Introduction to wave guide, rectangular wave guide, solution of wave equation	
27	TE and TM modes	
28	TE and TM modes	
29	Total internal reflection, calculation of wave impedance	

30	Cut-off frequency, phase constant and wavelength	
31	Brief idea about cylindrical wave guide and micro strips	
32	Electromagnetic spectrum	
33	Propagation of radio wave, ground waves	
34	Space waves, reflection of space waves from different layer of ionosphere	
35	Characteristics of various propagation media with referee to LF	
36	Characteristics of various propagation media with referee to HF, VHF	
37	Characteristics of various propagation media with referee to microwave signals.	
38	Basic antenna principles, Wire and Aperture Antennas	
39	The Retarded Potential, Hertzian Dipole	
40	Power radiated, Radiation Resistance,	
41	Antenna Characteristics, Antenna Patterns, Radiation Intensity	
42	Directive Gain, coordinate system, radiation fields	
43	Polarization, isotropic radiator, power gain of microwave antennas	
44	Antenna, folded dipole	
45	Rhombic & yagi antenna & their radiation pattern	
46	Vertical antenna, microwave antennas	
47	Microwave antennas, antenna equivalent	
48	Half-wave Dipole Antenna, Quarter-Wave Monopole Antenna,	
49	Small Loop Antenna, Aperture Antenna	
50	Antenna Arrays, Microstrip Antennas	

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 2nd Sem

Name of the Paper- ELTG201- **Network Analysis**

Units Assigned- 1,3

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Superposition theorem, Milman theorem	
2	Thevenin's theorem, Norton's theorem	
3	Maximum power transfer theorem, Reciprocity theorem	
4	Thevenin's theorem and Norton's theorem	
5	Thevenin's theorem and Norton's theorem in frequency domain	
6	Substitution theorem, Compensation theorem.	
7	Substitution theorem, Compensation theorem.	
8	Two port Networks Short circuit admittance parameters, open circuit impedance parameters	
9	relation between Z- and Y-parameters	
10	Transmission parameters (A, B, C, D,), A B C D parameters in terms of Z- and Y parameters	

11	hybrid parameters, g- parameters	
12	input, impedance in terms of Z, Y-, ABCD- parameters and output impedance in terms of Z, Y, ABCD- parameters	
13	T-section representation, Π -section representation	
14	Image impedances, Symmetrical Networks, Ladder Networks.	
15	Image impedances, Symmetrical Networks, Ladder Networks.	

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 4th Sem

Name of the Paper- ELTG401- **Digital Electronics**

Units Assigned- 1,2,5

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Decimal-Binary conversion, Octal and Hexadecimal number system and their conversion to Decimal, BCD number	
2	compliment Technique, Floating point number	
3	Boolean postulates from basic gates, properties of Boolean algebra	
4	De morgan's theorems, simplification of compound expressions	
5	simplification of compound expressions	
6	sum of product and products of sum form.	
7	sum of product and products of sum form.	
8	Basic Logic operation, AND, OR, NOT, NAND, NOR, XOR, gates.	
9	Universal gales, Truth tables	

10	Bipolar logic families, DTL families, RTL families,	
11	TTL families, Schottky TTL,	
12	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
13	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
14	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
15	Voltage transfer function. Fan-out, Noise-immunity and propagation delay of logic families.	
16	Half adder, full adder, parallel binary adder	
17	Half subtractor. Full subtractor, parallel subtractor	
18	subtraction using full adder, 4-bit adder/subtractor.	
19	Binary multipliers, speed up addition.	
20	Magnitude comparator	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 3rd

Name of the Paper- ELTM301- **ANALOG ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Ideal diode, dc load line analysis, Quiescent (Q) point	
2	Positive, negative and biased clipper circuits	
3	Clamping circuits	
4	Half wave rectifier, calculation of efficiency and ripple factor.	
5	Centre tapped Full wave rectifiers, calculation of efficiency and ripple factor.	
6	Bridge full wave rectifiers, calculation of efficiency and ripple factor.	
7	Block diagram of a power supply, qualitative description of shunt capacitor filter	
8	Zener diode as voltage regulator, temperature coefficient of Zener diode.	
9	Classification of transistor amplifiers, small signal amplifiers	
10	Concept of amplification, current gain, voltage gain	
11	Power gain, input and output resistance, Q-point, load line	
12	Class A, B and C and class AB amplifiers	
13	Class A, B and C and class AB amplifiers	
14	Analysis of transistor amplifiers	
15	Transistor biasing, stabilization	
16	Two – point representation of transistor	
17	AC equivalent circuit using h-parameters	
18	Determination of hparameters	
19	RC coupled amplifiers, impedance coupled	
20	Transistor coupled amplifiers	

21	Noise in amplifiers	
22	Feedback amplifiers	
23	General theory of feedback, positive & negative feedback	
24	Advantages of negative feedback,	
25	Types of negative feedback in transistor amplifier	
26	Current series, voltage series	
27	Current shunt, emitter follower	
28	Biasing, cascaded configuration	
29	Revision	
30	Ideal OPAMP characteristics, Practical OPAMS-off-set current	
31	Practical OPAMS-off-set current & voltage, CMRR	
32	Basic OPAMP application, inverting & non-inverting amplifiers	
33	Input off-set voltages, input bias current	
34	DC amplifier, summing	
35	Differentiation & integration using OPAMPS	
36	Active filters, low-pass,	
37	High – pass & band-pass	
38	Positive feedback in oscillator	
39	General & continuous oscillation	
40	Barkha-usen criterion, types of RC	
41	LC and crystal oscillators	
42	Wein Bridge Oscillator	
43	Phase shift, Hartley oscillator	

44	collpit, Chapp oscillator	
45	VHF & relaxation oscillator, frequency stability, Q- value	
46	VHF & relaxation oscillator, frequency stability, Q- value	
47	Bistable multivibrator, nenostabie multivibrator	
48	Astable multivibrator, high speed multivibrator	
49	Tunnel diodes, emitter coupled multivibrator	
50	Emitter coupled multivibrator {Schmitt trigger}	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep Khound

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM502- **DIGITAL COMMUNICATION**

Units Assigned- UNIT: All

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Sampling theorem, Errors in Sampling	
2	Pulse Amplitude Modulation (PAM)	
3	Pulse Amplitude Modulation (PAM)	
4	Time Division Multiplexing (TDM)	
5	Time Division Multiplexing (TDM)	
6	Pulse Width Modulation (PWM)	
7	Pulse Width Modulation (PWM)	
8	Pulse Position Modulation (PPM)	
9	Pulse Position Modulation (PPM)	
10	Generation and detection of PAM, PWM, PPM	
11	Generation and detection of PAM, PWM, PPM	
12	Generation and detection of PAM, PWM, PPM	
13	Need for digital transmission, Quantizing	
14	Uniform and Non uniform Quantization	
15	Quantization Noise, Compounding	
16	Coding, Digital Formats	
17	Decoding, Regeneration	
18	Transmission noise and Bit Error Rate	
19	Differential Pulse Code Modulation	
20	Differential Pulse Code Modulation	

21	Delta Modulation	
22	Delta Modulation, Quantization noise	
23	Adaptive Delta Modulation	
24	Adaptive Delta Modulation	
25	Time Division Multiplexing (TDM)	
26	Digital transmission	
27	Reception Techniques	
28	Information capacity, Bit Rate	
29	Band Rate and M-ary coding	
30	Amplitude Shift Keying (ASK)	
31	Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK)	
32	Frequency Shift Keying (FSK), Phase Shift Keying (PSK)	
33	Phase Shift Keying (PSK), Binary Phase Shift Keying (BPSK)	
34	Binary Phase Shift Keying (BPSK), Quadrature Phase Shift Keying (QPSK)	
35	Quadrature Phase Shift Keying (QPSK)	
36	Revision	
37	Revision	
38	Concept of Frequency Division Multiple Access (FDMA),	
39	Concept of Frequency Division Multiple Access (FDMA),	
40	Code Division Multiple Access (CDMA).	
41	Code Division Multiple Access (CDMA).	
42	Base band transmission	
43	Base band transmission	

44	Modem principle and architecture	
45	Modem principle and architecture	
46	Mobile Communication	
47	Mobile Communication	
48	Satellite Communication	
49	Optical Communication	
50	Optical Communication.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 1st

Name of the Paper- ELTG101- **PHYSICS AND SEMICONDUCTOR**

Units Assigned-1,4

Marks Assigned- 17

Class	Topic/ Unit	Remarks
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1	Coulomb's law, Gauss's law, applications	
2	concept of electric potential, work & energy in electrostatics	
3	electrostatics field in matter	
4	concept of electric displacement, Lorentz force	
5	Bio-savart's law, Ampere's law	
6	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
7	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
8	Faraday's law of electromagnetic induction.	
9	Kirchoff's current & voltage laws.	
10	Suspension Galvanometer, torque and deflection of the galvanometer, moving coil galvanometer.	
11	Ammeters, voltmeters (AC & DC), ohmmeters.	
12	Thermionic emission, Richardson's equation, Photoelectric emission, secondary emission	
13	high field emission, Space charge, Child-Langmuir law	
14	high field emission, Space charge, Child-Langmuir law	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned- 2,3

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	The ideal rectifier, Half-wave rectifier	

2	Full-wave rectifier, Bridge rectifier	
3	voltage doubler, capacitive filter, L-section filter, pi-section filter	
4	controlled rectifiers, Electronic regulated power supply.	
5	Analysis of transistor amplifiers, Transistor biasing, stabilization	
6	Analysis of transistor amplifiers, Transistor biasing, stabilization	
7	Two-port representation of a transistor, AC equivalent circuit using h-parameters, Determination - of h parameters	
8	Analysis of transistor amplifier using h parameters.	
9	Classification of amplifiers; Distortion in amplifier, amplitude, frequency and phase distortion,	
10	Impedance matching, frequency range of amplifiers	
11	Transistor as an amplifier in CE configuration, load line analysis, operating point, voltage gain	
12	Transistor as an amplifier in CE configuration, load line analysis, operating point, voltage gain	
13	dc and ac equivalent circuits.	
14	R-C coupled amplifiers, Impedance coupled amplifiers, Transformer coupled amplifier	
15	Band pass amplifiers, Video amplifiers, direct coupled amplifiers, Noise in amplifiers	
16	low noise amplifiers. Power amplifiers, efficiency of amplifiers,	
17	class A amplifiers, push-pull class A operation, parallel class A operation, class B audio frequency amplifiers,	
18	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	

19	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	
20	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 5th

Name of the Paper- ELTG501- **Electronics communication**

Units Assigned- 1,2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
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1	Amplitude modulation, frequency spectrum and power content	
2	generation of AM, SSB and vestigial sideband	
3	Angle modulation, frequency modulation, phase modulation,	
4	FM generation, the transistor reactance modulator	
5	varactor diode FM modulator	
6	pulse modulation	
7	pulse code modulation	
8	Linear diode detector, detection characteristics of diode and its uses	
9	effect of introducing C and R in a diode	
10	diode for automatic volume control	
11	square law diode detection	
12	Frequency demodulation, discriminator, limiter, detector	
13	Frequency demodulation, discriminator, limiter, detector	
14	SSB detection	
15	PCM encoders and decoders	
16	multiplexing	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 4th

Name of the Paper- ELTM402- **NETWORK ANALYSIS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Complex frequency and the s-plane	
2	Complex frequency and the s-plane	
3	Properties of poles and zeros in the complex plane	
4	Properties of poles and zeros in the complex plane	
5	Network functions for one port and two port networks	
6	Network functions for one port and two port networks	
7	Poles and zeros of network functions	
8	Poles and zeros of network functions	
9	Restrictions on locations of poles and zeros	
10	Restrictions on locations of poles and zeros	
11	Time domain response from pole and zero plot.	
12	Time domain response from pole and zero plot.	
13	Revision	
14	Superposition theorem	
15	Milman theorem	
16	Thevenm's theorem	
17	Norton's theorem	
18	Maximum power transfer theorem, Reciprocity theorem	
19	Thevenin's theorem in frequency domain	
20	Thevenin's theorem in frequency domain	

21	Norton's theorem in frequency domain	
22	Norton's theorem in frequency domain	
23	Substitution theorem	
24	Compensation theorem	
25	Revision	
26	Short circuit admittance parameters	
27	open circuit impedance parameters	
28	relation between Z- and Y-parameters	
29	Transmission parameters (A,B,C,D,)	
30	A B C D parameters in terms of Z and Y-parameters	
31	A B C D parameters in terms of Z and Y-parameters	
32	hybrid parameters, g- parameters	
33	input ,impedance in terms of Z- parameters	
34	Y-, ABCD- parameters; output impedance in terms of Z	
35	Output impedance in terms of Y, ABCD – parameter	
36	T-section representation, pi-section representation	
37	Image impedances. Symmetrical Networks	
38	Ladder Networks, Lattice Networks.	
39	Constant K-type filters(Low pass)	
40	Constant K-type filters(high pass)	
41	Constant K-type filters(band pass, band elimination)	
42	M – derived filters(low put, high pass)	
43	M – derived filters(low put, high pass)	
44	M – derived filters(low put, high pass)	

45	Delay network	
46	Attenuators and attenuating pads	
47	Attenuators and attenuating pads	
48	Revision	
49	Revision	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM602- **MICROPROCESSOR & MICROCONTROLLER**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Introduction to microprocessors and microcomputers	
2.	Machine language, assembly language and high level language	
3.	Microprocessor architecture,	
4.	Types of buses, registers,	
5.	Memory mapping	
6.	Basic idea of INTEL 8085, 8086, 80386, 80486, Pentium processors	
7.	8085 Microprocessor : pin-out diagram	
8.	8085 Microprocessor: classification of the signals,	
9.	Bus timings	
10.	Types of machine cycles and their functioning.	
11.	Types of machine cycles and their functioning.	
12.	Revision	
13.	8085 programming model: Accumulator, register	
14.	flags, instruction classification & programming concepts	
15.	Stack and subroutine (CALL and RET statements)	
16.	Stack and subroutine (CALL and RET statements)	
17.	Delay subroutines, Code conversion	
18.	Delay subroutines, Code conversion	
19.	BCD Arithmetic	

20.	Introduction to transmission format	
21	Introduction to transmission format	
22	modes of data transfer	
23	Interrupts: Maskable and non-maskable interrupts	
24	Interrupts: Maskable and non-maskable interrupts	
25	RST (Restart), vectored interrupts	
26	RST (Restart), vectored interrupts	
27	Instructions (SIM & RIM).	
28	Instructions (SIM & RIM).	
29	Memory: Primary & Secondary Memory	
30	Memory Mapping	
31	Serial and Parallel I/O	
32	Memory Interfacing with 8085	
33	Programmable I/O	
34	DMA	
35	Memory Mapped I/O and I/O	
36	Mapped I/O techniques.	
37	8255-Programmable Peripheral Interface	
38	8253- Programmable interval Timer	
39	8259- Priority Interrupt Controller	
40	8279-Programmable Keyboard/Display Interface	
41	8251- USART	
42	8237/8257- Programmable DMA Controller	
43	8237/8257- Programmable DMA Controller	

44	Revision	
45	Introduction to microcontrollers, advantages of microcontrollers.	
46	8031/8051 Microcontroller	
47	Architecture, register bank,	
48	Flags, special function registers, I/O ports	
49	Timers, serial communication, interrupts	
50	Instruction set. Introduction to 8086 & 6800.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 2nd

Name of the Paper- ELTG201- **NETWORK ANALYSIS**

Units Assigned- 4

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Network Analysis Laplace transformation and theorem	
2.	Transient response of RC, RL and RLC networks	
3.	Laplacian transform method, Laplacian transform of step voltage and a rectangular pulse	
4.	Laplacian transform method, Laplacian transform of step voltage and a rectangular pulse	
5.	Laplacian transforms of either commonly used voltage waveforms	
6.	Determination of network response with Laplacian transform	
7.	Response of networks to a pulse series	
8.	Fouriers transforms of step voltage and rectangular pulse	
9.	Fouriers transforms of step voltage and rectangular pulse	
10.	use of Fourier transforms to describe input waveforms	
11.	use of Fourier transforms to describe input waveforms	
12.	Determination of network response by Fourier transforms	
13.	Determination of network response by Fourier transforms	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 4th

Name of the Paper- ELTG401- **NETWORK ANALYSIS**

Units Assigned- 4, 6

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Asynchronous counter. Asynchronous decade counter	
2.	Synchronous counters	
3.	Up/down counters	
4.	Self stopping counter	
5.	TTL IC counter	
6.	Sequential counter design procedure and applications.	
7.	Serial in shift registers, parallel-in shift register	
8.	Universal shift register	
9.	3-bits CMOS shift register	
10.	Introduction: RAM, ROM, PROM	
11.	EPROM, secondary memory, floppy, Hard disk	
12.	Magnetic storage, programmable logic devices	
13.	Digital to analog converter,	
14.	Weighted Register DAC	
15.	R-2R ladder DAC	
16.	Analog to digital converter, Successive approximation ADC	
17.	Parallel ADC	
18.	Dual slope ADC, IC ADC 0809	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 6th

Name of the Paper- ELTG601- **ELECTROMAGNETIC AND WAVE PROPAGATION**

Units Assigned- 3, 4

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Energy in a magnetic field	
2.	Maxwell's equation and Maxwell's wave equation	
3.	Pointing theorem & poynting vector	
4.	Simple problems.	
5.	The wave equation, the plane wave	
6.	polarization of electromagnetic waves,	
7.	linear and circular polarization	
8.	Reflection, refraction and dispersion	
9.	Polarization by reflection and total internal reflection	
10.	Electromagnetic waves in non-conducting media, reflection and transmission at oblique incidence	
11.	Snell's law, Fresnel's equation, Brewster's angle,	
12.	Electromagnetic waves in conducting media, skin depth	
13.	Reflection,& transmission at a conducting surface	
14.	Dispersion, normal and anomalous dispersion	
15.	Cauchy's equation	
16.	Revision	
17.	Basic antenna principles, Wire and Aperture Antennas	
18.	Dipole, Power radiated, Radiation Resistance	
19.	Antenna Characteristics, Antenna Patterns	
20.	Radiation Intensity, Directive Gain	
21.	Coordinate system, radiation fields, polarization, isotropic radiator.	
22.	Half-wave Dipole Antenna, Quarter-Wave Monopole Antenna	
23.	Small Loop Antenna, Aperture Antenna	
24.	Antenna Arrays, Microstrip Antennas	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – RMEG

Class/Semester- 6th

Name of the Paper- RMEG-601- **REPAIRING OF TELEVISION & COMPUTERS**

Units Assigned- 1, 2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Introduction to Television Principle and Theory - Principle of conversion of picture to electrical signal	
2.	Introduction to Television Principle and Theory - Principle of conversion of picture to electrical signal	
3.	Picture frame, scanning, scanning lines	
4.	Picture frame, scanning, scanning lines	
5.	Field and frame frequency, interlace scanning	
6.	Field and frame frequency, interlace scanning	
7.	B/W TV receivers: description of B/W TV receiver in block diagram form	
8.	B/W TV receivers: description of B/W TV receiver in block diagram form	
9.	Principle of TV signal reception by antenna, receiving antenna, balloon booster, tunners	
10.	Principle of TV signal reception by antenna, receiving antenna, balloon booster, tunners	
11.	Receiver circuits: Functional description of IF amplifiers	
12.	Video detector, video amplifiers, sound trap	
13.	Audio power amplifier, loud speaker	
14.	Deflection circuits: Description of picture tubes	
16.	Magnetic deflection yoke, system brightness	
17.	Magnetic deflection yoke, system brightness	
18.	Contrast, height and width control circuits	
19.	Contrast, height and width control circuits	
20.	Different type of picture tubes	
21.	Fault finding and rectification of B/W TV receivers trouble shooting	

22.	Fault finding and rectification of B/W TV receivers trouble shooting	
23.	Fault finding and rectification of B/W TV receivers trouble shooting	
24.	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 3rd

Name of the Paper- ELTM302- **INSTRUMENTATION, OPTOELECTRONICS & NANOELECTRONICS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Electronic instruments & their characteristics, a generalized instrumentation scheme	
2	Classification of instrumentation error and their statistical behavior	
3	Construction and working principle, equivalent ckt, of a transformer	
4	Types of transformers, efficiency	
5	Audio transformer, auto voltage transformer	
6	Impedance matching, coil winding of ordinary transformer	
7	Measurement of current, voltage power at audio & radio frequencies, Advantages of electronic voltmeters	

8	Vacuum tube voltmeter(diode type only), Measurement of resistance and current with VTVM	
9	Digital voltmeter, Q-meter, wave analyzer	
10	Spectrum analyzer, power factor meter, ohmmeter and multimeter analog & digital.	
11	Basic CRO operation, deflection of charged particles in electronic & magnetic field	
12	Block diagram of CRO, vertical deflection system	
13	CRT : construction & principle of focusing and deflection of electron beam, CRT screens	
14	Delay line, Lissajous figures, synchronization, CRO probes	
15	Trigger circuits, application of CRO in measuring voltage	
16	Application of CRO in measuring frequency & phase, type of CRO, spectrum analyzer.	
17	Definitions, types active & passive, analog & digital, Thermocouple & piezoelectric transducers	
18	Thermistors, LDVT, basic idea of displacement & temperature transducer	
19	Photo sensitive devices, magnetic measurements	
20	Insulation systems, magnetic type recorders	
21	Spontaneous emission, absorption and stimulated emission	
22	Population inversion, Einstein A & B co-efficient	
23	Properties of laser, gain coefficient	
24	Pumping processes, optical resonator	
25	Types of resonator. Laser diode and its applications	
26	LED, photo diode,	
27	Photo multiplier tube semiconductor optoelectronic materials	

28	Phototransistor, optocoupler	
29	Optocoupler, photo-detectors	
30	LCD and CCD.	
31	Optical fibber, principle of fabrication, types of optical fiber	
32	Characteristic parameters, modes, single mode, multi-mode fiber	
33	Transmission through fiber	
34	Advantage of optical communication	
35	Conceptual set up of an optical communication System	
36	Fibre optical wave guide, step index fiber	
37	Concept of graded index, dielectric waveguide	
38	Total internal reflection, fibre splicing	
39	Fibre splicing, low dispersion fibres	
40	Losses in fibres, fiber jointing.	
41	Introduction to nano, Definition of nano particles	
42	Quantum well	
43	Quantum wire,	
44	Characteristics of nano particles	
45	Plastic electronics	
46	Processes for nano electronics	
47	Processes for nano electronics	
48	Nano electronics devices	
49	PCM(Phase change memory)	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM503(A)- **INTRODUCTION TO COMPUTER PROGRAMMING AND
NUMERICAL ANALYSIS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Introduction to computer System	
2.	Block diagram of computer (CPU,MAIN Memory, I/O devices)	
3.	Block diagram of computer (CPU,MAIN Memory, I/O devices)	
4.	Concept of machine language	
5.	Concept of machine language	
6.	High level languages	
7.	High level languages	
8.	Compiler,	

9.	Interpreter	
10.	Assembler	
11.	Linker, loader	
12.	Revision	
13.	Introduction to Software	
14.	Need of software, system software	
15.	Types of software, system software, application software	
16.	Programming language	
17.	Machine languages, high level languages	
18.	High level languages	
19.	High level languages	
20.	Introduction to Operating system	
21.	Introduction to Operating system and its function	
22.	Disk operating system,	
23.	Windows OS, Linux OS	
24.	Unix OS	
25.	Revision	
26.	Algorithm, flowchart	
27.	Control loops, pseudo code	
28.	Modular design of a program	
29.	Program development cycle and environment	
30.	Level of programming language	
31.	Introduction to C, standard data types,	

32	Constant and variables, expressions	
33	Assignment, control statement	
34	Functions and procedures, Parameter passing	
35	Recursion, Sub-range and enumerated data types	
36	Arrays, string, structures, files pointers	
37	Linked, list as example of using pointers	
38	Concept of structured programming-stepwise refinement	
39	Introduction to MATLAB & SIMULINK, Introduction to numerical Methods	
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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 1st

Name of the Paper- ELTG101- **BASIC PHYSICS & SEMICONDUCTOR**

Units Assigned – 3, 5

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Electron spin, Spin and Orbital angular momentum	
2.	Quantization and Larmor's theorem	
3.	Atoms in external magnetic fields:- Zeeman effect (Normal and Anomalous)	
4.	Atoms in external magnetic fields:- Zeeman effect (Normal and Anomalous)	
5.	Pauli's exclusion principle. Atomic Shell Model	
6.	Periodic table. Spin orbit coupling. Fine structure	
7.	Total angular momentum, Vector Model	
8.	L-S and J-J couplings (for 2 valence electrons only)	
9.	Charge carrier in intrinsic and extrinsic semiconductor	
10.	Charge carrier in intrinsic and extrinsic semiconductor	
11.	p-type and n-type semiconductor	

12.	majority and minority carrier Fermi Level in semiconductor	
13	Mobility current density	
14	conductivity	
15	properties of p-n junction	
16	I-V characteristics of p-n junction	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned – 5, 6

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Properties of feedback circuits	
2.	Feedback requirements for oscillator	
3.	Generation of continuous oscillation	
4.	Tuned collector oscillator	
5.	Hartley oscillator	
6.	Colpitts oscillator, phase-shift oscillator	
7.	Wien-Bridge oscillator, crystal oscillator	
8.	VHF oscillators, relaxation oscillators	
9.	Fabrication of monolithic integrated circuits	
10.	Integrated circuit component	
11.	Operational amplifier	
12.	Operational amplifier	

13	Some applications of operational amplifiers	
14	Measurement of operational amplifier parameters	
15	Measurement of operational amplifier parameters	
16	Frequency response of operational amplifiers	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 5th

Name of the Paper- ELTG501 – **ELECTRONICS COMMUNICATION**

Units Assigned – 3, 5

Marks Assigned – 25

Class	Topic/ Unit	Remarks
1.	Ground, space and sky wave propagation	
2.	Propagation through troposphere	
3.	Propagation through ionosphere	
4.	Propagation through space	
5.	Characteristics of various propagation media with reference to LF	
6.	Characteristics of various propagation media with reference to HF	
7.	Characteristics of various propagation media with reference to VHF	
8.	Characteristics of various propagation media with reference to Microwave signals	
9.	Line-of-sight microwave links and communication via satellite	

10.	Line-of-sight microwave links and communication via satellite	
11.	Line-of-sight microwave links and communication via satellite	
12.	Calculation of path Loss and transmitter power required	
13	Calculation of path Loss and transmitter power required	
14	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
15	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
16	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
17	Radio aids to navigation-direction finders	
18	Radio aids to navigation-direction finders	
19	Aircraft navigation system	
20	Aircraft navigation system	
21	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –RMEG

Class/Semester- 5th

Name of the Paper- RMEG-501 – **BASICS OF ELECTRONICS & ELECTRONICS DEVICES**

Units Assigned – 3, 5

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Semi conductors: P-type and N-type semi conductors	
2.	Formation of P-N junction and its properties, specifications and uses	
3.	Formation of P-N-P transistor	

4.	Different types of terminal characteristics, field effect transistor (FET)	
5.	Silicon controlled rectifier (SCR)	
6.	Photo diodes, light emitting diode(LED), characteristics	
7.	Amplification principle of IC, study of common ICs used in Radio and TV receiver circuits	
8.	Amplification principle of IC, study of common ICs used in Radio and TV receiver circuits	
9.	Radio receivers: Block diagram presentation of Radio and working principles	
10.	Radio receivers: Block diagram presentation of Radio and working principles	
11.	Modulators: Purpose of modulators and their types (AM & FM)	
12.	Amplitude Modulation : Different types of amplitude modulation.	
13.	Amplitude Modulation : Different types of amplitude modulation.	
14.	Frequency modulation : Principle of frequency modulation.	
15.	Frequency modulation : Principle of frequency modulation.	
16.	Antenna: Different types of radio receiving antenna.	
17.	Antenna: Different types of radio receiving antenna.	
18.	AM Radio receivers: Tunners, RF amplifies	
19.	IF amplifiers, detectors	
20.	AVC and Audio preamplifier and output amplifiers	
21.	FM Radio receivers: Identification and study of different stages.	

COURSE PLAN

2016-17

DEPARTMENT OF ENGLISH

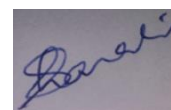
DIGBOI COLLEGE

NAME OF THE TEACHER: MR. PABITRA BHARALI

July-Dec 2016

Programs:**Major and General**

Sem	Subject	Course	Units	Marks assigned	No of class per week	No of Projected class
BA1	MAJOR	I	III: The Renaissance IV: Puritan Legacy and the Commonwealth	40	2	20
BA1B	GEN.ENG	101	II: Letter III: Note making/Memo/short notes V: Transcoding	45	2	20
BA1	ALTE	101	I: Shakespeare: Sonnet 30 Milton: On his Blindness Wordsworth: The solitary reaper II: Hopkins: Pied Beauty	30	2	20
BCom1	BUSINESS COMMUNICATION	C1	IV: Business letters and memo formats	16	2	20
BA3	MAJOR	302	IV: Browning: The Last Ride Together Arnold: The Dover Beach V: Yeats: The Second Coming Eliot: Journey of the Magi	32	2	20
BA3	GEN.ENG	301	I: Wordsworth: We are Seven Frost: Mending Wall Eliot: To The Indians who died in Africa Ezekiel: A very Indian Poem in Indian English	25	2	20
BCOM3	ALTE	301	I: Writing a business letter writing an essay	18	1	10
BA5	MAJOR	VII	I: Nature of Drama IV: Waiting for Godot	40	2	20
BA5	MAJOR	VIII	II: Longinus: On the Sublime IV: Johnson: Preface to Shakespeare	40	2	20

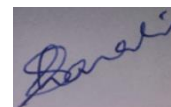


Signature of faculty

(Jan-Jun 2017)

Programs: Major and General

Sem	Subject	Cours e	Units	Marks assigned	No of class per week	No of Project ed class
BA2	MAJOR	II	IV:The Twentieth Century(1900-1945) V:The Twentieth Century(1945-2000)	32	3	30
BA2	GEN.EN G	201	II: Reflections on Gandhi Hawking: Our Picture of the Universe	27	2	20
BSC 2	GEN.EN G	201	II: Reflections on Gandhi Hawking: Our Picture of the Universe	27	2	20
BA2	AltEng	202	I: Swami Vivekananda: The secret of work Aurobindo: The Importance of Original Thinking IV: Critical appreciation of an unseen passage	40	3	30
BA4	MAJOR	VI	I: The socio-political context of the English Novel Dickens: A tale of Two Cities	40	2	20
BA4	AltEng	401	I: Hemingway: The Oldman and the sea	30	2	20
BA6	MAJOR	XIII	I: Post-colonialism: concepts II: Colonialist Criticism	40	3	30
BA6	MAJOR	XIV	II: Basic Sentence Structures	30	3	30



Signature of faculty

NAME OF THE TEACHER- SANJOY DAS

Course Plan (June-Dec, 2016)

Course –101

Class/Semester- B.A. 1st Semester

Name of the Paper- General English B.A, B.SC

Units Assigned- Unit – III &IV

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit III: Note making	Introduction
2	Note making defined	Explanation
3	Differences between note making and note taking explained	Explanation
4.	Various types of Note-making	Discussion
5.	Techniques of note-taking	Explained
6.	Exercise on the task of note-making	Discussion
7	How to write memos and short notes	Explanation
8	Memos guidelines given	Explanation
9	Some specimen of memos given	Exercises
10.	Report – definition and guidelines	Explanation
11	Exercises done on report	Exercises
12	Exercises on report writing given	Exercises
13	Paragraph defined	Explanation
14	Guidelines on paragraph writing	Explanation
15.	Some specimen given	Examples

Course –English Major, Course: 302

Class/Semester-3rd Semester

Name of the Paper-History of the English Language, Critical Terms, and Classical Mythology

Units Assigned-I

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit- History of the English Language- introduction	Introduction
2.	Origin of English language	Analysis and interpretation
3.	Four types of the history or origin of language	Analysis and interpretation
4.	Contd...	Analysis and interpretation
5.	Contd...	Analysis and interpretation
6.	Middle English language	Analysis and interpretation
7.	Contd...	Analysis and interpretation
8.	Contd...	Analysis and interpretation
9.	Change of meaning in English language	Analysis and interpretation
10.	Contd...	Analysis and interpretation
11.	Contd...	Analysis and interpretation
12.	Growth of vocabulary in language	Analysis and interpretation
13.	Contd...	Analysis and interpretation
14.	Contd...	Analysis and interpretation
15.	Contd...	Analysis and interpretation
16.	Contd...	Analysis and interpretation
17.	Revision	Revision
18.	Revision	Revision

Name of the Teacher- Sanjoy Das

Course – English Major. Course: 501

Class/Semester-5th Semester

Name of the Paper-Reading Drama (Paper VII)

Units Assigned-I & III

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Nature of Drama from the Renaissance to the Modern Period	Elaboration
2.	Historical background of the age of Renaissance till Modern age	Elaboration
3.	Background of the English drama	Elaboration
4.	Contd...	Elaboration
5.	Contd...	
6.	Various types of dramas across ages	Elaboration
7.	Beckett- Waiting for Godot – a brief discussion of Samuel Beckett's life and background	Appreciation

8.	Absurd play and its characteristics defined	Analysis & interpretation
9.	Contd.	Analysis & interpretation
10.	Text – Waiting for Godot	Appreciation
11.	Contd...	Appreciation
12.	Contd...	Appreciation
13.	Contd...	Appreciation
14.	Contd...	Appreciation
15.	Contd...	Appreciation
16.	Absurdist ideas discussed	Discussion
17.	Character-analysis	Discussion
18.	Other important issues discussed	Discussion

Course- English Major, Course: 502

Class/Semester-5th Semester

Name of the Paper-Paper VIII: Criticism I

Units Assigned-I & III

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit: Aristotle –Poetics	Introduction
2.	Aristotle and nature of drama discussed	Discussion
3.	Background of the age discussed	Discussion
4.	Text- Poetics	Interpretation
5.	Contd...	Interpretation
6.	Contd...	Interpretation
7.	Contd....	Interpretation
8.	Contd...	Interpretation
9.	Contd...	Interpretation
10.	Contd...	Interpretation
11.	Contd...	Interpretation
12.	Various issues related to the text taken into discussion	Discussion
13.	Various issues related to the text taken into discussion	Discussion
14.	Various issues related to the text taken into discussion	Discussion
15.	Various issues related to the text taken into discussion	Discussion
16.	Unit III: Sidney: An Apology for Poetry	Interpretation
17.	Background of the author discussed	Interpretation
18.	Text: An Apology for Poetry	Interpretation
19.	Contd...	Interpretation
20.	Contd...	Interpretation
21.	Contd...	Interpretation
22.	Contd...	Interpretation
23.	Contd...	Interpretation
24.	Contd...	Interpretation
25.	Contd...	Interpretation
26.	Important issued related to the text discussed	Discussion
27.	Important issued related to the text discussed	Discussion
28.	Important issued related to the text discussed	Discussion

(Jan-June, 2017)

Course : General English Course 201

Class/ Semester : B.A 2nd Semester

Name of the Paper-General English Paper II

Units Assigned-I & II

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit I: Short Stories – detailing on various aspects of short stories	Introduction
2.	R.K. Narayan- Under the Banyan Tree	Appreciation
3.	Contd...	Appreciation
4.	Contd...	Appreciation
5.	Contd...	Appreciation
6.	Important issues discussed	Discussion
7.	Major themes elaborated	Discussion
8.	Tutorial	Tutorial
9	Orwell- Reflections on Gandhi	Appreciation
10	Contd...	Appreciation
11	Contd...	Appreciation
12	Contd...	Appreciation
13	Important issues discussed	Discussion
14	Important issues discussed	Discussion

Course: 401

Class/Semester: 4th Semester

Name of the Paper: Alternative English

Units Assigned-Unit III

Marks Assigned- 17.5

Class	Topic/ Unit	Remarks
1.	Unit III- Mahashweta Devi- Kunti and Nishadin	Background to the author
2.	Text continued	Appreciation
3.	Contd...	Appreciation
4.	Contd...	Appreciation
5.	Issues of caste discrimination analysed	Appreciation
6.	Issues of feminism discussed	Discussion
7.	Other underlying themes analysed	Analysis and interpretation
8.	Character Analysis	Analysis and interpretation
9.	Images, symbols etc discussed	Discussion
10.	Discussion	Discussion

Course: English Major, Course 401

Class/Semester: 4thSemester (English Major)

Name of the Paper- Reading Fiction

Units Assigned- I & II, Marks assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I- The socio-political contexts of the English novel – An overview	Introduction
2.	Contd...	Appreciation
3.	Contd...	
4.	Dickens- A Tale of Two Cities – introduction to the author	Background information
5.	Chapterwise discussion of the text	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Contd...	Appreciation
10.	Important issues discussed	Discussion
11.	Discussed the text as historical novel	Discussion
12.	Socio-cultural aspects discussed	Discussion
13.	Contd...	Discussion
14	Contd...	Discussion
15	Queries addressed	Discussion
16	Queries addressed	Discussion

Course: English Major, Course 601

Class/Semester: 6th Semester

Name of the Paper-601

Units Assigned- Unit I, Marks assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit I- Wordsworth's Preface to Lyrical Ballads Wordsworth as critic discussed	Introduction to the author
2.	Contd...	Introduction
3	Text - Preface to Lyrical Ballads	Appreciation
4.	Analysis of the text	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Important issues discussed	Discussion
10.	Contd...	Discussion
11.	Contd...	Discussion
12.	Queries addressed	Discussion
13	Queries addressed	Discussion

(Jan-June, 2017)

Name of the Teacher- Sanjoy Das

Course: English Major, Course: 604

Class/Semester 6th Semester

Name of the Paper- Introduction to Linguistics and Phonetics

Unit's Assigned-I, Marks- 30

Class	Topic/ Unit	Remarks
1.	Unit I- Properties of language	Introduction to the unit
2.	Characteristics of human language	Appreciation
3.	Communicative vs. Informative language explained	Appreciation
4.	Language system	Appreciation
5.	Langue and Parole explained	Appreciation
6.	Contd...	Appreciation
7.	Sound and meaning explained	Appreciation
8.	Contd...	Appreciation
9.	Language varieties discussed	Appreciation
10.	Contd...	Appreciation
11.	Contd...	Appreciation
12	Register defined	Appreciation
13	Pidgin, Creole explained	Appreciation
14	Dialect, idiolect explained	Appreciation
15	Contd...	Appreciation
16	Language change discussed	Discussion
17	Language change discussed	Discussion
18	Queries addressed	Discussion
19	Queries addressed	Discussion

NAME OF THE TEACHER- DR.CHANDANA CHETIA

(June-Dec,2016)

Course –101

Class/Semester- B.A. 1st Semester

Name of the Paper- General English B.A, B.SC

Units Assigned- Unit – I & IV

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Comprehension	
2.	Understand what reading comprehension is	
3.	Know the importance of comprehension	
4.	Learn how to attempt comprehension –based questions	
5.	Exercise on comprehension	
6.	Precis Writing	
7.	What is a Precis	
8.	Uses of a Precis	
9.	How to write a Precis	
10.	Some specimen Precis	
11.	Unit IV : Paragraph Writing	

(June-Dec, 2016)

Course –English Major,Course: 302

Class/Semester-3rd Semester

Name of the Paper-Reading Poetry

Units Assigned-I & III

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1.	Unit I: Shakespeare's Sonnet- 18, 60, 65	
2.	Sonnet – Its Nature and Growth	
3.	The English Sonnet – A brief Survey	
4.	Shakespeare's Sonnets—A Survey	
5.	Explanation of Sonnet 18	
6.	Contd	
7.	Explanation of Sonnet 60	
8.	Contd.	
9.	Explanation of Sonnet 65	
10.	Contd.	
11.	Discussion	
12.	Donne: Valediction Forbidding Mourning	
13.	Donne as a Poet	
14.	Explanation of the poem	

15.	Herbert : Collar	
16.	Herbert as a poet	
17.	Explanation of the poem	
18.	Contd	
19.	Discussion	
20.	Unit III: Wordsworth: Tintern Abbey	
21	The Age of Romanticism and romantic poetry	
22	Wordsworth as a poet	
23	Explanation of the poem	
24	Contd.	
25	Keats's : Ode on A Grecian Urn	
26	Keats as a Poet	
27	Explanation of the poem	

(June-Dec,2016)

Course –English Major . Course: 501

Class/Semester-5th Semester

Name of the Paper-Reading Drama(Paper VII)

Units Assigned-I & III

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Nature of Drama from the Renaissance to the Modern Period	
2.	Historical background of the age of Renaissance till Modern age	
3.	Background of the English drama	
4.	Discussion	
5.	Unit : III: Pygmalion	
6.	Introduction to G.B Shaw & his Age	
7.	Act wise Explanation of Pygmalion	
8.	Contd.	
9.	Contd.	
10.	After completion of the Acts discussed the Sequel of Pygmalion	
11.	Discussion	
12.	Discussion	

(June-Dec, 2016)

Course- English Major, Course :504

Class/Semester-5th Semester

Name of the Paper-Paper X: Indian Writing in English

Units Assigned-I & II

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: History of Indian Writing in English	
2.	History & Reception of Indian Writing in English	
3.Unit - II	Unit II: Kanthapura	
4.	Raja Rao as an Indian writer in English	
5.	Chapter wise explanation of the novel	
6.	Contd.	
7.	Contd.	
8.	After Completion of the novel Discussion on the various issues in Kanthapura: Indaianness in Kanthapura	
9.	Myth in Kanthapura	
10.	Gandhian Ideology in Kanthapura	
11.	Condition of the Coolies in Skeffington Coffee House	
12.	Model answers to questions of previous exams dictated	

(Jan-June, 2017)

Course – English Major, Course: 201

Class/Semester- B.Com 2nd Semester

Name of the Paper- Business Communication

Units Assigned-IV

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	Unit IV: Business letters and Memo Formats	
2.	Principles of Business Letters	
3.Unit - II	Sales Letters	
4.	Memos	
5.	Collection Letters	
6.	Complaint & Persuasive Letters	
7.	Request Letters	
8.	Good News & Bad News Letters	
9.	Office Memorandum	

Course : General English Course 201

Class/Semester : B.A 2nd Semester

Name of the Paper-General English Paper II

Units Assigned-I

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit I: Short Stories	
2.	O. Henry : The Last Leaf	
3.	Explanation	
4.	Explanation	
5.	After Completion discussed the Question Answers	
6.	Discussion	
7.	Discussion	
8.	Tutorial	

Course : 401

Class/Semester : 4th Semester

Name of the Paper: Alternative English

Units Assigned-Unit I

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit I: The Old Man and The Sea	
2.	Ernest Hemingway as a Novelist	
3.	Hemingway's Tragic Vision of Man	
4.	The Cuban context of the Old Man & the Sea	
5.	Explanation	
6.	Explanation	
7.	Underlying themes & symbolism in The Old Man & the Sea	
8.	Character Analysis	
9.	Discussion	

Course : English Major,Course 401

Class/Semester : 4thSemester (English Major)

Name of the Paper- Reading Fiction

Units Assigned- IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit IV: Sons & Lovers	
2.	D.H Lawrence & his Age	
3.	A General Estimate of Lawrence as a Novelist	
4.	An Introduction to Sons & Lovers	
5.	Chapter wise discussion of the Novel	
6.	Contd.	
7.	Contd.	
8.	Characters Analysis	
9.	Symbolism	
10.	Oedipus Complex in Sons & Lovers	
11.	Autobiographical Element in the novel	
12.	Discussion	
13.	Tutorial	

Course : English Major, Course 602

Class/Semester:6th Semester

Name of the Paper-602

Units Assigned- Unit III

Marks Assigned- 25

Class	Topic/ Unit	Remarks
1.	Unit III: Desire Under the Elms	
2.	American Drama: An Overview	
3.	Eugene O' Neill as a Dramatist	
4.	Desire Under the Elma : Introduction	
5.	Themes of the Play	
6.	Analysis of Part One of the Play	
7.	Part Two Analysis	
8.	Part Three Analysis	
9.	Symbolism	
10.	Characterization	
11.	Discussion	
12.	Discussion	

Course : English Major, Course: 603

Class/Semester 2nd Semester

Name of the Paper- Literature in the Postcolonial World

Units Assigned-IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit IV: Disgrace	
2.	Biographical Sketch of J.M Coetzee	
3.	Apartheid in South Africa	
4.	Disgrace: Introduction	
5.	Analysis of the Chapters	
6.	Contd.	
7.	Contd.	
8.	Characterization	
9.	Themes in Disgrace	
10.	Discussion	
11.	Discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2016-17)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-1st Semester (Non-CBCS)

Name of the Paper-Physical Geography

Units Assigned-1 and 3 Pass Course

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Basic concepts in Geomorphology	
2.	Major Landforms of the Earth:Plains : Definations and types	
3.	Major Landforms of the Earth:Plains : Elements	
4.	Major Landforms of the Earth:Plateaus : Definations and types	
5.	Major Landforms of the Earth:Plateaus : Elements	
6.	Major Landforms of the Earth: Mountains : Definations and types	
7.	Major Landforms of the Earth: Mountains : Elements	
8.	Earth's movements concept	
9.	Epeirogenic	
10.	Orogenic	
11.	Earthquakes:Types	
12.	Earthquakes Classification	
13.	Earthquakes, causes	
14.	Volcanoes : Types	
15.	Volcanoes : Causes	
16.	Volcanoes : Classification	
17.	Wegener's continental drift theory	
18.	Introduction to ocean floor	
19.	Salinity of ocean water	
20.	Ocean Current : Atlantic	
21.	Ocean Current : Pacific	
22.	Ocean Current : Indian	
23.	Composition of sea water	
24.	Ocean Deposits	
25.	Ocean Deposits Continue----	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2016-17)

Name of the Teacher-Dr. Sangeeta Boruah Saikia

Course –Honours / Generic – Pass Course

Class/Semester-3rd Semester (Non-CBCS)

Name of the Paper-Climate Change : Human and Population Geography

Units Assigned-1(Theory) and 2 (Practical)

Marks Assigned- 24+16=40

Class	Topic/ Unit	Remarks
1.	Meaning and definition Human Geo	
2.	Nature scope and importance of Human Geo	
3.	Man Environment relationship	
4.	Environment Determinism and environment possibilism	
5.	Way of life in Desert Region	
6.	Way of life Polar Region	
7.	Way of life in Equatorial Region	
8.	Bodo tribe dress and food habit	
9.	Naga tribe dress and food habit	
10.	Khasi tribe dress and food habit	
11.	natural region of the world	
12.	Continue natural region of the world	
13.	Meaning definition of Human races	
14.	Classification of Human races in the world	
15.	Human races in India	
16.	Classification of Human races in the world	
17.	Characteristics of human races	
18.	Bases of Human Race	
19.	Distribution of human races	
20.	Drawing of Climograph	
21.	Drawing of Hythergraph	
22.	Preparation of Line graph	
23.	Preparation of Bar graph	
24.	Weather map interpretation Winter	
25.	Weather map interpretation Summer	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2016-17)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2(Theory) Unit-2 (Practical)

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Classification of Industry	
2.	Iron and Steel Industry	
3.	Locational Factors of Iron and Steel Industry	
4.	Distribution of Iron and Steel Industry	
5.	Ruhr basin steel centres of West Germany	
6.	Iron and Steel Industry in Japan	
7.	Locational Factors of Cotton Textile Industry	
8.	Distribution of Cotton Textile Industry	
9.	Cotton Textile Industry in India	
10.	Cotton Textile Industry in U.K	
11.	Cotton Textile Industry in USA	
12.	Classification of Chemical Industry	
13.	Locational Factors of Chemical Industry	
14.	Chemical Industry in India	
15.	World Distribution of Rice	
16.	Practical-Pie Diagram	
17.	World Distribution of Wheat	
18.	Practical-Bar Diagram	
19.	Tea distribution in the World	
20.	Practical-Histogram	
21.	Tea in India	
22.	Practical-Frequency Curve	
23.	Coffee distribution in the World	
24.	Practical- Population distribution map of N.E. India	
25.	Coffee in Brazil	
26.	Practical-Population distribution map of India	
27.	Cotton Distribution in the World	
28.	Practical- Population Density map of N.E. India	
29.	Jute Distribution in the World	
30.	Practical- Population Density map of India	

31.	Rubber Cultivation in the World	
32.	Practical-Population literacy map of India	
33.	Rubber in S,E, Asia	
34.	Practical-Population literacy map of Assam	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2016-17)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-2nd Semester (Non-CBCS)

Name of the Paper- Physical Geography Part II

Units Assigned- 3 and 4

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Biogeography : Definition	
2.	Biogeography : Scope	
3.	Biogeography : Significance	
4.	World distribution of plant	
5.	Factors affecting world distribution of plants	
6.	Zoo geographical regions of the world	
7.	World Distribution of Animals	
8.	Factors affecting world distribution of animals	
9.	Major floristic regions of the world	
10.	Major floristic regions of the India	
11.	World Distribution of Animals	
12.	Soils: Definition	
13.	Soils: Characteristics	
14.	Soil profile and Horizons	
15.	Soil structure and formation	
16.	Soil texture	
17.	Factors affecting of Soil formation	
18.	Soil forming processes	
19.	Classification of Soil	
20.	Distribution of Soil	
21.	Soil Erosion	
22.	Soil Conservation	
23.	Major soil Types of India	
24.	Major soil Types of Assam	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2016-17)

Name of the Teacher-Dr. Sangeeta Boruah Saikia

Course –Honours / Generic – Pass Course

Class/Semester-4th Semester (Non-CBCS)

Name of the Paper-Regional Geography of India

Units Assigned- 2and 3

Marks Assigned- 24(Theory) 16 (Practical) =40

Class	Topic/ Unit	Remarks
1.	Concept of Heavy Industry Iron and Steel Industry	
2.	Production of Iron and Steel Industry in India	
3.	Distribution of Iron and Steel Industry in India	
4.	Production of Cotton Textile Industry in India	
5.	Distribution of Cotton Textile Industry in India	
6.	Classification of Chemical Industry in India	
7.	Heavy Chemical Industry in India	
8.	Petro- Chemical Industry in India	
9.	Industrial belt in India	
10.	Transport system in India, types of transport	
11.	Communication system in India	
12.	Causes of Population Growth	
13.	Factors of Population Distribution	
14.	Population Growth in India	
15.	Distribution of Population	
16.	Physiography of N.E.India	
17.	Climate of N.E.India	
18.	Soil of N.E.India	
19.	Natural vegetation of N.E.India	
20.	Major Minerals of of N.E.India	
21.	Transport and communication of N.E.India	
22.	Production of Major crops of N.E.India	
23.	Distribution of Major crops of N.E.India	
24.	Basic concept of Survey	
25.	Plain table survey by radiation method	
26.	Plain table survey by intersection method	
27.	Open traverse by Prismatic compass	
28.	Close traverse by Prismatic compass	

Course Plan Even Semester (2016-17)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World

Units Assigned- Unit 1 (Asia)

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)


Class	Topic/ Unit	Remarks
1.	Physical features of Asia	
2.	Climatic Region of Asia	
3.	Factors affecting the climate of Asia	
4.	Climatic Characteristics of Asia	
5.	Soil of Asia	
6.	Natural Vegetation of Asia	
7.	Tea Cultivation in Asia	
8.	Cultivation of Rice in Asia	
9.	Rubber Plantation in Asia	
10.	Coffee Cultivation in Asia	
11.	Maize Cultivation in Asia	
12.	Sugar cultivation in Asia	
13.	Wheat Cultivation in Asia	
14.	Spatial Distribution of Population in S.E. Asia	
15.	Density of Population in Asia	
16.	Practical-International Boundaries of Neighboring Countries	
17.	Iron and Steel Industry in Asia	
18.	Practical-Mac Mohon line	
19.	Petroleum and Natural Gas in S,E, Asia	
20.	Mineral Resources of Asia	
21.	Practical- Demarcation of Red-Cliff line	
22.	Jute Cultivation of Bangladesh	
23.	Practical-International Boundary of India with Myanmar and Bhutan	
24.	Coal recourses of Asia	
25.	Practical-SAARC Countries	
26.	Cotton Textile Industry in Japan	
27.	Practical-Durand Line	
28.	Fishing Industry in Japan	
29.	Practical-Asia political Map	
30.	Manufacturing industry in Japan	

DIGBOI COLLEGE: DIGBOI

Course Plan

2016-17

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Pass Course
Class/Semester- 1st Semester (Non CBCS)
Name of the paper- Physical Geography Part I
Units Assigned- 1,2
Marks Assigned- 40

CLASS	UNITS/TOPICS TAUGHT	REMARKS
1	Geomorphic Processes: Agent	
2	Fluvial Processes	
3	Erosional features	
4	Depositional features	
5	Glacial Processes	
6	Erosional features	
7	Depositional features	
8	Krast Topography	
9	Erosional features	
10	Depositional features	
12	Arid Topography	
13	Erosional features	
14	Depositional features	
15	Normal cycle of Erosion	
16	Definition of Weather and Climate	
17	Elements and factors of Weather and Climate	
18	Horizontal and Vertical distribution of Temperature	
19	Insolation and heat budget	
20	Atmospheric pressure: Global pressure System	
21	Wind belts	
22	Concept of Air masses and fronts	
23	Classifications of Air masses	
24	Classifications of Fronts	
25	Cyclones and Anticyclones	
26	Different between Cyclones and Anticyclones	

DIGBOI COLLEGE, DIGBOI
Course Plan Odd Semester (2016-17)

Name of the Teacher-Mr.Narendra Kr.Das
 Course –Honours / Pass Course
 Class/Semester-3rd Semester (NON-CBCS)
 Name of the Paper- Human and Population Geography
 Units Assigned-II (Theory) and 2(Practical)
 Marks Assigned- 24+16=40

Class	Topic/ Unit	Remarks
1.	World population growth	
2.	Causes of population growth	
3.	World population distribution	
4.	Population growth in India	
5.	Population distribution in India	
6.	Causes of Uneven distribution of population	
7.	Consequences of population growth	
8.	Remedial Measures	
9.	Migration Concept and Pattern	
10.	Causes of Migration	
11.	Consequences of Migration	
12.	Types of Settlement:	
13.	Pattern of Rural Settlement	
14.	Pattern of Urban Settlement	
15.	Concept of towns	
16.	Classification of towns on the basis of its origin	
17.	Functional classification of towns	
18.	Interpretation of Toposheets	
19.	Interpretation of Toposheets	
20.	Interpretation of Toposheets	
21.	Preparation of Transact Chart	
22.	Preparation of Transact Chart	
23.	Preparation of Transact Chart	
24.	Drawing of profiles: Serial	
25.	Drawing of profiles: Serial	
26.	Drawing of profiles	
27.	Superimposed profiles	
28.	Projected profiles	
29.	composite profiles	
30.	Interpretation of Profiles	
31.	Interpretation of Profiles	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2016-17)

Name of the Teacher-Mr.Narendra Kr. Das

Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2


Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Introduction to economic Geography	
2.	Types of economic activities	
3.	Types of economic activities	
4.	Economic activities in the plains of NE India	
5.	Economic activities in the hills of NE India	
6.	Economic activities vs Env. Problems	
7.	Economic activities vs Env. Problems	
8.	Concept of natural resources	
9.	Classification of natural resources	
10.	World Distribution of iron ore	
11.	World Distribution of coal	
12.	Continue	
13.	World Distribution of petroleum	
14.	World Distribution of Gold	
15.	World Distribution of copper	
16.	World Distribution of aluminium	
17.	Hydro-electricity NE India- Problems & Prospects	
18.	Measures of Central tendency	
19.	Mean	
20.	Median	
21.	Mode	
22.	Measures of dispersion	
23.	Measures of dispersion-mean deviation	
24.	Measures of dispersion-standard deviation	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (20216-17)

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Pass Course
Class/Semester- 2nd Semester (Non CBCS)
Name of the paper- Physical Geography -II
Units Assigned- 1,2
Marks Assigned- 40

CLASS	UNITS/TOPIC	REMARKS
1	Concept of Environment	
2	Natural Environment	
3	Human Environment	
4	Man Environment relationship	
5	Emerging Environment issues	
6	Environmental degradation	
7	Causes of Environmental degradation	
8	Environmental pollution	
9	Causes of Environmental pollution	
10	Global Warming Concept	
11	Causes of Global Warming	
12	Climate Change	
13	Causes of Climate Change	
14	Evidences of Climate Change	
15	Consequences of climate change	
16	Meaning and definition of Ecology	
17	Food web and Food Chain	
18	Structure of Ecosystem	
19	Functioning of Ecosystem	
20	Ecology vs Ecosystem	
21	Need of Biodiversity	
22	Conservation of Biodiversity	
23	Concept and importance of sustainable development	
24	Principle and goal of sustainable development	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2016-17)

Name of the Teacher-Mr. Narendra Kr. Das

Course –Honours / Generic – Pass Course

Class/Semester-4th Semester (Non-CBCS)

Name of the Paper-Regional Geography of India

Units Assigned- 1 and 2

Marks Assigned - 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	India: Introduction	
2.	Geological Structure of India	
3.	Physiographical Divisions of India	
4.	Drainage system of India	
5.	Climate of India	
6.	Soil of India	
7.	Natural Vegetation	
8.	Agriculture: Major Crops	
9.	Paddy	
10.	Wheat	
11.	Cotton Textile	
12.	Sugarcane	
13.	Tea	
14.	Major minerals	
15.	Power resources	
16.	Iron ore	
17.	Copper	
18.	Aluminium	
19.	Coalpetroleum	
20.	Natural Gas	
21.	Hydro power	
22.	Projection Concept	
23.	Polar Zenithal Gnomonic Projection	
24.	Polar Zenithal Stereographic Projection	
25.	Polar Zenithal Orthographic Projection	
26.	Conical Projection	
27.	Cylindrical Equal Area Projection	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2016-17)

Name of the Teacher-Mr. Narendra Kr. Das

Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World


Units Assigned- Unit II (Europe)

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Introduction to Europe: Location, Size, Shape etc.	
2.	Physical Divisions of Europe	
3.	Soils of Europe	
4.	Climate of Europe Summer Conditions	
5.	Climate of Europe Winter Conditions	
6.	Vegetation of Europe	
7.	Minerals of Europe: Iron Ore	
8.	Power Resources of Europe: Coal	
9.	Petroleum Resource of Europe	
10.	Hydro-Electricity of Europe	
11.	Agricultural Resources of Europe: Types of Agriculture in Europe	
12.	Wheat- Production & Distribution	
13.	Maize- Production & Distribution	
14.	Rice- Production & Distribution	
15.	Major Industries of Europe	
16.	Major Industries of Europe	
17.	Distribution of Population in Europe	
18.	Practical-Mac Mohon line	
19.	Map of China: Distribution of Industries	
20.	Map of Petroleum reserves of Middle East	
21.	Map of SAARC Countries	
22.	Population Density Map of South East Asia 2001	
23.	Map of China: Distribution of Industries	
24.	Map of Petroleum reserves of Middle East	
25.	Practical-Asia political Map	

Course Plan for the Session (June- December) 2016, Department of Hindi, Digboi College, Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL Hindi	Unit -II Rachanatmak Lekhan, Unit -III Kavya Khand, Unit -IV-Moukhik Prikshan,	Unit-I Apathit Bodh, Unit -III Gadya Khand & Vitan -1,
H.S.-I-Adv. Hindi	Unit -III Kahani, Unit -IV Nibandh, Unit -V History of Hindi Literature,	Unit -I Old Poetry, Unit -II Modern Poetry,
H.S.-II -MIL Hindi	Unit -II Rachanatmak Lekhan or Jansanchar, Unit -III Gadya Khand & Vitan-2,	Unit -I Apathit Bodh, Unit -III Kavya Khand,
H.S.-II-Adv. Hindi	Unit -III Rani Laxmibai (Novel) Unit -IV Ras, Chhand, Alankar,	Unit -I Modern Poetry, Unit -II Bhaskar Varman (Drama)
Sem.- I MIL Hindi	Unit -I Prachin & Madhya Kavya, Unit -II Aadhunik Kavya,	Unit - III Dhruvaswamini, (Novel) Unit - IV Jivan our Sahitya.
Sem.-I (Elec. Hindi)	Unit -I Gadya Katha Sahitya, Unit- III Naye Ekanki,	Unit- II Pachapan Khambhe Lal Deevaren, Unit- IV Jivan our Sahitya,
Sem.-III (Elec. Hindi)	Unit-I Karyalayee Hindi, Unit-IV Patra Lekhan, Aalekhan & Tippan,	Unit- II Pallavan, Unit- III Anuvad,
Sem.-III MIL (Com.)	Unit -II Vigyapan, Unit -III Karyalayee Hindi	Unit -I Gadya Katha Sansar, Unit-IV Anuvad,
Sem. V (Elec. Hindi)	Unit-II Bharopiya Parivar, Prachin Bharatiya Arya Bhasha, Unit-III Aadhunik Bhartiya Arya Bhasha,	Unit-I Bhasha our Bhasha Vigyan, Unit- IV Devnagari Lipi, Lipi ka Manak Roop,


 05/06/16
 HOD (HINDI) HUNDI
 DIGBOI COLLEGE, DIGBOI

Course Plan for the Session (January- June) 2017, Department of Hindi, Digboi College, Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL Hindi	Unit -II Rachanatmak Lekhan, Unit -III Kavya Khand, Unit -IV-Moukhik Prikshan,	Unit-I Apathit Bodh, Unit -III Gadya Khand & Vittan -1 ,
H.S.-I-Adv. Hindi	Unit -III Kahani, Unit -IV-Nibandh, Unit -V History of Hindi Literature,	Unit -I Old Poetry, Unit -II Modern Poetry,
Sem.-II -MIL Hindi	Unit -I Gadya Katha Aalok, Unit -IV Nibandh,	Unit -II Kali Aandhi, (Novel) Unit -III Vyakaran our Rachana,
Sem.-II-Elec. Hindi	Unit -I Prachin our Navin Kavya, Unit -II Saket (Navam Sarg),	Unit - II Kavyashastra, Unit - IV Alankaar, Chhand,
Sem.- IV- MIL Hindi	Unit -I Vyavaharik Hindi, Unit -III Patra Lekhan,	Unit - II Anuvad, Unit - IV Sankshepan,
Sem.-IV- Elec. Hindi	Unit -III Asamiya Sahitya ka Parichayatmak Itihas, Unit- IV Vaishnavyug, Aadhunikyug,	Unit- I Aadikal, Bhaktikal, Rittikal, Aadhunikkal, Unit- II Chhayavad, Prayogvad, Pragativad, Nai Kavita,Upanyas, Kahani, Natak, Ekanki,
Sem.-VI- Elec. Hindi	Unit- I Alochana Ka Swaroop, Unit- II Hindi Alochana - Shukla & Dwevedi,	Unit-III Jan Sanchar Madhyam, Unit-IV Sanchar Madhyam Ke Vividh Roop,

HOD (HINDI)
DIGBOI COLLEGE, DIGBOI

[Signature]
03.01.17

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION: 2016 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER I SUBJECT: HISTORY PAPER: COURSE:I

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1671- 1826	Course contents to be covered
June	08	Theory-	English: Baruah, S.L. –A Comprehensive History of Assam Gait, E.A.- A History of Assam	Soures:Archaeological,Epigraphic,Literary. Numismatic and accounts of the Foreign Travelers.
August	25	Theory-	Assamese: Baruah, Surajit Boruah,Nirode- Asomar Itihas,2 nd edition (revised) Nath,D. –Asam Buranji, Revised and enlarged edition	Political condition Of The Brahmaputra Valley at the Time of Foundation of The Ahom Kingdom. Sukapha – An Assessment.Sudangpha. State Information in the Brhmaputra valley—The chutiya . Kachari and the Koch state.
September	21	Theory-		Expansion of Ahom Kingdom in the 16 th century-Dihingiya Raja, political Devolpments in the 17 th Century –rule of Pratap Singh (1603-1641) Ahom – Mughal wars –treaty of 1639.
October	21	Theory-		Administrative developments and role of Mumai Tamuli barbarua. Assam in the second half of the 17 th century –the Ahom –Mughal wars- Mirjumla;s Assam invastion-causes and consequences.
November	07	Theory-		Invasion of Ram Singha –the battle of Saraighat(1671)and its results.

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2016 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAI
CLASS: T.D.C. SEMESTER III SUBJECT: HISTORY PAPER: COURSE:III

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Europe(1453-1815)	Course contents to be covered
June	08	Theory-	English: Hayes,C.J.H.-A Political and Cultural History of Early Modern Europe; Phukan ,Meenakshi- Rise of the Modern West: Social and Economic History of Early Modern Europe	American war of independence –Political and economic issues and significance. Enlightenment in Europe- its Impact. Enlightened Despotism in Europe – Russia and prussia and Austria.
August	25	Theory-	Assamese: Bhattacharya-Adhunik Paschattyar Utthan	The Industrial Revolution in Europe Causes and Significance. Transition From Feudalism to capitalism .French Revolution .causes course and significance. The Industrial Revolution in Europe Causes and Significance.
September	21	Theory-		Napoleon Bonaparte – internal and external polices-downfall of Napoleon Bonaparte
October	21	Theory-		The Congress of Vienna.
November	07	Theory-		Europe in 18 15

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2016 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER V SUBJECT: HISTORY PAPER: COURSE:V

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics:History of India(1526-1947)	Course contents to be covered
June	8			Political Conditions in Northern India in the beginning of the 16 th century
August	25	Theory-	English: Banerjee,A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)	The Afghan Empire and the Mughals –resistance us struggle for hegemony.The Age of the Mughals- foundation of the Mughal Empire – Humayun and his struggle-his conflict with Sher-Shah.
September	21	Theory-	Assamese: Barua, P.K. Hussain, T.A.- Bharat Buranji Goswami, S.D. - Bharat Buranji	The Age of the Mughals-foundation of the Mughal Empire –Humayun and his struggle-his conflict with Sher-Shah.Akbar to Aurangzeb – politicalSupremacy and administrative developments. The later Mughal and the decline and fall of the Mughal Empire.
October	21	Theory-		Rise of the Marathas in Deccan – Sivaji and his career. Society Economy ,religious and culture under the Mughals. Beginning of the European settlements in India-the portugues,the Dutch,the French and the English.British conquest of India ,The Battle Of Plasesy and its effects
November	07	Theory-		The Battle Of Plassesy and its effects

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION: 2016 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER I SUBJECT: HISTORY PAPER: COURSE:I

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1671- 1826	Course contents to be covered
June	08	Theory-	English: Baruah, S.L. -A Comprehensive History of Assam Gait, E.A.- A History of Assam	Post-Saraighat Assam ; Ascendancy of the Tungkhungia dynasty-the reign of Gadadhar Singha; Ahom rule at its zenith-the reign of Rudra Singha,
August	25	Theory-	Assamese: Baruah, Surajit Boruah,Nirode- Asomar Itihas,2 nd edition (revised) Nath,D. -Asam Buranji, Revised and enlarged edition	Rajeshwar Singha (1751-1769); Lakshmi Singha (1769-1780) : political history;Decline and fall of the Ahom Kingdom- the Moamariya Rebellion;
September	21	Theory-		The Burmese invasions ;The East India company in Assam politics- the Treaty of Yandabo and Assam; Ahom system of administration- the paik system
October	21	Theory-		Ahom policy towards the neighbouring hill tribes; Society in Assam under the Ahoms- caste and class structures
November	07	Theory-		Sankardev and the Neo-Vaishnavite Movement-background and implications

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2016 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER III SUBJECT: HISTORY PAPER: COURSE:III

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Europe(1453-1815)	Course contents to be covered
June	8	Theory-	English: Hayes,C.J.H.-A Political and Cultural History of Early Modern Europe; Phukan ,Meenakshi- Rise of the Modern West: Social and Economic History of Early Modern Europe	Renaissance-meaning- backgrounds-impacts; Reformation-origin,courses and consequences; Counter Reformation
August	25	Theory-	Assamese: Bhattacharya-Adhunik Paschattyar Utthan	; The Thirty Years' War- causes and consequences; Colonial Expansion in the 15 th and 16 th centuries- causes , extent and implications; Absolute Monarchy in Europe-Spain
September	21	Theory-		Absolue Monarchy in Europe- France ,England and Russia
October	21	Theory-		The Glorious Revolution- background and results; The Scientific Revolution in the 16 th -17 th centuries- extent, nature and results
November	07	Theory-		Mercantilism and European Economy 17 th and 18 th centuries

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2016 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER V SUBJECT: HISTORY PAPER: COURSE:V

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics:History of India(1526-1947)	Course contents to be covered
June	08	Theory-	English: Banerjee,A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)	Expansion and consolidation of the British rule in India upto 1857- Conflict with the Marathas, Mysore, Awadh, Punjab and Sindh;
August	25	Theory-	Assamese: Barua, P.K. Hussain, T.A.- Bharat Buranji Goswami, S.D. - Bharat Buranji	Administrative developments and socio- economic reform upto 1857;Revolt of 1857 and its aftermath; Post 1858 administrative developments till 1919; Socio-religious reform movements in the post 1857 period; Growth of press and rise of national consciousness
September	21	Theory-		Freedom struggle upto 1919- Partition of Bengal and the Swadeshi Movement, Home Rule League; Rise of Muslim of Muslim Politics; Freedom Struggle from 1919 to 1939- Gandhi in politics- Khilafat and Non- Cooperation Movement- Civil Disobedience Movement; Government of India Act, 1935;
October	21	Theory-		Rise of Communalism, revolutionary terrorism, trade unionism and Leftist politics; Cripps Mission- Quit India Movement- Second World War- INA;
November	07	Theory-		Post- War Development- Cabinet Mission , Transfer of power

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH.
CLASS: T.D.C. SEMESTER II SUBJECT: HISTORY PAPER: COURSE:II

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1826- 1947	Course contents to be covered
January	18	Theory		Growth of National consciousness,-Assam association, sarbajanik sabhas,and Rayat sabhas. Impact of partition of Bengal and swadeshi Movement in Assam
February	20	Theory-	Assamese: Nath,D. -Asam Buranji, Revised and enlarged edition	Goverments of India Act,1919- Dyarchy on trial in Assam. Impact of partition of Bengal and swadeshi Movement in Assam.Goverments of India. Non Co-operation Movement and Swarajist Politices in Assam.The Civil Disobedience Movement.student in Assam
March	25	Theory-		Non Co-operation Movement and Swarajist Politices in Assam.The Civil Disobedience Movement.student in Assam. Trade Union and Allird Movements.Tribal League and Politics in Assam. Migration .line system and its Impact on Politics in Assam. Quit India Movement in Assam. Cabinet Mission Plane.
April	12	Theory-		The grouping Controversy. The Sylhet Referendum

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER IV SUBJECT: HISTORY PAPER: COURSE:IV

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of India	Course contents to be covered
January	18	Theory-	English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India	Sources – A survey. Harappan Civilization – origin and extent, morphology of the major sites, salient features, decline and the end of Civilization.
February	20	Theory-	Assamese: Barua, P.K.- Bharat Buranji Nath, D.- Bharatar Rajnoitik aru Sanskritik Buranji(Revised)	Harappan Civilization Origin and extent, morphology of the major sites, salient features, decline and the end of Civilization. Vedic Civilization society, economy, polity and culture of the Rig- Vedic and the Later Vedic periods. Rise of the Territorial States – Mahajanapadas. Ascendancy of Magadha- Alexander's invasion of India. Rise of the Mauryan Empire under Asoka-his inscription – the Dhamma.
March	25	Theory-		The Mauryan Empire under Asoka-his inscription – the Dhamma. Mauryan system of Administration. Political developments in the Post-Mauryan period (200BC-300BC) The Sungas. Kushanas and Satavahanas.
April	12	Theory-		The Tamils and Sangam Age, The Sakas and the Indo-Greeks in India -contribution

**DIGBOI COLLEGE
TEACHERS' COURSE PLAN**

STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY

NAME OF TEACHER: SRI PARTHA KR NARAH

CLASS: T.D.C. SEMESTER VI SUBJECT: HISTORY PAPER: COURSE: VI

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics Women in Indian History)	Course contents to be covered
January	18	Theory-	English: Altekar, A.S.-The Position of Women in Hindu Civilization, 2 nd print Chandel, Bhuban(ed.)- Women in Ancient and Medieval India, Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women 1836-1937	Definition and Scope ,Feminist movements and Developments of women's History
February	20	Theory-	Assamese: Goswami, Gita, Goswami, P-Bharator Itihasot Nari	Key Concepts in Women's studies –Gender. Patriarchy and sexual Division of Labour. Sources for Reconstruction of women's History –Oral, Narratives, Memoirs. Dairies, Autobiographies. Women in Ancient Indian Society; Vedic period.
March	25	Theory-		Status of women in Buddhism .Changing Status of women in the subsequent period. Women in Medieval India. Social Customs and Reform Movements in 19 th century; Sati, widow Remarriage, Female Infanticide.
April	12	Theory-		Role of Brahma Samaj. Arjya Samaj. Parthana Samaj, and Aligarh Movements

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER II SUBJECT: HISTORY PAPER: COURSE:II

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1826- 1947	Course contents to be covered
January	18	Theory-	English: Baruah, S.L. –A Comprehensive History of Assam Barpujari,H.K.-(ed) The Comprehensive History of Assam, Vol.IV&V	Political condition in Assam on the eve of the British rule; Establishment and consolidation of the British rule- Reforms and Reorganisations-David Scott-
February	20	Theory-	Assamese: Nath,D. –Asam Buranji. Revised and enlarged edition	Annexation of Lower Assam, Administrative Reorganisation and Revenue Measures of Scott; Robertson-Administrative and Revenue Measures; Jenkins' Administrative Measures;
March	25	Theory-		Ahom monarchy in Upper Assam(1833-38); Annexation of Cachar;; Early Phase of Revolts and Resistance to British Rule- Gomdhar Konwar, Piyali Phukan, U. Tirut Singh; The Khamti and the Singpho Rebellion;
April	12	Theory-		The 1857 Revolt in Assam and its aftermath; Establishment of Chief Commissionership in Assam ;Land Revenue Measures and Peasant Uprisings in 19 th century Assam

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER IV SUBJECT: HISTORY PAPER: COURSE:IV

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of India	Course contents to be covered
January	18	Theory-	English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India	India in the Gupta and post-Gupta period(upto 640 A.D.)- polity, society,economy and culture
February	20	Theory-	Assamese: Barua, P.K.- Bharat Buranji Nath, D.- Bharatar Rajnoitik aru Sanskritik Buranji(Revised)	Political developments in the South- the Pallavas, the imperial Cholas, the Rashtrakutas and the Chalukyas; The Arabs and the Turks in Indian politics- Ghaznivides and the Ghorid invasions
March	25	Theory-		Indian Society during 650-1200 A.D.-literature & language, temple architecture and sculpture;The Delhi Sultanate- (a) the Slave dynasty (b) the Khaljis- Alauddin Khalji's administration (c) the Tughlaqs- Muhammad Tughlaq's experiments;
April	12	Theory-		Disintegration of the Delhi Sultanate and rise of Provincial Kingdoms- Vijayanagar and Bahmani Kingdom; Polity, society, economy,religion and culture of the Sultanate period, Bhakti Movement and Sufism; Neo-Vaishnavism inAssam

DIGBOI COLLEGE
TEACHERS' COURSE PLAN

STREAM: ARTS SESSION: 2017 DEPARTMENT: HISTORY

NAME OF TEACHER: DR. ANAMIKA NEOG

CLASS: T.D.C. SEMESTER VI SUBJECT: HISTORY PAPER: COURSE: VI

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics Women in Indian History	Course contents to be covered
January	18	Theory-	English: Altekar, A.S.-The Position of Women in Hindu Civilization, 2 nd print Chandel, Bhuban(ed.)- Women in Ancient and Medieval India, Vol. IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women 1836-1937	Development of Women's Education in the 19 th and 20 th centuries: Role of Social Reformers and Missionaries;
February	20	Theory-	Assamese: Goswami, Gita, Goswami, P-Bharator Itihasot Nari	Sarda Act, 1929 and Hindu Women's Right to Property Act, 1937; Development of Women's Organisation; Women's Conference, 1910 and National Council of Women in India; Demand for Women's Franchise; Women in Indian Freedom Struggle: Pre-Gandhian Phase;
March	25	Theory-		Women in Freedom Struggle-Gandhian Phase; Women in Revolutionary Movement; Women Society and Patriarchy in Medieval Assam; Social Reform Movement in 19 th and 20 th centuries
April	12	Theory-		Development of Women's Organisation in Assam

Department of Mathematics
Digboi College
Course Plan
Session 2016-2017

DIGBOI COLLEGE, DIGBOI

Department of Mathematics

Course Plan (Session June-December, 2016)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major/Pass

Class/Semester: First semester

Name of the Paper: MM101/NM101

Units Assigned: Vector Calculus, Unit-I

Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit-1: Vector Calculus, Introduction	
2	Ordinary derivatives of vectors, Definition Limit, derivative	
3	Examples	
4	Space curves, Definition of Continuity and differentiability	
5	Examples	
6	Differentiation formulae, addition, subtraction, uv and v/v form.	
7	Partial derivatives of vectors and related problems	
8	Vector differential operator del, Gradient, Directional derivative	
9	Divergence and Curl, Laplacian operator	
10	Vector identities and related problems.	

DIGBOI COLLEGE, DIGBOI

Department of Mathematics

Course Plan (Session June-December, 2016)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: Unit-IV

Marks Assigned: 4

Class	Topic/ Unit	Remarks
1	Unit-IV: Definition of Beta functions, Examples	
2	Problems of Beta functions.	
3	Definition of Gama functions, Examples	
4	Relation ship between Beta and Gama functions.	
5	Examples	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session June-December, 2016)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major

Class/Semester: Fifth Semester

Name of the Paper: Fluid Mechanics: Paper MM503

Units Assigned: Complete Paper

Marks Assigned: Theory – 80.

Class	Topic/ Unit	Remarks
1	Unit-1: Kinematics introduction.	
2	Types of fluids and their properties	
3	Velocity of a fluid at a point and examples.	
4	Eulerian and Lagrangian method, stream lines and path lines and examples	
5	Steady and unsteady flows, velocity potential	
6	Tutorial	
7	Rotational and irrotational motions, local and particle rate of change.	
8	Equation of continuity in cartesian form	
9	Equation of continuity in vector form	
10	Equation of continuity examples	
11	Equation of continuity examples	
12	Tutorial	
13	Acceleration of a fluid at a point and examples.	
14	General analysis of fluid motion	
15	Unit-2: Equation of motion introduction	
16	Euler's equation of motion in cartesian form	
17	Euler's equation of motion in vector form	
18	Tutorial	
19	Bernoulli's equation and examples	
20	Steady motion under conservative forces,	
21	Impulsive motion	
22	Circulation, Kelvin's circulation theorem	
23	Examples on Circulation	
24	Tutorial	
25	Unit-3: General theory of irrotational motion introduction	
26	Potential flow, deductions from Green's theorem.	
27	Kinetic energy of a liquid,	
28	Uniqueness theorems, Kelvin's minimum energy theorem,	
29	Mean value of velocity potential	
30	Tutorial	
31	Unit-4: Fluid pressure. Introduction	
32	Definition and examples of Density and specific gravity	

33	Theorems on fluid pressure under gravity	
34	Rate of variation of pressure	
35	Differential equation of pressure	
36	Tutorial	
37	Condition of equilibrium of floating body	
38	Equi-pressure surfaces and lines of force	
39	Curves of equi-pressure	
40	Curves of equi-density	
41	Examples	
42	Tutorial	
43	Unit-5: Resultant Pressure and Centre of Pressure	
44	Definition of Resultant Pressure and Centre of Pressure	
45	Determination of centre of pressure of parallelogram	
46	Determination of centre of pressure of triangle	
47	Determination of centre of pressure of circle	
48	Tutorial	
49	Determination of centre of pressure of different examples	
50	Thrust on curved surface	
51	Example on thrust on curved surface	
52	Unit-6: Equilibrium and Stability of Floating Bodies	
53	Condition of equilibrium of floating bodies	
54	Examples	
55	Stable, Unstable and Neutral equilibrium	
56	Determination of Meta centre	
57	Examples	
58	Tutorial	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session January-May, 2017)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major

Class/Semester: Fourth semester

Name of the Paper: C-Programming and Computer Lab, Paper-MM401

Units Assigned: Complete paper

Marks Assigned: Theory 50 and Practical 30

Class	Topic/ Unit	Remarks
1	(A)Unit-I: Introduction to C-Programming	
2	Basic programming concept, data types etc	
3	Programming approach to solving problem, flowcharts, algorithm	
4	Character set, C tokens, keywords and identifiers	
5	Constants, variables, data types, declarations of variables	
6	Declaration of storage class, assigning values to variables.	
7	Examples	
8	Unit-II: Operators and expressions	
9	Arithmetic operators, relational operators, logical operators, assignment operators with examples	
10	Increment and decrement operators, conditional operators, bitwise operators with examples	
11	Arithmetic expressions, precedence of arithmetic operators	
12	Type conversions in expressions operator precedence and associativity with examples	
13	Mathematical functions like sin(x), cos(x), sqrt(x), fabs(x) etc.	
14	Unit-III: Input output operations, printf(), scanf() functions	
15	Reading and writing a character	
16	Formatted input, like scanf("%d, %f,x,y) etc.	
17	Formatted output, like printf("%d, %f",x,y)	
18	Unit-IV: Decision Making and Branching	
19	IF statement, IF ... ELSE statement, nested IF, ELSE IF Ladder with examples	
20	WHILE statement, DO statement with examples	
21	FOR statement, Jumps in Loops, goto statement with examples	
22	Unit-V: Arrays definition	
23	One dimensional arrays, declaration of one dimensional arrays,	
24	Initialization of one dimensional arrays, two dimensional arrays	
25	Examples and programming of one and two dimensional array	
26	Initializing two dimensional arrays with examples	
27	Initializing multi dimensional arrays with examples	
28	Example by matrix addition, subtraction and multiplication.	
29	Unit-VI: User defined functions:	

30	Elements of user defined functions, Definition of functions, return values and their types	
31	Function calls, function declaration	
32	Category of functions, no arguments and no return values, arguments with return values	
33	No arguments but returns a value, functions that return multiple values.	
	B. Computer Laboratory	
34	(a) Practical: C-Programming : Introduction	
35	Program for 1. Temperature conversion 2. Area of triangle	
36	Program for 3. Solution of linear equations	
37	Program for 4. Simple and compound interest, 5. Sum of series	
38	Program for 6. Solution of quadratic equation, 7. Checking of Prime numbers.	
39	Program for 8. Sum of sine, cosine and Fibonacci series,	
40	Program for 9. Mean and standard deviation 10. Printing of a matrix	
41	Program for 11. Matrix addition, subtraction, multiplication, transpose	
42	Program for 12. Solution of equation by Newton – Raphson method, Bisection method.	
43	Program for 13. Simpson’s 1/3 rule 14. Sorting of numbers (ascending and descending)	
44	Program for 15. Computation of salary 16. Find the largest number among three numbers	
45	Program for 17. Finding the factorial of a number 18. Printing of even and odd numbers in a range.	
46	Program for 19. Sum of digits of a number	
47	Program for 20. Printing of numbers in various forms, number tables.	
48	(b) Matlab: Evaluation of arithmetic expression	
49	Evaluation of exponential, logarithmic and trigonometric functions	
50	Computation of complex numbers	
51	Plotting of curves (Algebraic function, trigonometric function and exponential function),	
52	Operations in matrices	
53	Plotting of 3D curves and shapes	
54	Solution of algebraic equation	
55	Solution of simultaneous linear equations.	

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session January-May, 2017)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Major
Class/Semester: Fourth semester
Name of the Paper: Linear Programming, Part of Paper-MM402
Units Assigned: Unit – I to Unit- IV
Marks Assigned: 45

Class	Topic/ Unit	Remarks
	UNIT- I: LP Model formulation & Graphical Method:	
1	LP Model formulation, introduction	
2	General structure and assumption of LP model	
3	Mathematical formulation of a linear programming problem	
4	Examples LP model Formulation	
5	Examples LP model Formulation	
6	Feasible solution, basic solution	
7	Graphical method for the solution of a linear programming problem	
8	Convex set and its theorems	
	UNIT II: Theory of simplex algorithm and simplex method	
9	Standard form of an LP Problem	
10	Simplex Algorithm	
11	Solutions of unique optimal solution	
12	Examples	
13	Alternative optimal solution, unbounded solution, Examples	
14	Artificial variable technique	
15	Charnes' M-technique with example	
16	Two phase method with examples	
17	Degeneracy of LPP	
	UNIT III: Duality Theory:	
18	Concept of duality, Types of primal dual problem, standard form	
19	Rules for constructing the dual from primal	
20	Examples	
21	Simple and mixed type problems	
22	Theorem on duality, Fundamental duality theorem(Statement only)	
	UNIT IV: Transportation Problem	
23	Definition, Transportation Table	
24	Loops in transportation tables and their properties	
25	Determination of an initial basic feasible solution by North West corner method,	
26	Determination of an initial basic feasible solution by LCM	
27	Determination of an initial basic feasible solution by VAM	
28	Unbalanced transportation problem	
29	Optimization by Modi method	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session January-May, 2017)

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Pass
Class/Semester: Fourth semester
Name of the Paper: Linear Programming, Paper-NM401
Units Assigned: Full Paper
Marks Assigned: Theory 50, Practical 30

Class	Topic/ Unit	Remarks
	UNIT- I: LP Model formulation & Graphical Method:	
1	LP Model formulation, introduction	
2	General structure and assumption of LP model	
3	Mathematical formulation of a linear programming problem	
4	Examples LP model Formulation	
5	Examples LP model Formulation	
6	Feasible solution, basic solution	
7	Graphical method for the solution of a linear programming problem	
8	Convex set and its theorems	
	UNIT II: Theory of simplex algorithm and simplex method	
9	Standard form of an LP Problem	
10	Simplex Algorithm	
11	Solutions of unique optimal solution	
12	Examples	
13	Alternative optimal solution, unbounded solution, Examples	
14	Artificial variable technique	
15	Charnes' M-technique with example	
16	Two phase method with examples	
17	Degeneracy of LPP	
	UNIT III: Duality Theory:	
18	Concept of duality, Types of primal dual problem, standard form	
19	Rules for constructing the dual from primal	
20	Examples	
21	Simple and mixed type problems	
22	Theorem on duality, Fundamental duality theorem(Statement only)	
	UNIT IV: Transportation Problem	
23	Definition, Transportation Table	
24	Loops in transportation tables and their properties	
25	Determination of an initial basic feasible solution by North West corner method,	
26	Determination of an initial basic feasible solution by LCM	
27	Determination of an initial basic feasible solution by VAM	
28	Unbalanced transportation problem	
29	Optimization by Modi method	
30	Problems on NWCM	
31	Problems on LCM	
32	Problems on VAM	

33	Problems on MODI Method	
	(B) Computer Laboratory (Practical)	
34	(b) Matlab: Evaluation of arithmetic expression	
35	Evaluation of exponential, logarithmic and trigonometric functions	
36	Evaluation of logarithmic function	
37	Evaluation of trigonometric functions	
38	Computation of complex numbers	
39	Plotting of curves (Algebraic function, trigonometric function and exponential function),	
40	Plotting of curves trigonometric function	
41	Plotting of curves exponential function	
42	Operations in matrices	
43	Plotting of 3D curves and shapes	
44	Solution of algebraic equation	
45	Solution of simultaneous linear equations.	

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session January-May, 2017)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Major
Class/Semester: Six semester
Name of the Paper: Relativity, Part of Paper-MM604
Units Assigned: Unit – I to Unit- IV
Marks Assigned: 40

Class	Topic/ Unit	Remarks
	UNIT- I: Special Theory:	
1	The fundamental postulates	
2	Lorentz transformation, equations	
3	Composition of velocities in terms of rapidity	
4	Problems on Lorentz transformation	
5	Problems on Composition of velocities	
6	Lorentz transformation as rotation	
7	Consequences of Lorentz transformation equation	
8	Lorentz-Fitzgerald contraction	
9	Time dilation with problems	
10	The clock paradox with Problems	
11	Space like intervals	
12	Time like intervals	
	UNIT II: Relativistic mechanics	
13	The relativistic conception of mass increasing with velocity	
14	Examples	
15	Transformation laws of mass	
16	Transformation laws of velocity	
17	Transformation laws of acceleration	
18	Transformation laws of density	
19	Transformation laws of momentum	
20	Transformation laws of energy	
21	Transformation laws of force	
22	The mass energy relation.	
23	Problems on time dilation	
24	Problems on length contraction	
25	Problems on space and time like intervals	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: First semester

Name of the Paper: MM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of π .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: First semester

Name of the Paper: NM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of e .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: UNIT-I, II

Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, sub normal, polar sub tangent and polar subnormal	
5	Derivative of arc length (Cartesian and polar forms), values of , angle between radius vector and tangent	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals,	
8	Differentiability, Darboux's theorem, Rolle's theorem,	
9	Lagrange mean value theorem, Cauchy's mean value theorem,	
10	Taylor's theorem,	
11	Taylor's series,	
12	Maclaurin's series	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM302

Units Assigned: UNIT-II

Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Normal subgroups	
2	Quotient groups	
3	Quotient groups related theorem	
4	Homomorphisms and properties of homomorphism	
5	Examples of homomorphisms	
6	Isomorphisms and examples	
7	Isomorphisms related theorem	
8	Permutations and examples	
9	Operations on permutations	
10	cyclic permutations, cycles of a permutation,	
11	Disjoint permutations	
12	Permutation Group	
13	Cayley's theorem.	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Fifth semester

Name of the Paper: MM502

Units Assigned: (A) Linear Algebra- unit 1 & 2, (B) Number Theory- unit 1,2,3,4

Marks Assigned: 80

Class	Topic/Unit	Remarks
1	A-Unit-1: System of linear equations	
2	Consistency and inconsistency of System of linear equations	
3	Definitions and examples of Vector space	
4	Properties of Vector space	
5	vector subspace	
6	Theorems on vector subspaces	
7	Linear independence and dependence	
8	Linear Span	
9	Base and dimension	
10	Theorems on base and dimension of vector spaces	
11	Dimension theorem	
12	Solved examples	
13	A-Unit-2: Definition of a line	
14	Theorem on lines	
15	Affine Space	
16	Theorem on Affine Space	
17	Quotient Space	
18	Theorems on Quotient Space	
19	Linear transformation with examples	
20	Properties of linear transformation	
21	Theorem on linear transformation	
22	Representation of Linear maps by Matrices	
23	Kernel and image of a linear transformation	
24	linear isomorphism	
25	Geometric Ideas and some loose ends	
26	B-Unit-1: Peano's axiom and Well ordering property of positive integer	
27	Division Algorithm	
28	G.C.D and LCM	
29	Euclidean Algorithm	
30	Unit-2: Prime numbers	

31	unique factorization theorem	
32	Euclid's theorem	
33	greatest integer function	
34	Unit-3: Definition and Basic properties of congruence	
35	complete residue system and reduced residue system	
36	Application of CRS and RRS	
37	Fermat's little theorem	
38	Euler's theorem	
39	Wilson's theorem	
40	Application of Fermat's, Euler's & Wilson's theorem	
41	Solution of Congruence	
42	Solutions of the problems of type $ax+by+c=0$	
43	Chines Remainder theorem	
44	Solutions of simultaneous equations by using Chines Remainder theorem	
45	Unit-4: Arithmetic Function	
46	Properties of arithmetic	
47	Euler's function	
48	Division function	
49	Mobius function	
50	Mobius inversion formula	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: First semester

Name of the Paper: MM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: First semester

Name of the Paper: NM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: UNIT-I, II

Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, sub normal, polar sub tangent and polar subnormal	
5	Derivative of arc length (Cartesian and polar forms), values of , angle between radius vector and tangent	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals,	
8	Differentiability, Darboux's theorem, Rolle's theorem,	
9	Lagrange mean value theorem, Cauchy's mean value theorem,	
10	Taylor's theorem,	
11	Taylor's series,	
12	Maclaurin's series	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM302

Units Assigned: UNIT-II

Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Normal subgroups	
2	Quotient groups	
3	Quotient groups related theorem	
4	Homomorphisms and properties of homomorphism	
5	Examples of homomorphisms	
6	Isomorphisms and examples	
7	Isomorphisms related theorem	
8	Permutations and examples	
9	Operations on permutations	
10	cyclic permutations, cycles of a permutation,	
11	Disjoint permutations	
12	Permutation Group	
13	Cayley's theorem.	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Fifth semester

Name of the Paper: MM502

Units Assigned: (A) Linear Algebra- unit 1 & 2, (B) Number Theory- unit 1,2,3,4

Marks Assigned: 80

Class	Topic/Unit	Remarks
1	A-Unit-1: System of linear equations	
2	Consistency and inconsistency of System of linear equations	
3	Definitions and examples of Vector space	
4	Properties of Vector space	
5	vector subspace	
6	Theorems on vector subspaces	
7	Linear independence and dependence	
8	Linear Span	
9	Base and dimension	
10	Theorems on base and dimension of vector spaces	
11	Dimension theorem	
12	Solved examples	
13	A-Unit-2: Definition of a line	
14	Theorem on lines	
15	Affine Space	
16	Theorem on Affine Space	
17	Quotient Space	
18	Theorems on Quotient Space	
19	Linear transformation with examples	
20	Properties of linear transformation	
21	Theorem on linear transformation	
22	Representation of Linear maps by Matrices	
23	Kernel and image of a linear transformation	
24	linear isomorphism	
25	Geometric Ideas and some loose ends	
26	B-Unit-1: Peano's axiom and Well ordering property of positive integer	
27	Division Algorithm	
28	G.C.D and LCM	
29	Euclidean Algorithm	
30	Unit-2: Prime numbers	

31	unique factorization theorem	
32	Euclid's theorem	
33	greatest integer function	
34	Unit-3: Definition and Basic properties of congruence	
35	complete residue system and reduced residue system	
36	Application of CRS and RRS	
37	Fermat's little theorem	
38	Euler's theorem	
39	Wilson's theorem	
40	Application of Fermat's, Euler's & Wilson's theorem	
41	Solution of Congruence	
42	Solutions of the problems of type $ax+by+c=0$	
43	Chines Remainder theorem	
44	Solutions of simultaneous equations by using Chines Remainder theorem	
45	Unit-4: Arithmetic Function	
46	Properties of arithmetic	
47	Euler's function	
48	Division function	
49	Mobius function	
50	Mobius inversion formula	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Second semester

Name of the Paper: MM201

Units Assigned: Ordinary Differential Equation Unit -I, II & III

Marks Assigned: 30

Class	Topic/Unit	Remarks
1	Unit-I Differential equation of the type $\frac{dy}{dx} + Py = Q$	
2	Examples	
3	Exact differential equations of first order	
4	Equations of first order higher degree	
5	Clairaut's form and Examples	
6	wronskian, its properties and	
7	Application of wronskian	
8	Unit-II Linear differential equation of higher order with constant coefficients	
9	Linear differential equation of higher order with constant coefficients	
10	Linear differential equation of higher order with constant coefficients	
11	Linear differential equation of higher order with constant coefficients	
12	linear homogeneous equations.	
13	linear homogeneous equations.	
14	linear homogeneous equations.	
15	Unit III: Linear equation of second order with variable coefficients.	
16	Removal of first order derivative.	
17	Removal of first order derivative	
18	Change of independent variables	
19	Change of independent variables	
20	Method of variation of parameters	
21	Method of variation of parameters	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: Second semester

Name of the Paper: NM201

Units Assigned: Ordinary Differential Equation Unit -I, II & III

Marks Assigned: 30

Class	Topic/Unit	Remarks
1	Unit-I Differential equation of the type $\frac{dy}{dx} + Py = Q$	
2	Examples	
3	Exact differential equations of first order	
4	Equations of first order higher degree	
5	Clairaut's form and Examples	
6	wronskian, its properties and	
7	Application of wronskian	
8	Unit-II Linear differential equation of higher order with constant coefficients	
9	Linear differential equation of higher order with constant coefficients	
10	Linear differential equation of higher order with constant coefficients	
11	Linear differential equation of higher order with constant coefficients	
12	linear homogeneous equations.	
13	linear homogeneous equations.	
14	linear homogeneous equations.	
15	Unit III: Linear equation of second order with variable coefficients.	
16	Removal of first order derivative.	
17	Removal of first order derivative	
18	Change of independent variables	
19	Change of independent variables	
20	Method of variation of parameters	
21	Method of variation of parameters	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Sixth semester

Name of the Paper: MM602

Units Assigned: (B) Graph Theory Unit -I & II

Marks Assigned: 35

Class	Topic/Unit	Remarks
1	(B) Unit-I: Introduction to graph Theory & definitions	
2	Directed and undirected graphs & basic terminologies	
3	finite and infinite graph	
4	incidence and degree of vertex, isolated and pendent vertices, null graph	
5	Handshaking theorem	
6	types of graphs, sub graphs	
7	graphs isomorphism	
8	Solved examples	
9	operations of graphs	
10	Solved Examples	
11	connected graph, disconnected graphs and components	
12	Theorems on connected graph, disconnected graphs and components	
13	Unit-II: Walk, path and circuits	
14	Eulerian graphs and Hamiltonian graphs	
15	Theorems on Eulerian graphs and Hamiltonian graphs	
16	Dirac's theorem	
17	Ore's, theorem	
18	Konigsberg's Bridge problem	
19	Representation of graphs and matrix representation of graph	
20	adjacency matrix, Incidence matrix	
21	Linked representation of graphs	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Sixth semester

Name of the Paper: MM603

Units Assigned: Algebra-II, Unit -I , II & III

Marks Assigned: 40

Class	Topic/Unit	Remarks
1	Unit I: Automorphism of groups, ,	
2	Examples on Automorphism of groups	
3	Inner automorphism	
4	Inner automorphism related theorem and Examples	
5	external direct products.	
6	external direct products related theorem	
7	internal direct products and theorems	
8	Unit II: Definition and examples of Ring,	
9	Properties of rings	
10	Special kinds of rings	
11	Sub rings and Examples	
12	Theorems on sub rings	
13	Ideals and Examples	
14	Theorems on ideals	
15	Discussion on the whole unit.	
16	Sum and product of ideals.	
17	Unit III: Quotient Ring,	
18	Quotient Ring	
19	Theorems on Quotient Ring	
20	Homomorphism of ring, Imbedding of rings,	
21	Properties of Homomorphism of ring	
22	Imbedding of rings,	
23	Examples Imbedding of rings,	
24	Maximal and Prime ideal	
25	Theorems on Maximal and Prime ideal	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Major
Class/Semester: First semester
Name of the Paper: MM101
Units Assigned: Theory of Equations, UNIT-III
Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit III: Theory of Polynomial equations: Definitions.	
2	Division algorithm,	
3	Remainder theorem, factor theorem	
4	and theorems on Existence of real roots (statements only) with examples,,	
5	Descartes' rule of sign	
6	Fundamental Theorem of Algebra and Existence of complex roots	
7	Relation between roots and coefficients and related problems	
8	Transformation of equation	
9	Cardon's method of solution of cubic equation.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: First semester
Name of the Paper: NM101
Units Assigned: Theory of Equations, UNIT-III
Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit III: Theory of Polynomial equations: Definitions.	
2	Division algorithm,	
3	Remainder theorem, factor theorem	
4	and theorems on Existence of real roots (statements only) with examples,,	
5	Descartes' rule of sign	
6	Fundamental Theorem of Algebra and Existence of complex roots	
7	Relation between roots and coefficients and related problems	
8	Transformation of equation	
9	Cardon's method of solution of cubic equation.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Major
Class/Semester: Third semester
Name of the Paper: MM302
Units Assigned: Co-ordinate Geometry (2D) UNIT-III
Marks Assigned: 27

Class	Topic/ Unit	Remarks
1	Unit I: Transformation of coordinates	
2	Translation of axes, Rotation of axes, Invariants,	
3	Removal of xy-term.	
4	Unit II: Pair of straight lines: Pair of straight lines through origin,	
5	Angle and Bisectors of the angle between the lines given by homogenous equation of 2nd degree,	
6	Condition for the general equation of second degree to represent a pair of straight lines,	
7	Solved problems of second degree to represent a pair of straight lines	
8	Pair of intersecting straight lines,	
9	Pair of parallel straight lines	
10	Unit III: General Equation of second degree	
11	Equation to the conic sections, ,	
12	Centre of a conic	
13	Reduction to central and non central conic,	
14	Tangent to the conic and condition of tangency,	
15	Chord of contact, Pole and Polar	
16	Conjugate diameter	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Third semester
Name of the Paper: NM302
Units Assigned: Co-ordinate Geometry (2D) UNIT-III
Marks Assigned: 27

Class	Topic/ Unit	Remarks
1	Unit I: Transformation of coordinates	
2	Translation of axes, Rotation of axes, Invariants,	
3	Removal of xy-term.	
4	Unit II: Pair of straight lines: Pair of straight lines through origin,	
5	Angle and Bisectors of the angle between the lines given by homogenous equation of 2nd degree,	
6	Condition for the general equation of second degree to represent a pair of straight lines,	
7	Solved problems of second degree to represent a pair of straight lines	
8	Pair of intersecting straight lines,	
9	Pair of parallel straight lines	
10	Unit III: General Equation of second degree	
11	Equation to the conic sections, ,	
12	Centre of a conic	
13	Reduction to central and non central conic,	
14	Tangent to the conic and condition of tangency,	
15	Chord of contact, Pole and Polar	
16	Conjugate diameter	

Course Plan (Session June-December, 2016)

Class	Topic/ Unit	Remarks
1	(a) Mathematical Logic	
	Unit I: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value,	
4	Validity, truth function	
5	Tautology and related theorems,	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Theory of Inference:.,	
8	Theory of Consequence	
9	rule of inference and applications.	
10	Predicate calculus:	
11	symbolizing language	
12	Discussion about the whole unit	
13	(b) CombinatoircsUnit-I: Fundamental Principles of Counting	
14	Binomial Theorem	
15	Pascal and Vander Monde's identity	
16	Multinational theorem	
17	Ramsey number, Catalan numbers, Stirling and Bell number.	
18	Unit II: The principles of Inclusion-Exclusion:	
19	Generalization of the principles of Inclusion-Exclusion,	
20	Pigeon Hole Principle,	
21	Derangement	
22	Generating function	
23	and introductory examples	
24	(B) Analysis III (Complex Analysis)	
	Unit I: Analytic Function and Examples	
25	Limit, Continuity and differentiability	
26	Cauchy-Riemann equations.	
27	Necessary and sufficient condition for a function to be analytic	
28	Polar form of C.R. equation, Harmonic functions	
29	Construction of analytic function.	
30	Unit II: Complex Integrals :	
31	Definite integral,	
32	Jordan arc, contour,	
33	line integrals,	

34	Cauchy's theorem,	
35	Simply and multiply connected domains,	
36	Cauchy's integral formula,	
37	Derivatives of analytic function, Morera's theorem	
38	Liouville's theorem.	
39	Unit III: Power series	
40	Taylor's series.	
41	Laurent's series and their	
42	Power series related problems	
43	Unit IV: Poles & Residues	
44	Definition and statement of the related theorems of isolated singularity	
45	Removable singularity and poles	
46	Removable singularity and poles	
47	calculation of residues	
48	Cauchy's residue theorem	
49	Contour Integration	
50	Contour Integration (Integration round the unit circle, Integration of the type $\int_{-\alpha}^{+\alpha} f(x)dx$ where no poles on the real axis)	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Fifth semester
Name of the Paper: NM501
Units Assigned: Complex Analysis, Unit-I,II,III
Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Unit I: Analytic Function:	
2	Limit, Continuity and differentiability	
3	Cauchy-Riemann equations..	
4	Necessary and sufficient condition for a function to be analytic,	
5	polar form of C.R. equation,	
6	Harmonic functions, Construction of analytic function	
7	Unit II: Complex Integrals , Definite integral	
8	Jordan arc, contour,	
9	line integrals,	
10	Cauchy's theorem,	
11	Simply and multiply connected domains,	
12	Cauchys' integral formula,	
13	Derivatives of analytic function, Morera's theorem	
14	Liouville's theorem.	
15	Unit III: Taylor and Laurent theorem (statements only) and related problems,	
16	Taylor and Laurent theorem related problems,	
17	Definition and statement of the related theorems of isolated singularity,	
18	Definition and statement of the related theorems of isolated singularity,	
19	Removable singularity and poles	
20	Removable singularity and poles	
21	Cauchy's residue theorem,	
22	Contour Integration	
23	Contour Integration (Integration round the unit circle)	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session Jan-May, 2017)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: Sixth Semester
 Name of the Paper: MM601
 Units Assigned: Statistics (UNIT I, II,III,IV,V & VI)
 Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Unit I: Probability: Basic terminology,	
2	Mathematical probability, Statistical probability,	
3	Axiomatic approach to probability. Some theorems on probability	
4	Conditional probability, Multiplication theorem of probability,	
5	independent events, Extension of multiplication theorem of probability	
6	Independent events, Multiplication theorem of probability for independent events, Extension of multiplication theorem of probability	
7	Baye's theorem.	
8	Unit II: Measures of Dispersion: Standard deviation	
9	Quartile deviation	
10	Co-efficient of variation.	
11	Unit IV: Correlation and regression	
12	Karl Pearson's co-efficient of correlation	
13	Spearman Rank correlation co-efficient	
14	Regression lines and equation.	
15	Unit V: Theoretical Probability Distribution	
16	Binomial Distribution and their applications to simple problems.	
17	Binomial Distribution and their applications to simple problems.	
18	Poisson Distribution and their applications to simple problems.	
19	Poisson Distribution and their applications to simple problems.	
20	Normal Distribution and their applications to simple problems.	
21	Normal Distribution and their applications to simple problems.	
22	Unit VI: Time series analysis	
23	Different components of time series,	
24	Analysis of trends (Least Square Method)	
25	Analysis of trends (Moving Average Method)	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session Jan-May, 2017)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Sixth Semester
Name of the Paper: NM601
Units Assigned: Discrete Mathematics (UNIT I, II,III,)
Marks Assigned: 45

Class	Topic/ Unit	Remarks
1	Unit I: Logic: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value, Validity	
4	Truth function,	
5	Tautology and related theorems	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Logic: Theory of Inference:	
8	Consequence	
9	Rule of inference and applications	
10	Predicate calculus:	
11	Symbolizing language.	
12	Symbolizing language.	
13	Unit III: Lattice: Definition and examples,	
14	Hasse diagram,	
15	Properties of Lattice,	
16	Lattice as an Algebraic systems,	
17	Sub lattice and lattice isomorphism,.	
18	Special Classes : of lattice,	
19	Distributive lattice and Boolean algebras	
20	Unit IV: Boolean Algebra:.	
21	Boolean algebra as lattice,	
22	Boolean algebra as an algebraic system,	
23	Properties of Boolean algebra ,	
24	Sub-algebra and homomorphism of Boolean algebra,	
25	Boolean expressions	
26	Sum-of-products canonical form,	
27	Values of Boolean expression and Boolean functions	
28	Representation by Karnaugh Maps,	
29	Minimization of Boolean functions using Karnaugh Maps	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr K. N. Tinsina
Course –Major / Pass: Major/Pass
Class/Semester: First semester
Name of the Paper: MM101/NM101
Units Assigned: UNIT-II, Infinite series
Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Infinite Series and its convergence: Introduction, Necessary condition for convergence,	
2	Cauchy's general principle of convergence for series, Statements of preliminary theorems	
3	Positive series and its necessary condition of convergence, Geometric series	
4	Comparison series ,Statements of comparison test (first and second types)	
5	Cauchy's Root Test , D'Alembert's Ratio Test	
6	Raabe's Test	
7	Leibnitz's Test for convergence of an alternating Series.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr K. N. Tinsina
Course –Major / Pass: Major
Class/Semester: Third semester
Name of the Paper: MM301
Units Assigned: DIFFERENTIAL CALCULUS (UNIT III) & INTEGRAL CALCULUS
Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Partial derivatives	
2	Euler's theorem on homogeneous function	
3	Euler's theorem on homogeneous function	
4	Evaluation of definite integrals by using properties only	
5	Evaluation of definite integrals by using properties only	
6	Reduction formula of the integrands $\sin^n \theta$	
7	Reduction formula of the integrands $\cos^n \theta$	
8	Reduction formula of the integrands $\tan^n \theta$	
9	Reduction formula of the integrands $\sin^n \theta \cos^n \theta$	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Third Semester
Name of the Paper: MM302
Units Assigned: UNIT I
Marks Assigned: 5

Class	Topic/ Unit	Remarks
1	Transformation of coordinates: Translation of axes	
2	Transformation of coordinates: Rotation of axes	
3	Invariants, Removal of xy-term.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2016)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Pass
Class/Semester: Third Semester
Name of the Paper: NM301
Units Assigned: ANALYSIS (UNIT I, II, III & IV)
Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, Sub normal	
5	Curvature and radius of curvature	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals	
8	Differentiability, Darboux's theorem	
9	Rolle's theorem	
10	Lagrange mean value theorem	
11	Cauchy's mean value theorem	
12	Taylor's theorem	
13	Taylor's series	
14	Maclaurin's series	
15	Partial Derivatives	
16	Euler's theorem on homogeneous function.	
17	Euler's theorem on homogeneous function.	
18	Euler's theorem on homogeneous function.	
19	Evaluation of definite integrals by using properties only	
20	Evaluation of definite integrals by using properties only	
21	Reduction formula of the integrands $\sin^n \theta$	
22	Reduction formula of the integrands $\cos^n \theta$	
23	Reduction formula of the integrands $\tan^n \theta$	
24	Reduction formula of the integrands $\sin^n \theta \cos^n \theta$	
25	Rectification of plane curves	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2016)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Fifth Semester
Name of the Paper: MM504
Units Assigned: DYNAMICS (UNIT I, II & III)
Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	Motion in a straight line and plane	
2	Radial and transverse velocities and acceleration	
3	Angular velocity and angular acceleration, tangential and normal acceleration	
4	Simple Harmonic Motion	
5	Central forces	
6	Central forces	
7	Motion under resistance	
8	Motion under resistance	
9	Dynamics of Rigid Body: Moments of inertia,	
10	Theorems of parallel and perpendicular axes, Moment of inertia about a line	
11	Moment and product of inertia of a plane lamina	
12	Moment of inertia and moment of inertia	
13	D'Alembert's principle and general equations of motion	
14	Motion of the centre of inertia and relative to the centre of inertia	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2016)

Name of the Teacher: Mr. K. N. Timsina
 Course –Major / Pass: Pass
 Class/Semester: Fifth Semester
 Name of the Paper: NM501
 Units Assigned: DYNAMICS (UNIT I, II & III)
 Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	Motion in a straight line and plane	
2	Radial and transverse velocities and acceleration	
3	Angular velocity and angular acceleration	
4	Tangential and normal acceleration	
5	Simple Harmonic Motion	
6	Central forces	
7	Central forces	
8	Motion under resistance	
9	Motion under resistance	
10	Motion under resistance	
11	Dynamics of Rigid Body: Moments of inertia,	
12	Theorems of parallel and perpendicular axes	
13	Moment of inertia about a line	
14	Moment and product of inertia of a plane lamina	
15	Momental ellipsoid and momental ellipse	
16	Momental ellipsoid and momental ellipse	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session Jan-May, 2017)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major /Pass
Class/Semester: Second Semester
Name of the Paper: MM201
Units Assigned: MATRICES (UNIT I & II)
Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Rank of a matrix	
2	Elementary operations on a matrix	
3	Determination of rank by reduction into echelon (triangular) form & normal form	
4	Elementary matrices	
5	Solution of homogeneous & non homogeneous linear equations	
6	Solution of homogeneous & non homogeneous linear equations	
7	Characteristic polynomial	
8	Characteristic equation	
9	Eigen values and Eigen vectors	
10	Cayley-Hamilton theorem.	
11	Cayley-Hamilton theorem	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session Jan-May, 2017)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Sixth Semester
Name of the Paper: MM601
Units Assigned: METRIC SPACE (UNIT I, II, III & IV)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Definition and examples of metric spaces	
2	Open spheres and closed spheres	
3	Neighborhoods, Open sets, Equivalent metrics	
4	Interior points, Closed sets	
5	Limit points and isolated points	
6	Closure of a set, Boundary points	
7	Distance between sets and diameter of a set	
8	Subspace of metric space	
9	Product metric spaces (definition only), Bases	
10	Convergent sequences	
11	Examples of Convergent sequences	
13	Cauchy sequences	
14	Examples of Cauchy sequences	
15	Complete & separable spaces, dense sets	
16	Continuous functions	
17	Definition and characterizations	
18	Extension theorem	
19	Uniform continuity (definition only)	
20	Homeomorphism	
21	Examples of Homeomorphism	
22	Compact spaces	
23	Compact sets	
24	Examples of Compact spaces and compact sets	
25	Sequential compactness.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session Jan-May, 2017)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Pass
Class/Semester: Sixth Semester
Name of the Paper: NM601
Units Assigned: METRIC SPACE (UNIT I, II, III & IV)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Definition and examples of metric spaces	
2	Open spheres and closed spheres	
3	Neighborhoods, Open sets, Equivalent metrics	
4	Interior points, Closed sets	
5	Limit points and isolated points	
6	Closure of a set, Boundary points	
7	Distance between sets and diameter of a set	
8	Subspace of metric space	
9	Product metric spaces (definition only), Bases	
10	Convergent sequences	
11	Examples of Convergent sequences	
13	Cauchy sequences	
14	Examples of Cauchy sequences	
15	Complete & separable spaces, dense sets	
16	Continuous functions	
17	Definition and characterizations	
18	Extension theorem	
19	Uniform continuity (definition only)	
20	Homeomorphism	
21	Examples of Homeomorphism	
22	Compact spaces	
23	Compact sets	
24	Examples of Compact spaces and compact sets	
25	Sequential compactness.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session Jan-May, 2017)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Sixth Semester
Name of the Paper: MM604
Units Assigned: SPACE DYNAMICS (UNIT I, II, & III)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Introduction to Spherical Trigonometry	
2	Examples related to Spherical Trigonometry	
3	Spherical triangles and its properties	
4	Spherical triangles and its properties	
5	Examples of Spherical triangles	
6	The sine-cosine formulae	
7	Examples related to the sine-cosine formulae	
8	Four parts formula and examples	
9	Coordinate systems: Position on the earth surface	
10	Horizontal system	
11	Equatorial system	
13	Ecliptic system	
14	Elements of the orbit in space	
15	Rectangular coordinate system	
16	Orbital plane coordinate system	
17	Transformation of systems	
18	Problems and solutions	
19	Gravitation	
20	The one and two body problems	
21	Elliptic motion	
22	Attraction of irregular bodies	
23	Rotational distortion	
24	Coordinates the orbits in space	
25	Problems and solutions	

DIGBOI COLLEGE, DIGBOI

COURSE PLAN

SESSION: 2016--17

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 1ST Semester (M)

Paper Code : M 101, Name of the paper-Indian Philosophy (I)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	General characteristics of Indian philosophy	Explanation
2	Astika and Nastika Schools	Explanation
3	Charges against Indian philosophy	Note
4	Vedas Rita, Rina	Note
5	Vedas Yajna	Explanation
6	Upanisads—Brahman and Atman	Explanation
7	Carvaka epistemology	Explanation
8	Carvakas rejection of Anumana and Sabda	Note
9	Carvaka Metaphysics	Note
10	Carvakas rejection of non-material entities	Note
11	Jainism – concept of reality- sat	Explanation
12	Jainism ---concept of dravya and guna	Explanation
13	Jainisim ---concept of paryaya, jiva-ajiva	Explanation
14	Jainism—concept of Anekantavada	Note
15	Jainiam—concept of Syadvada and nayavada	note
16	Buddhism—four-noble truth	Note
17	Buddhism-- pratityasamudpada	Explanation
18	Buddhism—Anityavada and Nirvana	Explanation
19	Madyamprativeda schools of Buddhism	Explation
20	Nyaya—prama-aprama	Explanation
21	Theory of pramanas	Notes
22	Nyaya theory of error--Anyathakhyativada	Explanation
23	Vaisesika-- padartha	Notes
24	Vaisesika-- paramanuvada	Explanation
25	Theory of extrinsic validity and invalidity of knowledge	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (p)

Paper Code : M 501, Name of the paper—Indian and Western Logic

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Nyaya view of Anumana----	Explanation
2	Definition, Structure and kinds	Explanation
3	Nyaya kinds & ascertainment of Vyapti	Note
4	Hetabhasas	Note
5	Nature of logic	Explanation
6	Definition between traditional and modern logic	Explanation
7	Vharacteristics of symbolic logic	Explanation
8	Use of symbols	Note
9	Categorical Syllogism--- rules and figures---	Note
10	Moods and fallacies	Note
11	Venn diagram technique of testing the validity of syllogistic arguments	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 502, Name of the paper- WESTERN LOGIC

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature of logic	Explanation
2	Truth and validity of logic	Explanation
3	Nature of proposition , modern classification of proposition	Note
4	Square of proposition	Note
5	Classical and modern logic, use of symbols	Explanation
6	Categorical syllogism—Venn diagram	Explanation
7	Technique of testing the validity of syllogisms	Explanation
8	Truth functions	Note
9	Truth table method of testing the validity of argument—direct, indirect	Note
10	Formal proof of validity	Note
11	Proving invalidity	Explanation
12	Predicate logic—Quantification and its rules	Explanation
13	Symbolization of traditional categorical proposition	Explanation
14	Universal quantifiers	Note
15	Existential quantifiers	note
16	Problem of induction	Note
17	Problem of logical justification of induction	Explanation
18	Probability and induction	Explanation
19	Hypothesis-- conditions	Explation
20	Hypothesis—proofs and kinds	Explanation
21	Mill's method of Experimental enquiry	Notes
22	Mill's method of Experimental enquiry	Explanation
23	Mill's method of Experimental enquiry	Notes
24	Mill's method of Experimental enquiry	Explanation
25	Mill's method of Experimental enquiry	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 503, Name of the paper- HISTORY OF WESTERN PHILOSOPHY

Unit Assigned : I & II

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Greek philosophy—philosophy of number	Explanation
2	Greek Atomism	Explanation
3	Sophistic movement	Note
4	Socrates—Virtue is knowledge	Note
5	Plato's theory of ideas	Explanation
6	Aristotle's Form and matter	Explanation
7	Concept of Self in Plato	Explanation
8	Concept of Self in Aristotle	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 3rd Semester (M)

Paper Code : M 302, Name of the paper—Western Philosophy (II)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Definition and characteristics of Realism	Explanation
2	Different types of Realism	Explanation
3	Naive Realism	Note
4	Scientific Realism	Note
5	Neo- Realism & Neo –critical Realism	Explanation
6	Definition and characteristics of Idealism	Explanation
7	Different types of Idealism	Explanation
8	Subjective Idealism	Note
9	Phenomenalistic Idealism	Note
10	Objective Idealism	Note
11	Origin of the World	Explanation
12	Creative theory of the World	Explanation
13	Evolution theory of World	Explanation
14	Mechanical theory of evolution	Note
15	Teleological theory of evolution	note
16	Emergent theory of evolution	Note
17	Creative theory of evolution	Explanation
18	Nature and attributes of God	Explanation
19	Proofs for the existence of God	Explation
20	God and World, Deism	Explanation
21	Theism, Pantheism, Panentheism	Notes
22	God and the Absolute	Explanation
23	Pluralism, Monism , Dualism	Notes
24	Meaning of Value, kinds of Value	Explanation
25	Intrinsic and Extrinsic Value, Subjective –Objective Value	Explanation
26	Relative and Absolute Value	Explanation

SESSION: 2016--17

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – Non-Major

Class/Semester : 3rd Semester (NM)

Paper Code : M 301, Name of the paper: (Indian Philosophy -(II)

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Samkhya concept of Prakriti, Purusa	Explanation
2	Samkhya theory of Evolution	Explanation
3	Yoga Psychology	Note
4	Visistadvaita Vedanta, Saguna Brahma	Note
5	Rejection of Sankara's Maya	Explanation
6	Concept of Jiva, Jagat	Explanation
7	Nirguna Brahman	Explanation
8	Maya in Advaita Vedanta	Note
9	Budhistic Ethics, Four Noble Truth	Note
10	Eight Fold- Path	Note
11	Pancha Mahavrata	Explanation

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic —Major

Class/Semester : 5th Semester (M)

Paper Code : M 503, Name of the paper: History of Western Philosophy

Unit Assigned : II & III

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Platos theory of Ideas	Explanation
2	Aristotle's Form and Matter	Explanation
3	Concept of Self in Plato and Aristotle	Note
4	Descartes Innate Idea	Note
5	Descartes Cogito Ergo Sum	Explanation
6	Descartes Dualism	Explanation
7	Leibnitz's Monadology	Explanation
8	Pre-established harmony	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Bisti Ram Narzary
 Course : Honours/Generic – MAJOR
 Class/Semester : 5th Semester (M)
 Paper Code : M 504, Name of the paper: (Philosophy of Religion)
 Unit Assigned : Full Paper
 Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and Scope of Philosophy of Religion	Explanation
2	It's Relation to Theology and Morality	Explanation
3	Religious consciousness	Note
4	Foundation of Religious belief- revelation, reason	Note
5	Mystic experience, Ecstasy	Explanation
6	Origin of Religion- anthropological theories	Explanation
7	Origin of Religion- psychological theory	Explanation
8	Development of the Idea of God- Polytheism, Monotheism	Note
9	Divine determinism	Note
10	Human freedom of Will	Note
11	Immortality of Soul----	Explanation
12	Metaphysical argument	Explanation
13	Religious argument	Explanation
14	Problem of Evil	Note
15	Anti-theistic trends—Positivism, Marxism	note
16	Freudian psycho-analysis	Note
17	Acquaintance with Buddhism	Explanation
18	Acquaintance with Christianity and Islam	Explanation
19	Basic features of Hinduism	Explanation
20	Principal sects of Hinduism- Saivism, Saktism	Explanation
21	Neo-vaisnavism—Sankardeva, Madhabdeva	Notes
22	Objective of comparative religion	Explanation
23	Value of comparative religion	Notes
24	Possibility of Universal religion	Explanation
25	Secularism	Explanation
26	Religious Understanding	Explanation

DIGBOI COLLEGE, DIGBOI
Teacher's Course plan.
Session 2016-17

Name of the teacher- Dr. Reepa Sarmah. Department of Philosophy

Course- Major/ Non Major: **Non Major**

Class/semester – **1st semester**

Name of the Paper – Indian Philosophy (I)

Units Assigned – Half (2 units)

Marks Assigned – 40

Class	Topic/Unit	Remarks
1	Nature of Indian philosophy	Explain
2	Nature of Indian philosophy	Provide Notes
3	Orthodox Schools of Indian Philosophy	Explain
4	Orthodox Schools of Indian Philosophy	Provide Notes
5	Heterodox Schools of Indian Philosophy	Explain
6	Heterodox Schools of Indian Philosophy.	Provide Notes
7	Characteristics of Indian Philosophy	Explain
8	Characteristics of Indian Philosophy	Explain
9	Characteristics of Indian Philosophy	Provide Notes
10	Indian philosophy as Passimistic	Explain
11	Indian philosophy as Passimistic	Explain
12	Indian philosophy as Passimistic	Provide Notes
13	Indian philosophy as Dogmatic	Explain
14	Indian philosophy as Dogmatic	Explain
15	Indian philosophy as Dogmatic	Provide Notes
16	Characteristics of Contemporary Indian Philosophy	Explain
17	Characteristics of Contemporary Indian Philosophy	Explain
18	Characteristics of Contemporary Indian Philosophy	Provide Notes
19	Nyaya theory of Perception	Explain
20	Nyaya theory of Perception	Provide Notes
21	Mimamsa Arthapatti	Explain
22	Mimamsa Arthapatti	Explain
23	Mimamsa Arthapatti	Provide Notes
24	Radhakrishnan's Intellect and Intuition	Explain

25	Radhakrishnan's Intellect and Intuition	Explain
26	Radhakrishnan's Intellect and Intuition	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2016—2017)

Name of the teacher- Dr. Reepa Sarmah

Course- Major/Non-Major: **Major**

Class/semester – 3rd semester

Name of the Paper – Indian Philosophy (II)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Samkhya theory of Causation	Explain
2	Samkhya theory of Causation	Explain
3	Samkhya theory of Causation	Provide Notes
4	Samkhya theory of Prakriti	Explain
5	Samkhya theory of Prakriti	Explain
6	Samkhya theory of Prakriti	Provide Notes
7	Samkhya theory of Parinamavada	Explain
8	Samkhya theory of Parinamavada	Explain
9	Samkhya theory of Parinamavada	Provide Notes
10	Samkhya theory of Purusa	Explain
11	Samkhya theory of Purusa	Explain
12	Samkhya theory of Purusa	Provide Notes
13	Samkhya theory of Plurality of Purusa	Explain
14	Samkhya theory of Plurality of Purusa	Explain
15	Samkhya theory of Plurality of Purusa	Provide Notes
16	Samkhya theory of bondage	Explain
17	Samkhya theory of bondage	Provide Notes
18	Samkhya theory of liberation	Explain
19	Samkhya theory of Libaration	Provide Notes
20	Yoga concept of Citta	Explain
21	Yoga concept of Citta	Provide Notes
22	Yoga concept of Cittavriti	Explain
23	Yoga concept of Cittavriti	Provide Notes
24	Role of God in Yoga Philosophy	Explain
25	Role of God in Yoga Philosophy	Provide Notes
26	Mimamsa philosophy	Explain
27	Difference between Kumarila and Prabhakara	Explain
28	Difference between Kumarila and Prabhakara	Provide Notes

29	Nature of valid knowledge.	Explain
30	Arthapatti	Explain
31	Arthapatti	Provide Notes
32	Anupalabdhi	Explain
33	Anupalabdhi	Provide Notes
34	Svatahpramanyavada	Explain
35	Svatahpramanyavada	Provide Notes
36	Paratahpramanyavada	Explain
37	Paratahpramanyavada	Provide Notes
38	Vedanta philosophy	Explain
39	Advaita vedanta	Explain
40	Advaita vedanta	Explain
41	Advaita vedanta	Provide Notes
42	jiva	Explain
43	jiva	Provide Notes
44	Jivan mukti	Explain
45	Jivan mukti	Provide Notes
46	Visistaadvaitavada	Explain
47	Visistaadvaitavada	Provide Notes
48	Saguna Brahman	Explain
49	Saguna Brahman	Provide Notes
50	Parinamavada	Explain
51	Parinamavada	Provide Notes
52	Refutation of Maya	Explain
53	Refutation of Maya	Provide Notes
54	Jiva	Explain
55	Bhakti	Explain
56	Prapatti	Explain
57	Rejection of Jivanmukti	Explain
58	Philosophy of Bhagavad Gita	Explain
59	Philosophy of Bhagavad Gita	Provide Notes
60	Concept of Ultimate Reality	Explain
61	Concept of Ultimate Reality	Provide Notes
62	Doctrine of Incarnation	Explain
63	Doctrine of Incarnation	Provide Notes
64	Concept of Soul	Explain
65	Concept of Soul	Provide Notes
66	Immortality of Soul	Explain
67	Immortality of Soul	Provide Notes
68	Sthitaprajna	Explain
69	Sthitaprajna	Explain
70	Sthitaprajna	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2016-17)

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 5 th semester

Name of the Paper – Logic (Indian) (M 501)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Nature of Indian Logic	Explain
2	Nature of Indian Logic	Explain
3	Nature of Indian Logic	Provide Notes
4	Development of Indian Logic	Explain
5	Development of Indian Logic	Explain
6	Development of Indian Logic	Provide Notes
7	Development of Indian Logic	Explain
8	Indian Logic and Epistemology	Explain
9	Indian Logic and Epistemology	Explain
10	Indian Logic and Epistemology	Provide Notes
11	Classification of Knowledge by Nyaya	Explain
12	Classification of Knowledge by Nyaya	Provide Notes
13	Prama	Explain
14	Prama	Explain
15	Prama	Explain
16	Prama	Provide Notes
17	Aprama	Explain
18	Apram	Explain
19	Apram	Provide Notes
20	Pramanas as the Karana of Prama	Explain

21	Pramanas as the Karana of Prama	Explain
22	Pramanas as the Karana of Prama	Provide Notes
23	Characteristics of Pramanas	Explain
24	Characteristics of Pramanas	Explain
25	Characteristics of Pramanas	Provide Notes
26	Kinds of Pramanas	Explain
27	Kinds of Pramanas	Explain
28	Kinds of Pramanas	Provide Notes
29	Nyaya pratyaksa	Explain
30	Nyaya pratyaksa	Explain
31	Nyaya pratyaksa	Provide Notes
32	Mimamsa Pratyaksa	Explain
33	Mimamsa Pratyaksa	Explain
34	Mimamsa Pratyaksa	Provide Notes
35	Definition of Anumana	Explain
36	Definition of Anumana	Provide Notes
37	Constituents of Anumana	Explain
38	Constituents of Anumana	Explain
39	Constituents of Anumana	Explain
40	Constituents of Anumana	Provide Notes
41	Kinds of Anumana	Explain
42	Kinds of Anumana	Explain
43	Kinds of Anumana	Provide Notes
44	Paksata	Explain
45	Paksata	Explain
46	Paksata	Provide Notes
47	Vyapti	Explain
48	Vyapti	Provide Notes
49	Ascertainment of Vyapti	Explain
50	Ascertainment of Vyapti	Explain
51	Ascertainment of Vyapti	Provide Notes
52	Types of Vyapti	Explain
53	Types of Vyapti	Explain
54	Types of Vyapti	Provide Notes
55	Marks of Valid Reason	Explain
56	Nyaya Hetabhasa	Explain
57	Nyaya Hetabhasa	Explain
58	Nyaya Hetabhasa	Explain
59	Nyaya Hetabhasa	Explain
60	Nyaya Hetabhasa	Explain
61	Nyaya Hetabhasa	Provide Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 4th Semester (M)

Paper Code : M 401, Name of the paper- INDIAN ETHICS

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Meaning of Dharma	Explanation
2	Classification of Dharma	Explanation
3	Varnasramadharma & Caturasrama	Note
4	Theory of Karma—ethical implication	Note
5	Purusartha	Explanation
6	Purusartha and their interrelations	Explanation
7	Purusarthasadhana in Vedas	Explanation
8	Carvaka ethics—gross egoism	Note
9	Buddhist ethics—Eight – fold - path	Note
10	Buddhist ethics-- Pancasila	Note
11	Jaina ethics—Triratna along with Dharmavidhi	Explanation
12	Jaina ethics-- Anuvrata	Explanation
13	Jaina ethics-- Mahavrata	Explanation
14	Yoga ethics—eight-foldpath	Note
15	Yoga ethics—Cittavritti nirodha	note
16	Gandhian ethics-- Ahimsa	Note
17	Gandhian ethics-- Satyagraha	Explanation
18	Ethics of Bhagavadgita-- Svabhava	Explanation
19	Ethics of Bhagavadgita-- Svadharma	Explation
20	Ways to attain the highest goal	Explanation
21	Synthesis of jnana	Notes
22	Karma and bhakti margas	Explanation
23	Niskama karma	Notes
24	Lokasangraha	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 603, Name of the paper- SOCIAL AND POLITICAL PHILOSOPHY

Unit Assigned : I & II

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Nature and scope of social philosophy	Explanation
2	Political philosophy and its relation to Sociology	Explanation
3	Political philosophy and its relation to Political Science	Note
4	Concept of Society	Note
5	Social nature of man	Explanation
6	Different theories regarding the relation between individual and society	Explanation
7	Different theories regarding the relation between individual and society	Explanation
8	Different theories regarding the relation between individual and society	Note
9	Different theories regarding the relation between individual and society	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 604, Name of the paper- PSYCHOLOGY

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature of psychology	Explanation
2	Methods of psychology-----	Explanation
3	Methods of psychology-----	Note
4	Methods of psychology-----	Note
5	Schools of psychology-----	Explanation
6	Schools of psychology-----	Explanation
7	Schools of psychology-----	Explanation
8	Applied psychology-- introduction	Note
9	Psychological basis of mental life	Note
10	Nervous system	Note
11	Doctrine of central localisation	Explanation
12	Sensation- its definition	Explanation
13	Weber-Fechner law of sensation	Explanation
14	Perception—its definition	Note
15	Gestalt theory of perception	note
16	Memory-- factors	Note
17	Condition and marks of good memory	Explanation
18	Forgetting—its causes	Explanation
19	Imagination--- nature and kinds	Explation
20	Freudian theory of dream	Explanation
21	The nature of feeling, feeling and emotion	Notes
22	James—Lange theory of emotion	Explanation
23	Learning—theories of learning	Notes
24	Personality- traits, factors, kinds	Explanation
25	Intelligence—Nature, Test IQ	Notes
26	Motivation—Nature and types	Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic –NON- MAJOR

Class/Semester : 6th Semester (NM)

Paper Code : M 601, Name of the paper- SOCIAL PHILOSOPHY AND PSYCHOLOGY

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Nature and scope of social philosophy----	Explanation
2	Its relation to Sociology	Explanation
3	Its relation to psychology	Note
4	Its relation to ethics	Note
5	Relation between individual and society----	Explanation
6	Its different theories	Explanation
7	Its different theories	Explanation
8	Definition and type of Social groups and institutions	Note
9	Definition and type of Social groups and institutions	Note
10	Definition and type of Social groups and institutions	Note
11	Nature, scope, methods of psychology	Explanation
12	Nature, scope, methods of psychology	Explanation
13	Physiological basis of mental life—structure of brain	Explanation
14	Physiological basis of mental life—structure of brain	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – NON-MAJOR

Class/Semester : 2ND Semester (NM)

Paper Code : NM 201, Name of the paper: (WESTERN PHILOSOPHY(I))

Unit Assigned : UNIT: I, II, & III

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Definition and nature of philosophy	Explanation
2	Scope and relevance of philosophy	Explanation
3	Relation between philosophy and epistemology	Note
4	Relation between philosophy and metaphysics	Note
5	Relation between philosophy and axiology	Explanation
6	Relation between philosophy and Theology	Explanation
7	Theories of Knowledge—Rationalism-- Empiricism	Explanation
8	Scepticism, Kant's critical theory	Note
9	Categories of Knowledge—Space, Time	Note
10	Categories of Knowledge—Substance, causality	Note
11	Theories of truth—correspondence theory	Explanation
12	Coherence theory	Explanation
13	Pragmatic & Self-evident theory	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Bisti Ram Narzary
 Course : Honours/Generic – MAJOR
 Class/Semester : 4th Semester (M)
 Paper Code : M 402, Name of the Paper: (WESTERN ETHICS)
 Unit Assigned : Full Paper
 Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and Scope of Ethics	Explanation
2	Utility of the study of ethics	Explanation
3	Relation of ethics to psychology, Metaphysics	Note
4	Relation of ethics to politics & Religion	Note
5	Moral consciousness, object of moral consciousness	Explanation
6	Moral sentiment, moral obligation	Explanation
7	Meaning of good, ought, right	Explanation
8	Duty and conflict of duties	Note
9	Virtue ethics of Plato	Note
10	Virtue ethics of Aristotle	Note
11	Teleological ethics –Egoism, Altruism	Explanation
12	Deontological ethics of Kant	Explanation
13	Existential ethics of Kant	Explanation
14	Meta ethical theory of Moore	Note
15	Meta ethical theory of Stevenson	note
16	Meta ethical theory of R.M Hare	Note
17	Professional Ethics	Explanation
18	Environmental ethics	Explanation
19	Postulates of morality	Explation
20	Crime and punishment	Explanation
21	Different theories of punishment	Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 602, Name of the Paper: (CONTEMPORARY OF WESTERN PHILOSOPHY)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	William James Pragmatism	Explanation
2	James theory of knowledge	Explanation
3	James nature and function of knowledge	Note
4	The conception of truth and error	Note
5	G.E Moore's refutation of Idealism	Explanation
6	Moore's Neo-Realism	Explanation
7	Moore's problem of sense data	Explanation
8	Ayer's Elimination of metaphysics	Note
9	Russell's Logical atomism	Note
10	Wittgenstein's facts and proposition	Note
11	Wittgenstein's picture theory of meaning	Explanation
12	Wittgenstein's language game	Explanation
13	Wittgenstein's refutation of atomism	Explanation
14	Salient features of existentialism	Note
15	Theistic and atheistic existentialism	note
16	J.P. Sartre's humanism	Note
17	Phenomenalism—a movement of thought	Explanation
18	Husserl's phenomenology	Explanation
19	Strawson's concept of person	Explantation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2016--17

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 603, Name of the Paper: (Social and political philosophy)

Unit Assigned : III & IV

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Social groups and institution-- family	Explanation
2	Social groups and institution-- Education	Explanation
3	Social groups and institution-- Religion	Note
4	Social evolution and social progress	Note
5	Social evil	Explanation
6	Relation between state and communities	Explanation
7	Relation between state and society	Explanation
8	Elements and function of state	Note
9	Theories of street Greek & Social contract	Note

Course plan (2016-17)

Name of the teacher- Dr. Reepa Sarmah

Course: Major/Non-Major: Major

Class/semester – 2nd semester

Name of the Paper – Western Philosophy (M201)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Definition of Philosophy	Explain
2	Definition of Philosophy	Provide Notes
3	Nature of Philosophy	Explain
4	Nature of Philosophy	Provide Notes
5	Scope of Philosophy	Explain
6	Scope of Philosophy	Provide Notes
7	Relevance of Philosophy	Explain
8	Relevance of Philosophy	Provide Notes
9	Philosophy and Epistemology	Explain
10	Philosophy and Epistemology	Provide Notes
11	Philosophy and Metaphysics	Explain
12	Philosophy and Metaphysics	Provide Notes
13	Philosophy and Theology	Explain
14	Philosophy and Theology	Provide Notes
15	Philosophy and Axiology	Explain
16	Philosophy and Axiology	Provide Notes
17	Science and Philosophy	Explain
18	Science and Philosophy	Provide Notes
19	Knowledge definition	Explain
20	Kinds of knowledge	Provide Notes
21	Knowledge by acquaintance	Explain
22	Knowledge by acquaintance	Provide Notes
23	Knowledge by Description	Explain
24	Knowledge by Description	Provide Notes
25	Necessary and Sufficient conditions of Propositional knowledge	Explain
26	Necessary and Sufficient conditions of Propositional knowledge	Provide Notes
27	Rationalism	Explain
28	Empiricism	Provide Notes
29	Critical theory	Explain
30	Critical theory	Provide Notes
31	Scepticism	Explain& provided notes
32	Categories of knowledge	Explain& provided notes
33	Space	Explain& provided notes
34	Time	Explain& provided notes
35	Causality	Explain
36	Causality	Provide Notes
37	Substance	Explain
38	Substance	Provide Notes

39	Problem of Certainty of knowledge	Explain
40	Problem of Certainty of knowledge	Provide Notes
41	Scepticism	Explain
42	Scepticism	Provide Notes
43	Answer to Scepticism	Explain
44	Answer to Scepticism	Provide Notes
45	Logical Positivism	Explain& provided notes
46	Refutation of Metaphysics	Explain
47	Refutation of Metaphysics	Provide Notes
48	Universals	Explain& provided notes
49	Realism	Explain& provided notes
50	Nominalism	Explain& provided notes
51	Conceptualism	Explain& provided notes
52	Correspondance theory of truth	Explain
53	Correspondance theory of truth	Provide Notes
54	Coherence theory of truth	Explain
55	Coherence theory of truth	Provide Notes
56	Pragmatic theory of truth	Explain& provided notes
57	Self-evident theory of truth	Explain
58	Self-evident theory of truth	Provide Notes

Course plan (2016-17)

Name of the teacher- Dr. Reepa Sarmah

Course: Major/Non-Major: Non- Major

Class/semester – 4th semester

Name of the Paper – Western Philosophy (II)

Units Assigned – Half (2 units)

Marks Assigned – 40

Class	Topic/Unit	Remarks
1	Nature of God	Explain
2	Nature of God	Provide Notes
3	Attributes of God	Explain
4	Attributes of God	Explain
5	Attributes of God	Provide Notes
6	Proofs for Gods Existence	Explain
7	Proofs for Gods Existence	Explain
8	Proofs for Gods Existence	Explain
9	Proofs for Gods Existence	Explain
10	Proofs for Gods Existence	Explain
11	Proofs for Gods Existence	Explain
12	Proofs for Gods Existence	Explain
13	Proofs for Gods Existence	Provide Notes
14	Deism	Explain
15	Deism	Explain
16	Deism	Provide Notes
17	Theism	Explain
18	Theism	Provide Notes
19	Pantheism	Explain
20	Pantheism	Provide Notes
21	Panentheism	Explain
22	Panentheism	Provide Notes
23	Different theories of Moral Obligation	Explain
24	Different theories of Moral Obligation	Explain
25	Different theories of Moral Obligation	Explain
26	Different theories of Moral Obligation	Explain
27	Different theories of Moral Obligation	Explain
28	Different theories of Moral Obligation	Provide Notes

29	Postulates of Morality	Explain
30	Postulates of Morality	Explain
31	Postulates of Morality	Provide Notes

Course plan (2016-17)

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 6 th semester

Name of the Paper – Contemporary Indian Philosophy (M601)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Vivekananda : an Introduction	
2	Practical Vedanta	
3	Practical Vedanta	
4	Practical Vedanta	
5	Vivekananda's Universal Religion	
6	Vivekananda's Universal Religion	
7	Vivekananda's Universal Religion	
8	Vivekananda's Philosophy of Education	
9	Vivekananda's Philosophy of Education	
10	Vivekananda's Philosophy of Education	
11	Aurobindo's Evolution	
12	Aurobindo's Evolution	
13	Aurobindo's Evolution	
14	Aurobindo's Supermind	
15	Aurobindo's Supermind	
16	Aurobindo's Supermind	
17	Synthesis of Yoga	
18	Synthesis of Yoga	
19	Synthesis of Yoga	
20	Synthesis of Yoga	
21	Integralism	

22	Integralism	
23	Integralism	
24	Integralism	
25	Tagore's Humanism	
26	Tagore's Humanism	
27	Tagore's Humanism	
28	Tagore's Humanism	
29	Nature of Religion	
30	Nature of Religion	
31	Nature of Religion	
32	Nature of Religion	
33	Iqbal's Intuition	
34	Iqbal's Intuition	
35	Iqbal's Intuition	
36	Iqbal's Intuition	
37	Human Ego	
38	Human Ego	
39	Human Ego	
40	Human Ego	
41	Human Ego	
42	Man and his Destiny	
43	Man and his Destiny	
44	Man and his Destiny	
45	Gandhi's Truth	
46	Gandhi's Truth	
47	Gandhi's Truth	
48	Gandhi's Truth	
49	Gandhi's Non-violence	
50	Gandhi's Non-violence	
51	Gandhi's Non-violence	
52	Gandhi's Non-violence	
53	Radhakrishnan's Intellect and Intuition	
54	Radhakrishnan's Intellect and Intuition	
55	Radhakrishnan's Intellect and Intuition	
56	Radhakrishnan's Intellect and Intuition	
57	Radhakrishnan's Intellect and Intuition	

COURSE PLAN

2016-17

**DEPARTMENT OF PHYSICS,
DIGBOI COLLEGE**

DIGBOI COLLEGE, DIGBOI

Course Plan

Period: July-December 2016

Name of the Teacher - Dr Kanchan Konwar

Course – Honours

Class/Semester - 5th Semester (NCBCS)

Name of the Paper - PHYM -504 (Electronics)

Units Assigned - I, II, III

Marks Assigned - 60

Unit	Class	Topic/ Unit	Remarks
Unit I	1.	Charged particles and electronic structure of elements	
	2.	Energy band theory of crystals, conductors, semiconductors and insulators	
	3.	Electrons and holes in semiconductor	
	4.	Donor and acceptor impurity, generation and recombination of charge	
	5.	Diffusion, continuity equation	
	6.	Junction diode characteristics: the open circuited PN junction, I-V characteristics of P-N diode	
	7.	Breakdown diodes	
	8.	Diode as a rectifier	
	9.	Half-wave rectifier	
	10.	Full-wave rectifier with resistance load	
	11.	Ripple factor	
	12.	Smoothing filters	
	13.	DC power supply	
Unit II	1.	Transistors: NPN and PNP transistors	
	2.	Transistor action, common emitter connection	
	3.	Common base and common collector connections,	
	4.	Transistor biasing (fixed bias, base resistor, voltage divider) and thermal stabilization	
	5.	Amplifier equivalent circuits	
	6.	Hybrid parameters, small signal transistor voltage amplifier	
	7.	RC coupled and LC coupled amplifier	
	8.	Power amplifier (Class A and Class B)	
	9.	Distortion in amplifier	
	10.	Amplifier with negative feedback, effect of negative feedback on gain, output impedance and distortions	
Unit III	1.	Oscillators: transistor as sinusoidal oscillator	
	2.	Barkhausen criterion	
	3.	Tuned collector Oscillator	
	4.	Hartley, RC oscillator	
	5.	Wein Bridge and crystal oscillator	
	6.	Integrated Circuit: basic ideas, differential amplifier	
	7.	Operational amplifiers, CMRR, inverting, non-inverting modes	
	8.	Basic mathematical operations- addition, differentiation, integration.	
Unit IV	1.	Logic gates: binary numbers	

	2.	Decimal to binary conversion	
	3.	Binary to decimal conversion	
	4.	Logic gates and their realization by P-N diodes and transistor	
	5.	Half adder, full adder	
	6.	NAND, NOR and XOR gates	
	7.	Boolean algebra	
	8.	De Morgan's theorem and its applications	
	9.	K-maps	

Course – Honours

Class/Semester - 5th Semester (NCBCS)

Name of the Paper - PHYM -503 (Atomic and Molecular Physics)

Units Assigned - III

Marks Assigned - 21

Unit	Class	Topic/ Unit	Remarks
Unit III	1.	Molecular spectra: Pure rotation spectra	
	2.	Theory of pure rotation spectra, selection rules	
	3.	Vibration spectra and selection rules	
	4.	Theory of rotation-vibration spectra	
	5.	P and R branches	
	6.	Rayleigh scattering	
	7.	Raman scattering	
	8.	Raman effect	
	9.	Classical theory of Raman effect	
	10.	Introduction to Lasers: Spontaneous and stimulated emission,	
	11.	Population inversion and Einstein's A and B coefficients	
	12.	Ammonia beam maser	
	13.	Ruby laser	
	14.	He-Ne laser	

Course – Honours

Class/Semester – 3rd Semester (CBCS)

Name of the Paper - PHYSICS-C VII: DIGITAL SYSTEMS AND APPLICATIONS (THEORY)

Units Assigned – from 1 to 12

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Block Diagram of CRO. Electron Gun, Deflection System and Time Base. Deflection Sensitivity	
	2	Applications of CRO: Study of Waveform	
	3	Measurement of Voltage, Current, Frequency, and Phase Difference.	
II	1	Integrated Circuits : Active & Passive components. Discrete components. Wafer. Chip.	
	2	Advantages and drawbacks of ICs. Scale of integration: SSI, MSI, LSI and VLSI.	
	3	Classification of ICs. Examples of Linear and Digital ICs.	
III	1	Difference between Analog and Digital Circuits. Binary Numbers.	

	2	Decimal to Binary and Binary to Decimal Conversion.	
	3	BCD, Octal and Hexadecimal numbers.	
	4	AND, OR and NOT Gates (realization using Diodes and Transistor).	
	5	NAND and NOR Gates as Universal Gates.	
	6	XOR and XNOR Gates and application as Parity Checkers.	
IV	1	De Morgan's Theorems. Boolean Laws.	
	2	Simplification of Logic Circuit using Boolean Algebra.	
	3	Fundamental Products.	
	4	Idea of Minterms and Maxterms.	
	5	Conversion of a Truth table into Equivalent Logic Circuit by Sum of Products Method	
	6	Karnaugh Map.	
V	1	Basic idea of Multiplexers	
	2	De-multiplexers	
	3	Decoders	
	4	Encoders	
VI	1	Binary Addition	
	2	Binary Subtraction using 2's Complement	
	3	Half and Full Adders.	
	4	Half & Full Subtractors	
	5	4-bit binary Adder/Subtractor	
VII	1	SR, D Flip-Flops	
	2	JK Flip-Flops	
	3	Level and Edge Triggered Flip-Flops	
	4	Preset and Clear operations	
	5	Race-around conditions in JK Flip-Flop	
	6	M/S JK Flip-Flop	
VIII	1	IC 555: block diagram	
	2	Astable multivibrator	
	3	Monostable multivibrator.	
IX	1	Serial-in-Serial-out, Serial-in-Parallel-out Shift Registers	
	2	Parallel-in-Serial-out and Parallel-in-Parallel-out	
X	1	Ring Counter	
	2	Asynchronous counters	
	3	Decade Counter	
	4	Synchronous Counter	
XI	1	Input/Output Devices. Data storage (idea of RAM and ROM).	
	2	Computer memory	
	3	Memory organization & addressing	
	4	Memory Interfacing. Memory Map	
XII	1	Main features of 8085. Block diagram. Components. Pin-out diagram.	
	2	Buses. Registers. ALU. Memory. Stack memory	
	3	Timing & Control circuitry	
	4	Timing diagram of MOV and MVI.	
	5	Timing states. Instruction cycle	
XIII	1	Introduction to Assembly Language:	
	2	1 byte, 2 byte & 3 byte instruction	

Class/Semester – 1st Semester (CBCS)

Name of the Paper - Physics-C- II (MECHANICS)

Units Assigned – from 6 to 10

Marks Assigned – 33

Unit	Class	Topic/ Unit	Remarks
VI	1	Fluid Motion: Kinematics of Moving Fluids:	
	2	Poiseuille's Equation	
	3	Poiseuille's Equation contd.	
VII	1	Gravitation and Central Force Motion: Law of gravitation.	
	2	Gravitational potential energy. Inertial and gravitational mass.	
	3	Potential and field due to spherical shell and solid sphere.	
	4	Motion of a particle under a central force field.	
	5	Two-body problem and its reduction to one-body problem and its solution.	
	6	The energy equation and energy diagram.	
	7	Kepler's Laws.	
	8	Satellite in circular orbit and applications. Geosynchronous orbits. Weightlessness.	
	9	Basic idea of global positioning system (GPS).	
VIII	1	Simple Harmonic Oscillations.	
	2	Differential equation of SHM and its solution.	
	3	Differential equation of SHM and its solution contd.	
	4	Kinetic energy, potential energy, total energy and their time-average values..	
	5	Damped oscillation	
	6	Forced oscillations: Transient and steady states;	
	7	Resonance, sharpness of resonance; power dissipation and Quality Factor	
IX	1	Non-inertial frames and fictitious forces. Uniformly rotating frame.	
	2	Laws of Physics in rotating coordinate systems.	
	3	Centrifugal force , Coriolis force and its applications	
	4	Components of Velocity and Acceleration in Cylindrical and Spherical Coordinate Systems	
X	1	Michelson-Morley Experiment and its outcome. Postulates of Special Theory of Relativity.	
	2	Lorentz Transformations. Simultaneity and order of events.	
	3	Lorentz contraction. Time dilation.	
	4	Relativistic transformation of velocity, frequency and wave number	
	5	Relativistic addition of velocities.	
	6	Variation of mass with velocity	
	7	Massless Particles. Mass-energy Equivalence	
	8	Relativistic Doppler effect.	
	9	Relativistic Kinematics. Transformation of Energy and Momentum .	

Period: January-June 2017

Course – Honours

Class/Semester – 2nd Semester (CBCS)

Name of the Paper - PHYSICS-C III: ELECTRICITY AND MAGNETISM

Units Assigned – I, II, VI, VII, VIII

Marks Assigned – 41

Unit	Class	Topic/ Unit	Remarks
I	1	Electric field: Electric field lines.	
	2	Electric flux.	
	3	Gauss' Law with applications to charge distributions with spherical, cylindrical and planar symmetry.	
	4	Electrostatic Potential. Laplace's and Poisson equations.	
	5	The Uniqueness Theorem.	
	6	Potential and Electric Field of a dipole. Force and Torque on a dipole.	
	7	Electrostatic energy of system of charges.	
	8	Electrostatic energy of a charged sphere.	
	9	Conductors in an electrostatic Field	
	10	Surface charge and force on a conductor	
	11	Capacitance of a system of charged conductors. Parallel-plate capacitor. Capacitance of an isolated conductor	
	12	Method of Images and its application to (1) Plane Infinite Sheet and (2) Sphere	
II	1	Electric Field in matter. Polarization, Polarization Charges. Electrical Susceptibility and Dielectric Constant.	
	2	Capacitor (parallel plate, spherical, cylindrical) filled with dielectric	
	3	Displacement vector D. Relations between E,P and D.	
	4	Gauss' Law in dielectrics	
VI	1	AC Circuits: Kirchhoff's laws for AC circuits.	
	2	Complex Reactance and Impedance.	
	3	Series LCR Circuit	
	4	Parallel LCR Circuit.	
VII	1	Ideal Constant-voltage and Constant-current Sources.	
	2	Network Theorems: Thevenin theorem, Norton Theorem,	
	3	Superposition theorem, Reciprocity theorem,	
	4	Maximum Power Transfer theorem.	
VIII	1	Torque on a current Loop.	
	2	Ballistic Galvanometer: Current and Charge Sensitivity.	
	3	Electromagnetic damping. Logarithmic damping. CDR.	

Course – Honours

Class/Semester – 4th Semester (CBCS)

Name of the Paper - PHYSICS-C-X : ANALOG SYSTEMS AND APPLICATIONS

Units Assigned – I to X

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Semiconductor Diodes	
	2	P and N type semiconductors.	
	3	Energy Level Diagram.	
	4	Conductivity and Mobility, Concept of Drift velocity.	
	5	Barrier Formation in PN Junction Diode. Static and Dynamic Resistance.	
	6	Current Flow Mechanism in Forward and Reverse Biased Diode. Drift Velocity.	
	7	Derivation for Barrier Potential, Barrier Width and Current for Step Junction	
II	1	Rectifier Diode: Half-wave Rectifiers.	
	2	Centre-tapped Rectifiers	
	3	and Bridge Full-wave	
	4	Calculation of Ripple Factor and Rectification Efficiency, C-filter	
	5	Zener Diode and Voltage Regulation.	
	6	Principle and structure of (1) LEDs, (2) Photodiode and (3) Solar Cell	
III	1	n-p-n and p-n-p Transistors.	
	2	Characteristics of CB, CE and CC Configurations	
	3	Current gains α and β Relations between α and β .	
	4	Load Line analysis of Transistors. DC Load line and Q-point.	
	5	Physical Mechanism of Current Flow. Active, Cutoff and Saturation Regions.	
IV	1	Transistor Biasing and Stabilization Circuits.	
	2	Fixed Bias	
	3	Voltage Divider Bias	
	4	Transistor as 2-port Network.	
	5	h-parameter Equivalent Circuit	
	6	Analysis of a single-stage CE amplifier using Hybrid Model.	
	7	Input and Output Impedance. Current, Voltage and Power Gains.	
	8	Classification of Class A, B & C Amplifiers	
V	1	RC coupled Amplifier	
	2	Two stage RC coupled Amplifier	
	3	frequency response	
VI	1	Effect of positive and negative feedback on Input impedance,	
	2	Effect of positive and negative feedback on Output impedance,	
	3	Effect of positive and negative feedback on Gain	
	4	Effect of positive and negative feedback on Stability, Distortion and noise.	
VII	1	Barkhausen's Criterion for self-sustained oscillations.	
	2	RC Phase shift oscillator	
	3	Hartley & Colpitts oscillators	
VIII	1	Characteristics of an Ideal and Practical Op-Amp. (IC 741)	
	2	Open-loop and Closed-loop Gain.	
	3	Frequency Response. CMRR.	
	4	Slew Rate and concept of Virtual ground	
IX	1	Applications of Op-Amps: Inverting and non-inverting amplifiers	
	2	Adder, Subtractor	
	3	Differentiator, Integrator	
	4	Log amplifier, Zero crossing detector	
	5	Wein bridge oscillator.	
X	1	Resistive network (Weighted and R-2R Ladder).	
	2	Accuracy and Resolution.	
	3	A/D Conversion (successive approximation)	

Course – Honours

Class/Semester – 6th Semester (NCBCS)

Name of the Paper - PHYM – 604 (Laser and its Application)

Units Assigned – I to V

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Absorption and emission of radiation	
	2	Spontaneous emission of radiation, stimulated emission,	
	3	Einstein coefficients, significant of Einstein coefficients	
	4	Basic Laser system requirements	
	5	Method of creation of population inversion, optical resonator, Q factor, optical cavity, Standing wave ,	
	6	Threshold condition for laser oscillator .	
II	1	Description of Ammonia beam Maser	
	2	Ruby Laser	
	3	He-Ne Laser,	
	4	Semiconductor Laser.	
III	1	Intensity, Monochromaticity	
	2	Coherence properties of Laser radiation, spatial, and Temporal Coherence,	
	3	Purity of spectral line and Temporal Coherence relation with Coherence,	
	4	Visibility of fringes and degree of coherence	
	5	Relation between visibility and coherence.	
IV	1	Introduction: Basic principle of Fiber optics, structure and classification,	
	2	acceptance angle and numerical aperture,	
	3	Intermodal dispersion in a step index fiber,	
	4	Ray path in index fiber.	
	5	Advantages of fiber optics communication	
V	1	Faraday effect- Determination of magnetic rotation,	
	2	Classical theory of Faraday Effect,	
	3	Kerr electro Optic effect	
	4	Harmonic generation, second harmonic generation	

Course plan 2016-17

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-PSCM 101(Western Political Thought)

Units Assigned- –I & III

Marks Assigned- 16

Serial number of classes	Topic/ Unit
1	Plato's life
2	Plato's theory of Justice
3	Criticism of Plato's theory of Justice
4	Plato's theory of Communism – Communism of wives and property
5	Criticism of Plato's communism of wives and property
6	Aristotle' on citizenship
7	Criticism of Aristotle's theory of citizenship
8	Aristotle on Justice- Distributive Justice and Corrective Justice
9	Aristotle on State
10	Aristotle on Revolution- Causes of Revolution
11	Prevention of Revolution
12	Discussion
13	Early life of Machiavelli, Views on Religion
14	Machiavelli's views on Ethics and Religion
15	Machiavelli's views on Human nature
16	Views on StateTheory of Statecraft
17	Concept of forms of government
18	Concept of Law
19	Place of Machiavelli in the history of political thought

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-PSCM 201 (Indian Government and Politics)

Units Assigned- **–II & III**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Preamble of the Indian Constitution
2	Philosophy of the the Indian Constitution
3	Fundamental Rights: Meaning and Definition, Characteristics
4	various fundamental rights
5	various fundamental rights
6	Directive Principles of State Policy: Meaning, Definition
7	Various Directive Principles
8	Various Directive Principles
9	Difference between Fundamental Rights and Directive Principles of State Policy
10	Fundamental Duties
11	Amendment procedure of the Indian Constitution
12	Federalism: Meaning, Na Definition
13	Federal Features of the Indian Constitution
14	Centre-State Conflict
15	Regionalism: Meaning, causes
16	Remedies of Regionalism
17	Secularism in India
18	Secular features of Indian Constitution
19	Hindrances of Secularism
20	Discussion

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Non- Major

Class/Semester-PSCG 201 (Indian Government and Politics)

Units Assigned- –II & III

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Preamble of the Indian Constitution
2	Philosophy of the the Indian Constitution
3	Fundamental Rights: Meaning and Definition, Characteristics
4	various fundamental rights
5	various fundamental rights
6	Directive Principles of State Policy: Meaning, Definition
7	Various Directive Principles
8	Various Directive Principles
9	Diference between Fundamental Rights and Directive Principles of State Policy
10	Fundamental Duties
11	Amendment procedure of the Indian Constitution
12	Federalism: Meaning, Na Definition
13	Federal Features of the Indian Constitution
14	Centre-State Conflict
15	Regionalism: Meaning, causes
16	Remedies of Regionalism
17	Secularism in India
18	Secular features of Indian Constitution
19	Hindrances of Secularism
20	Discussion

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-III

Paper-PSCM 301(Public Administration)

Units Assigned- **–IV & V**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Recruitment: Meaning and Definition
2	Problems of Recruitment
3	Types of Recruitment: Direct Recruitment, Merits and demerits
4	Types of Recruitment: Indirect Recruitment, , Merits and demerits
5	Promotion Meaning and Definition
6	Principles of Promotion
7	Seniority principle of Promotion, Merits and demerits
8	Merit principle of Promotion, Merits and demerits
9	Promotion system in India
10	Morale: Meaning, definition
11	Measures to boost morale
12	Importance of Morale in Administration
13	Training: Meaning and Definition
14	Kinds of Training
15	Methods of Training
16	Union Public service Commission
17	State Public service Commission
18	Budget: Meaning and Types
19	Principles of Budget

20	Budget making process in India
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Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-IV

Paper-PSCM 401(Comparative Politics)

Units Assigned- **–II, III & IV**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Parliamentary Executive in Britain: King
2	Powers and functions of the British King
3	Role and Position of the King
4	Distinction between King and the Crown
5	British Prime Minister, Powers and functions
6	British Council of Ministers: Powers and functions
7	American President: Powers and Functions
8	American President: Powers and Functions
9	Comparison between the American President and British Prime Minister
10	Swiss Federal Council: Powers and Functions
11	Chinese President: Powers and Functions
12	Chinese Premier: Powers and Functions
13	British Parliament, Powers and Functions of the House of Lords
14	Powers and Functions of the House of Commons
15	American Congress, Senate and House of representatives

16	Powers and Functions of the Senate
17	Powers and Functions of the House of Representatives
18	Swiss federal Assembly: Composition, Powers and Functions
19	Chinese National People's Congress: Composition, Powers and Functions
20	Standing Committee of the National People's Congress
21	Comparison between the Various legislatures
22	British Judiciary; Composition, Powers and Functions
23	American Supreme Court: Composition, Powers and Functions
24	Judicial Review of the Supreme Court of America
25	Swiss Federal Tribunal: Composition, Powers and Functions
26	Swiss Federal Tribunal: Composition, Powers and Functions
27	Chinese Judiciary: Composition, Powers and Functions
28	Comparison between the Various Judiciaries
29	Comparison between the Various Judiciaries
30	Comparison between the Various Judiciaries

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-IV

Paper-PSCM 402(Politics of North-East India with special reference to Assam))

Units Assigned- II

Marks Assigned- 16

Serial number of classes	Topic/ Unit
1	Genesis of the Problem of Autonomy
2	Meaning of Regionalism, Causes for the growth of Regionalism
3	Arguments in favor and against of regionalism
4	Development Regionalism in Assam
5	Assam Accord
6	Sub-Regionalism: Meaning, Causes for Sub-Regionalism
7	The Remedy to avoid Regionalism
8	Demand for Autonomous State
9	Causes of Demanding Autonomous state in Assam
10	Bodo Movement

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-V

Name of the paper- PSCM 503 (Indian Foreign Policy)

Units Assigned- –I,II,III,IV & V

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Origin and evolution of Indian foreign Policy	
2	Origin and evolution of Indian foreign Policy	
3	Origin and evolution of Indian foreign Policy	
4	Determinants of Foreign Policy	
5	Domestic determinants of Foreign Policy	
6	External determinants of Foreign Policy	
7	Non-align movement in India's foreign policy	
8	Causes for accepting non-alignment in India's foreign Policy	
9	Principles of India's Foreign Policy	
10	Objectives of India's Foreign Policy	
11	Continuities and Changes of India's Foreign Policy	
12	Continuities and Changes of India's Foreign Policy	
13	Continuities and Changes of India's Foreign Policy	
14	Indo-US relations	
15	Indo-US relations during the time of Nehru	
16	Indo-US relations during the time of Indira Gandhi	
17	Indo-US relations during the time of Rajiv Gandhi	
18	Indo-US relations in post-Cold	

	war period	
19	Indo-US relations in post Cold war period	
20	Indo- Soviet Relations during Cold war period	
21	Indo- Russian Federation Relations after Cold war period	
22	India's relations with China	
23	India's relations with China	
24	Look East Policy and South East Asia	
25	Look East Policy and ASEAN	
26	Indo-Pak Relations	
27	Causes of conflicts of Indo-Pak relations	
28	Causes of Indo-Pak Conflict	
29	Indo-Bangladesh relations	
30	Causes of Indo-Bangladesh Conflict	
31	Indo-Nepal relations	
32	Decline of relationship between India and Nepal	
33	India and UNO	
34	India and UNO	
35	India and Un Peace keeping Mission	
36	Initiatives of UN in India's Development	
37	India's role in UN Peace Keeping Mission	
38	India and SAARC	
39	Evaluation of SAARC	
40	Economic Diplomacy in India's Foreign Policy	
41	Objectives of Economic Diplomacy	
42	Aspects of India's Economic diplomacy	
43	Globalization: Meaning, definition	
44	Economic consequences of Globalization	
45	Globalization and India's Approach , Effects of Globalization in India	
46	Nuclear Issues and India's approach	
47	India's Nuclear Policy	
48	Global Terrorism: India's approach	

49	India's approach to terrorism	
50	Discussion	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-VI

Name of the paper- PSCM 604 (Indian Administration)

Units Assigned- **–I,II,III,IV & V**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Administration and Environment	
2	Nature of Indian Administration	
3	Features of Indian Administration	
4	Legacies of Indian Administration	
5	Indian Administration and Cultural Environment	
6	Indian Administration and Cultural Environment	
7	Indian Administration and Social Environment	
8	Indian Administration and Political Environment	
9	Indian Administration and Political Environment	
10	Indian Administration and Economic Environment	
11	Indian Administration and Constitutional Environment	
12	The President of India	
13	Role and position of the President of India	
14	Prime Minister of India	

15	Union Council of Ministers	
16	Central Secretariat: Meaning and Nature of Secretariat	
17	Functions and role of Secretariat	
18	Structures of Central Secretariat	
19	Structures of Central Secretariat	
20	Structures of Cabinet Secretariat	
21	Cabinet Secretary: functions	
22	Cabinet Secretary: Role	
23	State Governor: Powers and functions	
24	State Chief Minister: Powers and functions	
25	Chief Minister as real executive	
26	State Secretariat: Structure	
27	Internal Organizations of Secretariat Department	
28	Chief Secretary: Functions	
29	Secretariat and Field Departments	
30	Relation between V and field departments	
31	Evolution of District Administration	
32	Organisation of District Administration	
33	Deputy Commissioner: Duties	
34	Deputy Commissioner: Duties	
35	Position of Deputy Commissioner	
36	District administration and Democratic Decentralization	
37	Relation between Deputy Commissioner and Technical Departments	
38	Role of Deputy Commissioner in District Administration	
39	Role of Deputy Commissioner in District Administration	
40	Sub-Divisional Officer: Duties	
41	Role of Sub-Divisional Officer: in Sub-Divisional Administration	
42	Divisional Commissioner: Functions	
43	Divisional Commissioner: Duties	
44	Public Service: Meaning,	

	Features	
45	Functions of Civil Service	
46	Structure of Central Civil Service	
47	All India Services	
48	Strengthening of All India Services	
49	State Service	
50	Discussion	

COURSE PLAN : APARAJITA GOGOI; DEPARTMENT OF ZOOLOGY : 2016

EVEN SEMESTER CLASSES

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
January	3 rd	ZOOM 201 Unit 3- Metabolism concept; glycolysis Pyruvic acid oxidation, Krebs cycle	ZOOM 401-Unit 2 Chromosome Hetero and euchromatin Packaging of DNA ZOOM 401- Mitochondria function	ZOOM 601 –Parasitology Host and vectors Adaptation ZOOM 603 Unit 4 Immunity Zoom 601-Vectors	ZOOG 201- Syllabus given Introductory class	ZOOG 401 Endocrinology	
	4 th	ZOOM 201 ATP synthesis	ZOOM 401-Cell signalling; Receptors; GPCR	ZOOM 603- Immunity, Types of cells and organs Innate & adaptive immunity Cellular-humoral ; Lymphoid organs ZOOM 603- Biotechnology; Cloning vectors	ZOOG 201- Unit 5 Biological oxidation; Mitochondria	ZOOG-401 Anatomy of Pituitary	
February	1 st	ZOOM 201 ETS	ZOOM 3 Fertilization	ZOOM 603- DNA visualization ZOOM 606 Tea pests ZOOM 603- Antigen – antibody reaction		ZOOG-401 Parthenogenesis;	
	2 nd	ZOOM 201 ETS	ZOOM 403 Fertilization-mechanism	ZOOM 603- Antigen –antibody reaction Vaccines	ZOOG 201- Unit 5 Biological oxidation; Mitochondria	ZOOG 401- Muscles cells	

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
February	1 st	ZOOM 201 Unit 3 Electron transport system	ZOOM 401-Unit 5 Histology- bone Microtomy concept (theoretical)	ZOOM 601- Parasitology Leishmania; Entamoeba		ZOOG-401 Unit 4 Functions of adrenal hormones, disorders	ZOOG 601- Population characteristics* *xtra class
	2 nd	ZOOM 201 DNA forms	ZOOM 401- Bone ; kidney tissues	ZOOM 601-Entamoeba histolytica life history; Pathogenicity of E. Histolytica ZOOM 604- Regulation of Biotech	ZOOG 201- Chromosome structure detail	ZOOG 401- Muscles cells contraction	ZOOG 601- Population Dispersion
	3 rd		ZOOM 401- Kidney	ZOOM 601 Trypanosoma gambiensi Life cycle , pathogenesis			1 st sessional exam
	4 th	ZOOM 201 Beta oxidation; DNA as genetic material	ZOOM 403- Histology of Lungs	ZOOM 601 Social behaviour in insects ZOOM 603- Immunodiffusion;RIA-ELISA		ZOOG-401 Neuron. Transmission of impulse	
March	1 st		ZOOM 401-Unit 4	ZOOM 601- Unit 5 Communication and orientation in animal	ZOOG 201- Lampbrush chromosome	ZOOG-401 Drug addiction	
	2 nd	ZOOM -201 Unit 5- Trnscription	ZOOM- 401 GPCR	ZOOM 601- Unit 5 Defensive behaviour	ZOOG 201 Nucleus str. function		
	3 rd	ZOOM -201	ZOOM 403- Fate maps; germ layers; primary organiser	ZOOM 601- Unit 5 Offensive behaviour			

COURSE PLAN : APARAJITA GOGOI; DEPARTMENT OF ZOOLOGY : 2016 JANUARY

ODD SEMESTER CLASSES

MONTH	WEEK	SEM I H	SEM III H	SEM V H	SEM I G	SEM III G	Sem V G
JUNE	1 st		ZOOM 301- Unit 2- Amphibia Parental care	ZOOM 501 – UNIT 1 Gene and allele concept Mendel Laws	ZOOG 101-	ZOOG 301 Syllabus given- Introductory class	
	2 nd		ZOOM 301- Unit 2- Metamorphosis	ZooM 501- Lethal factors; Quantitative inheritance ZOOM 503-Unit 1 Muscle cells ,contraction of muscle		ZOOG 301 Unit 2- Amphibia Parental care	
	3 rd		ZOOM 301- Neoteny ZOOM 303- Unit 1- Chromatography	ZOOM 503 – Isometric/ isotonic contraction, tetanus	ZOOG 101 Introductory class	ZOOG-301 Fishes- characters, classification	ZOOG 501 Mendels laws
	4 th	ZOOM 101 Introduction- syllabus	ZOOM 303 Unit 1 chromatography	ZOOM 507-Unit 4 Hormonal control of reproduction		ZOOG-301 Respiratory organs of fishes; accessory resp. organs	
August	1 st	ZOOM 101- Mollusca	ZOOM 301- Mammalia	ZOOM 507- Thyroid comparative ZOOM 503- Reflexaction	ZOOG 101- Torsion detorsion	ZOOG 301- Mammalia	ZOOG 501- Mendels laws

	2 nd	ZOOM 101- Digestion,respiration excretion in molluscs	ZOOM 301- Mammalia Adaptation	ZOOM 501 Lethality ZOOM 505 –Unit 4 Renewable and non- renewable resources	ZOOG 101- Torsion detorsion	ZOOG 301- Mammalia	ZOOG 501- Gene interaction
	3 rd	ZOOM 101- Torsion- detorsion	ZOOM 301- Mammalia ZOOM 303- Unit 1- Sampling	ZOOM 501 Continental drift; Adaptive radiation ZOOM 505 –Unit 4 Bioindicators, ecological backlash, succession, greenhouse effect. Ozone depletion	ZOOG 101 Echinodermata	ZOOG 301- Mammalia	ZOOG 501- Linkage
	4 th	Sessional 1 st					
September	1 st	ZOOM 101- Echinodermata.	ZOOM 303- Unit 1- Sampling Graphical representation	ZOOM 503-Unit 5 Vision –eye str.	ZOOG 101 Echinodermata Water vascular system		ZOOG 501- Linkage
	2 nd		ZOOM 301- Mammalia Echolocation Integumentary system of fish	ZOOM 503-Unit 5 Vision –defects	ZOOG 101 Taxonomy, systematics	ZOOG 301- Cleavage patterns	
	3 rd	ZOOM 101- Echinodermata	ZOOM 301Vertebrate circulatory system	ZOOM 503-Unit 5 Drug addiction Reproductive hormones, Contraception methods	ZOOG 101 Taxonomy, systematics	ZOOG 301- Cleavage patterns	

MONTH	WEEK	SEM I H	SEM III H	SEM V H	SEM I G	SEM III G	Sem V G
September	4 th	ZOOM 101- Taxonomy Systematic; hierarchy	ZOOM 301- Unit 1- Chromatography	ZOOM 505 – UNIT 5 Biodiversity threats; insitu –exsitu conservation	ZOOG 101- Taxonony, systematic Species concept	ZOOG 301 Gastrulation	ZOOG 501- Linkage; crossing over
October	1st	ZOOM 101- Systematic; hierarchy, species concept	ZOOM 301- Unit 1- ion exchange Chromatography			ZOOG 301 Gastrulation Germ layers; fate maps	ZOOG 501- Sex determination Cytoplasmic inheritance
	2 nd	PUJA HOLIDAYS					

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher-**Kishor Haloi**

Course –Honours / Generic –**Honours**

Class/Semester-**1st Semester (Non-CBCS)**

Paper Code: **101 (Theory)**

Name of the Paper-**Non Chordate Diversity, Systematics and Evolution**

Units Assigned-**Unit 2, Unit 3**

Marks Assigned-**12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Annelida: General characters	
2.	UNIT 2:Annelida: classification upto orders with examples	
3.	UNIT 2:Annelida: Excretion of <i>Pheretima</i>	
4.	UNIT 2:Annelida: Reproduction and importance of <i>Pheretima</i>	
5.	UNIT 2:Annelida: Coelom and metamerism in Annelids.	
6.	Unit-3: Arthropoda: General characters	
7.	Unit-3: Arthropoda: classification upto orders with examples	
8.	Unit-3: Arthropoda: classification upto orders with examples	
9.	Unit-3: Arthropoda: classification upto orders with examples	
10.	Unit-3: Arthropoda: classification upto orders with examples	
11.	Unit-3: Arthropoda: mouth parts of insects	
12.	Unit-3: Arthropoda: larval forms in crustacea	
13.	Unit-3: Arthropoda: excretion in arthropoda	
14.	Unit-3: Arthropoda: vision in arthropoda	
15.	Unit-3: Arthropoda: Affinity of Onychophora.	

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **102 (Practical)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 1, Unit 2, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
2.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
3.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
4.	Unit 1: Dissection: Earthworm: Urinogenital system	
5.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
6.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
7.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
8.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
9.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
10.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **101 (Theory)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	Unit 3: Annelida: Coelom in Annelida	
2.	Unit 3: Annelida: Excretion in Annelida	
3.	Unit 3: Arthropoda: Mouth Parts	
4.	Unit 3: Arthropoda: Legs in Insects	
5.	Unit 3: Arthropoda: Crustacean Larval Forms	
6.	Unit 3: Arthropoda: Social Life in Honey Bee	
7.	Unit 5: Concept of Evolution	
8.	Unit 5: Evolutionary Theories	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **102 (Practical)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 1, Unit 2, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
2.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
3.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
4.	Unit 1: Dissection: Earthworm: Urinogenital system	

5.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
6.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
7.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
8.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
9.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
10.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **301 (Theory)**

Name of the Paper- **Chordate Diversity and Comparative Anatomy**

Units Assigned- **Unit 4, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: General characters of Aves	
2.	UNIT 4: Classification of Aves upto super orders with examples	
3.	UNIT 4: Mechanisms of bird flight	
4.	UNIT 4: Perching mechanism in birds	
5.	UNIT 4: Flight adaptation in bird	
6.	UNIT 4: Migration in Birds	
7.	UNIT 5: Comparative Anatomy of Brain in Animals	
8.	UNIT 5: Comparative Anatomy of Brain in Animals	
9.	UNIT 5: Comparative Anatomy of Cranial Nerves in Animals	

10.	UNIT 5: Comparative Anatomy of Cranial Nerves in Animals	
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DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **302 (Practical)**

Name of the Paper- **Chordate Diversity and Comparative Anatomy**

Units Assigned- **Unit 1, Unit 2, Unit 3, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
2.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
3.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
4.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
5.	UNIT 2: Dissection: Weberian Ossicles of Carp fish	
6.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
7.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
8.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
9.	UNIT 4: Study of vertebral column of mammals; pectoral and pelvic girdle of reptiles, bird and amphibia	
10.	UNIT 4: Study of vertebral column of mammals; pectoral and pelvic girdle of reptiles, bird and amphibia	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **303 (Theory)**

Name of the Paper- **Bioinstrumentation and Biostatistics**

Units Assigned- **Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: Principles and uses of Kymography	
2.	UNIT 4: microtomy and ultramicrotomy	
3.	UNIT 4: principles and practices of centrifugation	
4.	UNIT 4: principles and practices of autoradiography	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **304 (Practical)**

Name of the Paper- **Bioinstrumentation and Biostatistics**

Units Assigned- **Unit 1**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Demonstration of instruments (As per syllabus)	
2.	UNIT 1: Demonstration of instruments (As per syllabus)	
3.	UNIT 1: Demonstration of instruments (As per syllabus)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **301 (Theory)**

Name of the Paper- **Chordate Diversity and Developmental Biology**

Units Assigned- **Unit 3, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
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1.	UNIT 3: General characters of Aves	
2.	UNIT 3: Classification of Aves upto super orders with examples	
3.	UNIT 3: Beaks and Claws in Birds	
4.	UNIT 3: Perching mechanism in birds	
5.	UNIT 3: Flight adaptation in bird	
6.	UNIT 3: Migration in Birds	
7.	UNIT 4: Fertilization types	
8.	UNIT 4: Fertilization Mechanisms	
9.	UNIT 4: Parthenogenesis	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **302 (Practical)**

Name of the Paper- **Chordate Diversity and Developmental Biology**

Units Assigned- **Unit 1, Unit 2, Unit 3, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Dissection: Efferent Branchial System of Carp fish	
2.	UNIT 2: Identification of Museum specimens (As per syllabus)	
3.	UNIT 2: Identification of Museum specimens (As per syllabus)	
4.	UNIT 2: Identification of Museum specimens (As per syllabus)	
5.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
6.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	

7.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
8.	UNIT 4: Study of Chick embryo development upto 72 hours	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **501 (Theory)**

Name of the Paper- **Genetics and Evolution**

Units Assigned- **Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Linkage	
2.	UNIT 2: Crossing over	
3.	UNIT 2: Basic knowledge of gene mapping	
4.	UNIT 5: Concept of population- gene pool	
5.	UNIT 5: Concept of population- gene frequency (Hardy- Weinberg law)	
6.	UNIT 5: Change in gene frequency (genetic drift)	
7.	UNIT 5: Change in gene frequency (gene flow)	
8.	UNIT 5: Change in gene frequency (genetic load)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **502 (Practical)**

Name of the Paper- **Genetics and Evolution**

Units Assigned- **Unit 1**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Study of Chromosomal slides of suitable materials	
2.	UNIT 2: Study of Chromosomal slides of suitable materials	
3.	UNIT 2: Study of Chromosomal slides of suitable materials	
4.	UNIT 2: Study of Chromosomal slides of suitable materials	
5.	UNIT 2: Study of Chromosomal slides of suitable materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**
 Course –Honours / Generic – **Honours**
 Class/Semester- **5thSemester (Non-CBCS)**
 Paper Code: **503 (Theory)**
 Name of the Paper- **Animal Physiology**
 Units Assigned- **Unit 4, Unit 5**
 Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: Circulation- coronary circulation	
2.	UNIT 4: origin and conduction of cardiac impulse	
3.	UNIT 4: cardiac cycle	
4.	UNIT 4: Cardiac output and its regulation	
5.	UNIT 4: Disorders of cardio-vascular system	
6.	UNIT 4: Haemostasis	
7.	UNIT 4: Respiration- structure and functions of haemoglobin	
8.	UNIT 4: O ₂ and CO ₂ Transport by blood	
9.	UNIT 4: Regulation of respiration	
10.	UNIT 4: Carbon monoxide poisoning	
11.	UNIT 4: Tracheal respiration in insects	
12.	UNIT 5: Drug addiction and its physiological and social implications	
13.	UNIT 5: Drug addiction and its physiological and social implications	
14.	UNIT 5: Drug addiction and its physiological and social implications	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**
Class/Semester- **5thSemester (Non-CBCS)**
Paper Code: **504 (Practical)**
Name of the Paper- **Animal Physiology**
Units Assigned- **Unit 1, Unit 3**
Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Determination of RQ of Cockroach	
2.	UNIT 3: Preparation of Haemin crystals	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Honours**
Class/Semester- **5thSemester (Non-CBCS)**
Paper Code: **505 (Theory)**
Name of the Paper- **Environmental Biology and wildlife Biology**
Units Assigned- **Unit 1, Unit 3, Unit 5**
Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Concepts pertaining to ecosystem, species	
2.	UNIT 1: Community, biome and ecotone	

3.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
4.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
5.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
6.	UNIT 3: Biogeochemical cycles (carbon)	
7.	UNIT 3: Biogeochemical cycles (Nitrogen)	
8.	UNIT 5: IUCN status of species category	
9.	UNIT 5: Important endangered species of N.E. India - rhinoceros	
10.	UNIT 5: Important endangered species of N.E. India - tiger	
11.	UNIT 5: Important endangered species of N.E. India - golden langur	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **506 (Practical)**

Name of the Paper- **Environmental Biology and Wildlife Biology**

Units Assigned- **Unit 2, Unit 6**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Find out the abundance and density of insect pests in some essential food commodities	
2.	UNIT 6: Field study: To visit a National park/ Wildlife Sanctuary to study the habitat/ forest types and prepare a full note on it.	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **507 (Theory)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
2.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
3.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
4.	UNIT 5: Neuroendocrine system in insects	
5.	UNIT 5: Neuroendocrine system in insects	
6.	UNIT 5: Role of Hormones in growth and development of insects	
7.	UNIT 5: Role of Hormones in growth and development of insects	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **508 (Practical)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Histological preparation of thyroid gland	
2.	UNIT 1: Histological preparation of thyroid gland	
3.	UNIT 1: Histological preparation of thyroid gland	
4.	UNIT 1: Histological preparation of thyroid gland	
5.	UNIT 3: Study of permanent slides of endocrine glands	
6.	UNIT 3: Study of permanent slides of endocrine glands	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **501 (Theory)**

Name of the Paper- **Molecular Biology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Nucleic Acids	
2.	UNIT 3: DNA as a Genetic Material	
3.	UNIT 3: Structure and functions of DNA	
4.	UNIT 3: Structure and functions of RNA	
5.	UNIT 5: Genetic engineering	
6.	UNIT 5: Basic Steps in cloning	
7.	UNIT 5: Cloning Vectors	
8.	UNIT 5: Restriction Enzymes	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2016, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **502 (Practical)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Construction of Nucleotides using Ball and Stick Model	
2.	UNIT 2: Preparation of slides for study of Mitosis using suitable material	

3.	UNIT 2: Preparation of slides for study of Mitosis using suitable material	
4.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	
5.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	
6.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	

COURSE PLAN

2017-18

**DEPARTMENT OF ASSAMESE,
DIGBOI COLLEGE**

COURSE PLAN FOR MAJOR COURSE (NON-CBCS) 2017-18

Name of the Teacher:- Purnananda Saikia
Department of Assamese
Digboi College, Digboi

Course: Major
Class: BA 1st Semester
Name of the paper: History of Assamese Literature
Paper Code: ASMM - 101
Unit Assignes: Unit-3
Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and relevant books	
2	Ancient Assamese literature: Characteristics.	
3	Charyapads, SriKrishna Kirtan and Sunya Puran	
4	Charyapada: linguistic and literary value	
5	Selected text from Charyapada	
6	The pre-Sankardeva period: Introduction	
7	Hem Saraswati	
8	Haribar Bipra	
9	Rudra Kandali and Kavi Ratna Saraswati	
10	Madhava Kandali and Assamese Ramayan	
11	The Ramayana and Devajit	
12	Characteristics of Pre Sankardeva period	
13	Do	
14	Pre Sankardeva period and Assamese language	
15	Discussion of the tentative questions and answer	
16	Revision	

Course: MIL (Assamese)
Class: BA 1st Semester
Name of the paper: History of Assamese Literature

Paper Code: ASM - 101

Unit Assignes: Unit-5

Marks Assign: 12

Class	Topic/Unit	Remarks
1	Introduction and related books	
2	Definition of culture	
3	Do	
4	Classification of culture	
5	Various aspects of culture	
6	Society and culture	
7	Revision	
8	Revision	
9	Revision	

Course: Major

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-3

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	The Jonaki: 2 nd golden age of Assamese Literature	
3	B background of Jonaki	
4	Background of Romanticism	
5	Characteristics of Romanticism	
6	Romanticism in Assamese literature	
7	Assamese poetry in the period	
8	Do	
9	Short story in the period	
10	Do	
11	Growth of Assamese Novel	
12	Do	
13	Assamese Drama: Pre Independence Period	
145	Do	
15	Literary Criticism and non-fictional prose	
16	Biography, Autobiography, Child literature	
17	Humour and satire, gender issues and others	
18	Revision	

Course: MIL (Assamese)

Class: BA 2nd Semester

Name of the paper: Practices of Assamese Language

Paper Code: ASM - 201

Unit Assignes: Unit-3

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Technical terms: General discussion	
3	Technical terms in Assamese language	
4	Do	
5	Administrative terms various uses	
6	Administrative terms in Assamese literature	
7	Revision	
8	Revision	

Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-4

Marks Assign:

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Assamese poetry: Pre-Romantic period	
3	kamalakanta Bhattacharyya: life an creations	
4	Discussion of selected text: Ekura Jui	
5	Romanticism: Definition and characteristics	
6	Romanticism in Assamese poetry	
7	Life and poetic works of Chandra Kumar Agarwala	
8	Selected text: Tejimola	
9	Tejimola as a literary Ballad	
10	Mysticism: Definition and characteristics	
11	Mysticism in Assamse Literature	
12	Paramtrishna by Nalini bala Devi	
13	Do	
14	Patriotism in Assamese literature	
15	Chiro Chenehi Mur Bhasa Janani by Mitraddev Mahanta	
16	New trends in Assamese poetry towards modernism	
17	Kathmistrir Ghor by Dhirendra Nath Dutta	
18	Revision	
19	Revision	

Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Pre Sankardeva period and Madhava Kandali	
3	The Ramayana: Assamese Version	
4	Sundarakanda	
5	Discussion of the selected text	
6	Madhav dev: life and creative work	
7	Discussion of the selected text Namghosha	
8	Introduction to the Panchali Literature	
9	Pitambar kabi and Usha Parinoy	
10	Disussion of selected text from Usha Parinoy	
11	Do	
12	Introduction to Sufism	
13	Sufism and Assamese literature	
14	Dwija Rama and Sahapari Upakhyan	
15	Selected text from Sahapari Upakhyan	
16	Do	
17	Revision	
18	Revision	
19	Revision	

Course: Major

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-2

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Early Assamese Prose: Various Aspects	
3	Characteristics of early Assamse literature	
4	Assamese Buranji literature	
5	Selected text from Tunkhungia Buranji	
6	Do	
7	Assamse Charit Tradition and Evolution	
8	Katha Guru Charit linguistic and historical values	
9	Selected text from Katha Guru Charit	
10	Revision	
11	Revision	

Course: Major - V

Class: BA 4th Semester

Name of the paper: Cultural Studies

Paper Code: ASMM - 501

Unit Assignes: Unit-All

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Definition of culture	
3	Various aspects of culture	
4	Classification of Culture	
5	Culture and society with human values	
6	Various anthropological aspects in Assamese culture	
7	Assimilation in Assamse culture	
8	Faiths and traditional customs of different ethnic groups in Assam	
9	Do	
10	Do	
11	Performing art in Assam	
12	Do	
13	Do	
14	Traditional dresses and ornaments in Assam	
15	Do	
16	Do	
17	Introduction to the painting and Architecture in Assam	
18	Do	
19	Revision	
20	Revision	
21	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Different aspects of Language and literature

Paper Code: ASMM - 601

Unit Assignes: Unit - 4

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Introduction to sociology of literature	
3	Definition of sociology of literature	
4	Human Manners in literature	
5	Human Values in literature	
6	Literature and traditional customs in society	
7	Revision	
8	Revision	
9	Revision	
10	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Introduction to world literature

Paper Code: ASMM - 604

Unit Assignes: Unit-2 & 5

Marks Assign: 15+10=25

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Life and literary works of Kalidas	
3	Do	
4	Abhigyan Sakuntalam: Discussion in details	
5	Do	
6	Selected text. Act IV of the play	
7	Plot structure of the play	
8	Characteristics of the play	
9	Do	
10	Do	
11	Nature and human being in the play	
12	Sakuntala and Indian Philosophy	
13	Life and dramatics works of Shakespeare	
14	Atul Chandra Hazarika as a dramatics	
15	The king lear in Assamese Ashrutirtha	
16	Plot construction of the play	
17	Characteristics of the play	
18	Other aspects	
19	Revision	
20	Revision	
21	Revision	
22	Revision	

Name of the Teacher:- Achyut Saikia

Department of Assamese

Digboi College, Digboi

Course: Major

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the whole course and relevant books and journals	
2	Different periods of early Assamese literature	
3	Sankardeva and his times – social, political and religious aspects.	
4	Sankari Yuga – First golden age of Assamese literature, brief discussion	
5	Discussion of Indian Bhakti Movement	
6	Life and works of Sankardeva	
7	Poetic creation of Sankardeva	
8	Ankiya Nat and other works	
9	Life and literary works of Madhadev	
10	Differences of Ankiya nat and Borgeet of Sankardeva and Madhadev.	
11	Aananta Kandali and Sridhhar Kandali	
12	The Manasa Poets, Mankar, Pitambar, Durgabor and others	
13	Life and literary works of Ram Saraswati	
14	Do	
15	Other Vaishnava poets of the period	
16	Revision	
17	Revision	
18	Revision	

Course: MIL (Assamese)

Class: BA 1st Semester

Name of the paper: History of Assamese Literature and studies on Assamese culture

Paper Code: ASM - 101

Unit Assignes: Unit-2 &3

Marks Assign: 15+12=27

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Indian Bhakti movement and Sankardeva	
3	Sankardeva and Madhadev	
4	Do	
5	Aananta Kandali and other poets	
6	The Panchali literature	
7	Ram Saraswati	
8	Main Characteristics of the period	
9	Do	
10	The Jonaki and its background	
11	Background and characteristics of Romanticism	
12	Romanticism in Assamese	
13	Poetry	
14	Drama	
15	Novel	
16	Short Story	
17	Other literary Genres	
18	Revision	
19	Revision	
20	Revision	

Course: Major

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-1

Marks Assign: 10

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Background of modern Assamse literature from 1826-1889	
3	Modern Assamse literature: pre war period	
4	Modern Assamse literature: post war period	
5	Western influence in modern Assamse literature	
6	revision	
7	Modern Assamse literature: pre war period	
8	Modern Assamse literature: pre war period	
9	Modern Assamse literature: pre war period	
10	Revision	
11	Revision	
12	Revision	

Course: MIL (Assamese)

Class: BA 2nd Semester

Name of the paper: Practices of Assamese Language

Paper Code: ASM - 201

Unit Assignes: Unit-2

Marks Assign: 15

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Definition of translation	
3	Do	
4	Classification of translation	
5	Do	
6	Different field of translation	
7	Do	
8	Translation and modern society	
	Practices Assamse to English	
	Practices English to Assamse	
	Revision	
	Revision	

_Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-1&5

Marks Assign: 16+16=2

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Ancient Assamse poetry	
3	Pre Sankardeva period	
4	Assamese poetry : Sankardeva period	
5	Do	
6	Post Sankardeva period	
7	Assamese poetry: beginning of modern age	
8	The Arunudoy	
9	Pre romantic Assamse poetry	
10	The Jonaki	
11	Romanticism in Assamse poetry	
12	Post war assumers poetry	
13	Selected text by Nabakanta Baruah	

14	Selected text by Nilmani Phukan	
15	Selected text by Harekrishna Deka	
16	Selected text by Karabi Deka Hazarika	
17	Revision	
18	Revision	
19	Revision	

Course: Major

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-1 & 5

Marks Assign: 16+16=32

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Evolution of assumers prose	
3	Early Assamse prose	
4	Do	
5	Background of modern Assamse prose	
6	The Arunudoy period	
7	The Jonaki period	
8	Pre independence period	
9	Post independence period	
10	Brief discussion of Assamse novel	
11	Atulananda Goswami as a novelist	
12	Namghariya : plot construction	
13	Characterisation of the novel	
14	Do	
15	Other aspects of the novel	
16	Namghariya as a social novel	
17	Revision	
18	Revision	

_Course: Major - V

Class: BA 5th Semester

Name of the paper: Comparative Indian Literature

Paper Code: ASMM - 504

Unit Assignes: Unit-All

Marks Assign: 80

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Definition of comparative literature	
3	Scope of comparative literature	
4	Development of the idea of comparative literature	
5	Different schools of comparative literature	
6	Contemporary trends	
7	Thematic study	
8	Geology	
9	Influence studies	
10	historiography	
11	The idea of Indian literature	
12	Then idea of comparative Indian literature	
13	Do	
14	Thematic study of Indian literature	
15	Banshi by Rabindranath and Banhi by Bezbaruah	
16	Rabindranath as a poet	
17	Bezbaruah as a poet	
17	Introduction to the painting and Architecture in Assam	
18	Do	
19	Revision	
20	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Introduction to world literature

Paper Code: ASMM - 604

Unit Assignes: Unit-1, 3 & 4

Marks Assign: 10+15+15=40

Class	Topic/Unit	Remarks
1	Introduction to the Course	
2	The idea of world literature	
3	Do	
4	Do	
5	World literature and translation	
6	Definition and characteristics of short story	
7	Selected text by Maupassant	
8	Do	
9	Selected text by Anton Chekhov	
10	Do	
11	Selected text by O Henry	
12	Do	
13	Selected poem by Thomas hardy	
14	Selected poem by Garcia Lorca	
15	Selected poem by Alexander block	
16	Selected poem by Oswald Durant	
17	Selected poem by County Kinder	
18	Revision	
19	Revision	
20	Revision	

Name of the Teacher:- Simanta Bordoloi

Department of Assamese

Digboi College, Digboi

Course: Major - I

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-1 (Asomiya Sahityar Jug Bahaman)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Origin and Development of Assamese language and Literature	
2	Classification of Assamese literature	
3	Controversy about the classification of Assamese literature	
4	Problems in classification of Assamese literature	
5	Revision	
6	Revision	
7	Revision	

Course: Major - II

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-2 (Adhunik Asomiya Bhasa Sahityar pratishtha)

Marks Assign: 15

Class	Topic/Unit	Remarks
1	Development of Modern Assamese Literature	
2	Background of modern Assamse Literature	
3	Role of Arunudoy in the development of Assamse language as well as literature	
4	Introduction of Missionaries	
5	Language and prose style used by missionaries	
6	An introduction about Assamese writers o Arunudoy	
7	Literary work of Hemchandra Baruah	
8	Literary work of Gunabhiram Baruah	
9	Role of Hemchandra Baruah and Gunabhiram Baruah in the development of Assamese language, literature and society	
10	Briefing	

Course: Major - III

Class: BA 3rd Semester

Name of the paper: Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-3 (Madhav Kandali: Sundarakanda, Madhadev: khed, Usha Parinoy, Chahapori Upakhyan)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction about Madhav Kandali and his work	
2	Introduction about the trends of Ramayana	
3	Discussion about the text Sundarakanda	
4	Introduction About Madhadev and his works	
5	Introduction about Namghosha	
6	Analysis of Khed	
7	Discussion about Chahapori Upakhyan	
8	Sufism in Assamese literature	
9	Poetic beauty of the selected poetry	
10	Briefing	

Course: Major -I V

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-3 (Anandaram Dhekial Phukanar jiban Charitra,)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Madhav Kandali and his work	
2	Introduction about the trends of Ramayana	
3	Discussion about the text Sundarakanda	
4	Introduction About Madhadev and his works	
5	Introduction about Namghosha	
6	Analysis of Khed	
7	Discussion about Chahapori Upakhyan	
8	Sufism in Assamese literature	
9	Poetic beauty of the selected poetry	
10	Briefing	

Course: Major - V

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-4 (Spandan, Dupporiya, Phulpahor Shabdo)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Sayad Abdul Malik	
2	Characteristics of short story written by Sayad Abdul Malik	
3	Introduction about Saurabh Kumar Chaliha	
4	Characteristics of short story written by	

5	Introduction about Purabi Bormudoi	
6	Characteristics of short story written by Purabi Bormudoi	
7	Revise	
8	Revise	
9	Revise	
10	Revise	

_Course: Major - VI

Class: BA 4th Semester

Name of the paper: Asomor Bhasa aru Lipi

Paper Code: ASMM - 402

Unit Assignes: Unit-4 (Asomiya Bhasar Lipi aru Asomor Anannya Lipi)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Development of Assamese Language	
2	Development of Assamese script	
3	Introduction about the various script of ancient Assam	
4	Controversy about the Development of Assamese script	
5	Revise	
6	Revise	
7	Revise	

Course: Major - VIII

Class: BA 5th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 502

Unit Assignes: Unit-1 (Assamese Drama and History of Stage)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Development of Assamese Drama in old era	
2	Development of Assamese drama in medieval era	
3	Development of Assamese drama in modern time	
4	Pre war Assamese Drama	
5	Post war Assamese drama	
6	Classification Assamese drama	
7	Types of Assamese Drama	
8	Development of stage in Assam	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - VIII

Class: BA 5th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 502

Unit Assignes: Unit-5 (Eta Cholar Kahini)

Marks Assign: 15

Class	Topic/Unit	Remarks
1	History of One Act Play	
2	Introduction about Ali Haidar and his works	
3	Marxism in Assamese Drama	
4	Characteristics of One act play	
5	Trends of one act play in Assam	
6	Discussion about the text	
7	Discussion about the text	
8	Discussion about the text	
9	Discussion about the text	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit-2 (Electronic and Print Media, language of advertisement))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Definition of mass media	
2	Types of media	
3	Types of electronics media	
4	Types of print media	
5	Merits and demerits of electronic media	
6	Merits and demerits of print media	
7	Use of language in advertisement	
8	Revision	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit-3 (Editing of Manuscript: Print and Hand written))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Preparation of manuscript	
2	Various process of manuscript editing	
3	Importance of manuscript editing	
4	Various sources of manuscript editing	
5	Problems in manuscript editing	
6	Revision	
7	Revision	

8	Revision	
9	Revision	

Course: Major - XII

Class: BA 6th Semester

Name of the paper: Bharatiya Arya Bhasha Aru Asomiya Bhasha

Paper Code: ASMM - 602

Unit Assignes: Unit-5 (Asomiya Bhashar Bikash)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Origin of Assamese language	
2	Development of Assamese language	
3	Language in ancient Assam	
4	Language in medieval Assam	
5	Language in modern period of Assam	
6	Language in Arunudoy stage	
7	Language in Jonaki stage	
8	Post war Assamese language	
9	Assamse language in recent time	
10	Revision	
11	Revision	
12	Revision	
13	Revision	

DIGBOI COLLEGE, DIGBOI

COURSE PLAN (Jan'2017-June'2017)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –MIL .

Class/Semester - B A 4th Semester (Old) .

Name of the paper – ASM 401 (Selection from Assamese Literature) .

Units Assigned – Unit – 5

Marks Assigned - 15 Classes : 08

Class .	Topic/ Unit .	Remarks	
1	Novel : “Sansipator Puthi” By Trolokya Bhattacharya		
2	History of Assamese Novel		
3	About Trolokya Bhattacharya		
4	Theme of the Novel-1		
5	Theme of the Novel-2		
6	Characters Of The Novel-1		
7	Characters Of The Novel-2		
8	Language of the Novel		
9	Rivision		

DIGBOI COLLEGE, DIGBOI

COURSE PLAN (Jan’2017-June’2017)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 4th Semester (old) .

Name of the paper – ASMM 402 (Language and Script of Assam) .

Units Assigned – Unit – 2

Marks Assigned - 16 ; Classes : 08

Class .	Topic/ Unit .	Remarks	
1	Assamese Language : Its Development		
2	Assamese Language : Its Origin-1		
3	Assamese Language : Its Origin-2		
4	Phonological Characters of Assamese Language		
5	Morphological Characters of Assamese Language		
6	Dialect of Assam		
7	Dialect of Assamese Language		
8	Kamrupi Dialect		
9	Gowalporia Dialect		
10	Darangia Dialect		
11	Revision		

DIGBOI COLLEGE, DIGBOI

COURSE PLAN(Jan’2017-June’2017)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.)

Course - Honours /GENERIC – MIL

Class/Semester - B A 2nd Semester (old) .

Name of the paper – ASM 201 (Practices of Assamese Language)

Units Assigned – Unit – 1

Marks Assigned - 20 ; Classes : 18

Class .	Topic/ Unit .	Remarks	
1	What is Communication		
2	Verbal Communication & Non-Verbal Communication		
3	Elements of Non-Verbal Communication		
4	What is a Application		
5	Deference between Application and Will		
6	Remainder letter and its Characteristics		
7	Deference between Application and Remainder		
8	Personal Application		
9	Official Application		
10	Felicitation Letter		
11	Invitation Letter		
12	Memorandum Letter		
13	Writing Skill in a Application -1		
14	Writing Skill in a Application -2		
15	Proceeding Letter		
16	Syntax of Various types of Letter-2		
17	Syntax of Various types of Letter-2		
18	Revision		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN(Jan'2017-June'2017)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 2nd Semester (Old) .

Name of the paper – ASMM 201 (History of Assamese Literature : From the Arunodoi to Post-War period) .

Units Assigned – Unit – 05 .

Marks Assigned - 25 ; Classes : 15

Class .	Topic/ Unit .	Remarks	
1	Background of Post-War Assamese Literature		
2	What is Modern Assamese Literature		
3	Modernism in Post-War Assamese		
4	Post-War Assamese Poetry -1		

5	Post-War Assamese Poetry -2		
6	Post-War Assamese short-story		
7	The New trends of Assamese short-story		
8	Post-War Assamese Novel -1		
9	Post-War Assamese Novel -2		
10	Modern Assamese Novel and its characters		
11	Post-War Assamese Drama -1		
12	Post-War Assamese Drama -2		
13	Post-War Assamese Criticism		
14	Hiren Gohain & Bhaben Baruah : As a new Critic in Post-War Assamese Literature		
15	Post-War Assamese Travel Literature		
16	Characteristics of Post-War Assamese Travel Literature		
17	Post-War Assamese Science literature		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN(Jan'2017-June'2017)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 6th Semester (Old) .

Name of the paper – ASMM 603 (Linguistic Study of Assamese Language) .

Units Assigned – Unit – All .

Marks Assigned - 20+15+15+15+15 ; Classes : 10+12+10+13+5 .

Class .	Topic/ Unit .	Remarks	
1	UNIT – 1 : What is Phonetics		
2	Phonetics and Phonology		
3	Types of Phonetics : Articulatory , Acoustic & Auditory Phonetics - 1		
4	Articulatory , Acoustic & Auditory Phonetics-2		
5	Definition of Phonemics		
6	Elements of Phonemics		
7	Organs of Speech		
8	Difference between Phone, Phoneme and Allophone		
9	Syllable		
10	Pitch		
11	Stress		
12	Juncture		
13	Phonological Borrowing -1		
14	Phonological Borrowing -2		
15	UNIT – 2 : Phonological analysis of Assamese Language		
16	Assamese Vowel		
17	Assamese Consonant		
18	Vowel pair(cluster of two)		
19	Consonant pair(cluster of two)		

20	Syllable in Assamese phone		
21	Stress Juncture in Assamese phonology		
22	UNIT- 3 : Morphology : Morphology & Morphemics		
23	Elements of Morphology : Morph		
24	Morpheme & Allomorph		
25	Classification of Morpheme		
26	UNIT- 4 : Assamese Morphology		
27	Structure of Assamese Words		
28	Derivation of Assamese Words		
29	Classification of Assamese Morpheme-1		
30	Classification of Assamese Morpheme-2		
31	Derivation and Inflection		
32	Grammaticalness in Assamese Language		
33	Tense, Mood and Aspect of Assamese Language		
34	Gender of Assamese Language		
35	Case ending of Assamese Language		
35	Structure of Assamese Roots & Tense		
36	UNIT-5 : Syntax of Assamese Language		
37	Various types of Assamese Sentence		
38	Simple, Compound & Complex Sentence-1		
39	Simple, Compound & Complex Sentence-2		
40	Affirmative Sentence		
41	Negative Sentence		
42	Interrogative Sentence		
43	Imperative Sentence		
45	Pitch and Assamese Sentence		
46	Indicative Sentence		
47	Immediate constituent Analysis of Assamese Sentence		
48	Characteristics of Assamese Language		
50	Revision -1		
51	Revision -2		

COURSE PLAN

2017-18

DEPARTMENT OF BENGALI,

DIGBOI COLLEGE

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2017-2018
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- I (NCBCS)

Name of the Paper :- BANGLA GADYA SAHITYA

Units Assigned : 2&4

Marks Assigned: 15 & 20

Class	Topic/ Unit	No. of class
B.A SEM I (MIL)	Unit :2 : EKEI KI BALE SABHYATA	15
	Unit : 4 : NIRBACHITA KABITA	20

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2017-2018
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- II (NCBCS)

Name of the Paper :- BANGLA SAHITYA

Units Assigned : 1 & 3

Marks Assigned: 25 & 15

Class	Topic/ Unit	No. of class
B.A SEM II (MIL)	Unit :1 : EKSHSO BACHARER SHERA GALPO	20
	Unit : 2: SONAR TARI	20

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2017-2018
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- III (NCBCS) COMMERCE

Name of the Paper :- BANGLA BANIJYIK SAHITYA PARICHAY

Units Assigned : 1 & 4

Marks Assigned: 20 & 10

Class	Topic/ Unit	No. of class
B.COM SEM III (MIL)	Unit :1 : EKSHSO SHERA GALPO	15
	Unit : 4 : PATRA LIKHAN	10

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2017-2018
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- IV (NCBCS)

Name of the Paper :- BANGLA BHASHA O SAHIYO

Units Assigned : 2&4

Marks Assigned: 25 &10

Class	Topic/ Unit	No. of class
B.A. SEM IV (MIL)	Unit :2 : SRIKANTA (1 ST PART)	20
	Unit :4: PRABANDHA LIKHAN	10

COURSE PLAN

2017-18

DEPARTMENT OF BOTANY,

DIGBOI COLLEGE

Name: Dr. Dimpy Das

Course Plan; June 2017 to July 2018

Semester: 1st Semester (Major)

Name of Paper: BOTMT 101; Algae, Fungi and Lichen

Units Assigned: 3 (Unit 1, 2, 3)

Marks assigned: 25

Class	Topic/Unit	Remarks
4	Fungi Unit 1: Salient features of fungi, fungal cell structure and fungal nutrition; classification of fungi (Alexopoulos, 1969 and 1983) and their distribution in India.	Home assignment on "Thallus organization and modification of fungal hyphae".
6	Unit 2: Comparative account of structure, method of reproduction and mode of spore dispersal of fungi; Economic importance of fungi.	
15	Unit 3: Comprehensive knowledge of the following groups with special reference to the structure and life histories of the genera mentioned below from an evolutionary point of view. a. Mastigomycotina: Myxomycetes: a general account, Albugo, Pythium. b. Zygomycotina: Rhizopus. c. Ascomycotina: Peziza. d. Basidiomycotina: Puccinia, Polyporus, Cyathus, Agaricus. e. Deuteromycotina: Aspergillus, Alternaria, Penicillium	

Semester: 1st Semester (General)

Name of Paper: BOTGT-101; Lower cryptograms

Units Assigned: 1 (Fungi and plant pathology; Unit 1: a - e)

Marks Assigned: 25

Class	Topics/Unit	Remarks
28	Fungi and Plant Pathology Unit 1: A general knowledge of the different fungal groups, their relationship based on the structure and life histories of the types- a. Phycomycetes: Phytophthora, Synchytrium b. Ascomycotina: Peziza, Penicillium, Xylaria c. Basidiomycotina: Puccinia, Psaliota, Polyporus, Cyathus. Fungi imperfecti. d. General account of bacteria and virus. e. Rust of wheat, Grey blight of tea, Late blight of potato.	Home assignment on "Sexual reproduction in fungi".

Semester: 3rd Semester (Major)

Name of Paper: BOTMT-301; Pteridophytes, Gymnosperms and Palaeobotany

Units Assigned: 5 (Pteridophytes: Unit-1,2,3 and Palaeobotany: Unit- 1 and 2)

Marks Assigned: 40

Class	Topic/Unit	Remarks
4	Pteridophytes Unit 1: General classification, organization and affinities, distribution in India and economic importance.	
4	Unit 2: Stelar organization in Pteridophytes; evolution of sporophytes and sporophylls in Pteridophytes; Homospory and heterospory and its importance in evolution of seed habit.	Home assignment on "Stelar organization in Pteridophytes".
12	Unit 3: Comparative study of morphology and life history of Psilotum, Lycopodium, Selaginella, Equisetum and Marsilea.	
3	Palaeobotany Unit 1: An elementary knowledge of palaeobotany – process and theory of fossilization, geological periods and importance of palaeobotany.	
6	Unit 2: General accounts of anatomy and reproduction of the following types: A. Pteridophytes: Rhynia, Hornea, Psilophyton, Sphenophyllum. B. Gymnosperms: Cycadofilicales (Lyginopteris), Bennettitales (Williamsonia) and Cordaitales (Cordaitea)	

Semester: 3rd Semester (General)

Name of Paper: Morphology, taxonomy, development and reproduction of angiosperms.

Units Assigned: 1 (Unit 3)

Marks Assigned:15

Class	Topic/Unit	Remarks
15	Unit 3: Magnoliaceae, Brassicaceae, Malvaceae, Fabaceae, Rosaceae, Apiaceae, Lamiaceae, Euphorbiaceae, Orchidaceae, Musaceae, Liliaceae, Arecaceae and Poaceae.	

Semester: 5th Semester (Major)

Name of Paper: BOTMT 505; Functional and chemical biology

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
10	Unit 1: Concept of biomolecules, polymeric substances in plants- a brief study of polysaccharides, lipids, proteins, nucleic acids, chlorophylls with special reference to their functions	Home assignment on "Structure of DNA- its types and functions".
3	Unit 2: Metabolic concept – anabolism and catabolism	
10	Unit 3: Secondary plant products- Terpenoids, phenols, flavonoids, anthocyanins, alkaloids, non-protein amino acids	

10	Unit 4: General account of – plant hormones and their role (Auxins, gibberellins, cytokinins, florigen, abscisic acid), phytochrome and storage products.	
3	Unit 5: Mechanism of source sink relationship	Seminar presentation on “Source and sink relationship”.

Semester: 5th Semester (General)

Name of Paper: BOTGT 501; Cytogenetics, evolution and biostatistics

Units Assigned: 3 (unit 2,3 and 4).

Marks Assigned: 30

Class	Topic/Unit	Remarks
15	Cytogenetics Unit 2: Concept of ploidy and its application, Mendel's laws, linkage, crossing over and chromosome mapping, concept of gene, allele and mutation.	
8	Unit 3: Knowledge of non-chromosomal inheritance, concept of genetic engineering and crop improvement.	Seminar presentation on “Cytoplasmic inheritance”. Home assignment on “Maternal effect”.
4	Unit 4: Concept of protoplast, cell and organ culture, tissue culture techniques and its application and somatic hybridization.	

Semester: 2nd Semester (General)

Name of Paper: BOTGT-201; Bryophytes, Pteridophytes and Gymnosperms

Units Assigned: 1 (Pteridophytes: Unit-1)

Marks assigned: 25

Class	Topic/Unit	Remarks
15	Pteridophytes Unit 1: A general account of the structure and life histories of the following: Lycopodium, Selaginella, Equisetum, Ophioglossum, Polypodium and Maesilea.	

Semester: 4th Semester (Major)

Name of Paper: BOTMT- 401; Morphology and Taxonomy of Angiosperms

Units Assigned: Whole Paper

Marks Assigned: 60

Class	Topic/Unit	Remarks
12	Morphology of Angiosperms Unit 1: Detail study of morphological characters: i) Carpel polymorphism ii) Origin of angiosperms iii) Evolution of inflorescence iv) Role of morphology in the classification of the flowering plants.	

8	Taxonomy of Angiosperms Unit 1: History of plant classification, its aims and objectives, outlines of the main classification (systems of classification)- Artificial, Natural, Phylogenetic and Modern with special reference to Linnæus, Bentham and Hooker, Engler and Prantl, Hutchinson and Takhtajan's classification.	Seminar presentation on "Hutchinson's system of plant classification".
8	Unit 2: Generic name, specific epithets, citation and authority, binomial nomenclature, taxonomic keys; typification and priority; importance of herbarium specimens and their preparations; role of herbaria and botanical gardens; documentation (floras, monographs, manuals, journals, abstracts, indices and dictionaries).	
5	Unit 3: Details on cytotaxonomy, Chemotaxonomy, Numerical taxonomy and Biosystematics.	
22	Unit 4: A detailed knowledge of the following families and their phylogenetic affinities and economically important plants: Dicotyledons: Magnoliaceae, Malvaceae, Rubiaceae, Fabaceae, Rosaceae, Solanaceae, Cucurbitaceae, Apiaceae, Asteraceae, Lamiaceae, Theaceae, Apocynaceae and Euphorbiaceae. Monocotyledons: Orchidaceae, Musaceae, Zingiberaceae, Arecaceae, Poaceae, Commelinaceae and Cyperaceae.	

Semester: 4th Semester (General)

Name of Paper: BOTGT- 401; Physiology and Economic Botany

Units Assigned: 1 (Unit 1: a - g)

Marks Assigned: 20

Class	Topic/Unit	Remarks
14	Economic Botany Unit 1: A general knowledge of the following economically important plants with reference to their local names, scientific names and parts used. a. Cereals: Rice, wheat and maize b. Pulses: Pea and Soyabean c. Oil seeds: Mustard, Ground Nut, Coconut and Sunflower. d. Fibre yielding plants: Jute, cotton, ramie. e. Medicinal plants: Rauvolfia, Swertia, Ocimum and Neem. f. Timber yielding plants: Sal, Sissoo, Teak and Holokh g. Non-alcoholic beverages: Tea and Coffee.	

Semester: 6th Semester (Major)

Name of Paper: Biophysics and Bioinformatics

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
3	Biophysics	

	Unit 1: Scope and development of biophysics. pH and buffer solution in details.	
4	Unit 2: Laws of thermodynamics, concept of free energy, redox potential and bioenergetics (only high energy compound).	Seminar presentation on "Laws of thermodynamics and its application in biological field".
8	Unit 3: X-ray crystallography (XRD), Chromatography, laser and its biological applications. Florescence and its application, basic concept of NMR and ultra sound.	
3	Unit 4: Isotopes, types, their importance in biological studies, measure of radioactivity.	
4	Bioinformatics Unit 1: Fundamentals of bioinformatics: introduction, history and scope of bioinformatics, sources of information, internet, world wide web and web brouers.	
6	Unit 2: Biological database: introduction, basic concepts of primary and secondary databases; nucleic acid and protein sequence database (NCBI, genebank and SWISS-PROT); data mining and data mining tools (ENTREZ).	
8	Unit 3: Database search and sequence alignment, tools of sequence alignment – FASTA and BLAST; methods of sequence alignment.	
5	Unit 4: Phylogenetic analysis: basic concept, steps in evaluation of phylogeny and constructing phylogenetic trees.	

Semester: 6th Semester (General)

Name of Paper: BOTGT 601; Biochemistry, plant ecology and plant geography

Units Assigned: 2 (Unit 1 and 2)

Marks Assigned: 16

Class	Topic/Unit	Remarks
8	Biochemistry Unit 1: Basic principles of biochemistry, acid, base, pH and buffer (inorganic and organic) enzymes, (physiological properties), vitamins and coenzymes and their importance.	
12	Unit 2: General account of carbohydrates, fats, proteins, nucleic acids and their importance.	Seminar presentation on "Types of protein structure".

DIGBOI COLLEGE, DIGBOI

Course Plan:- 2017-18

Name of the Teacher- Dulu Moni Das

Department: Botany

Course – Major/General:-Major

Paper Code:-101

Class/Semester- 1st semester (M)

Name of the Paper- Algae, Fungi and Lichen (Theory)

Units Assigned- 1, 2, 3(Fungi)

Marks Assigned:-20+5=25

Class	Topic/ Unit	Remarks
1.	General Characters of Algae	Explanation, Oral Assessment
2.	Classification of Algae	Notes
3.	Phylogeny of Algae	Explanation
4.	Distribution of Algae	Explanation
5.	Economic Importance of Algae	Explanation & Notes
6.	Cell Structure of Algae	Explanation, Oral Assessment
7.	Cell Organelles of Algae	Explanation
8.	Range of Thallus structure in Algae	Notes
9.	Reproduction in Algae	Explanation
10.	General account on Chlorophyceae	Explanation
11.	Reproduction & Life History of <i>Chlorella</i> & <i>Volvox</i>	Explanation
12.	Reproduction & Life History of <i>Oedogonium</i> & <i>Coleochaete</i>	Explanation
13.	Reproduction & Life History of <i>Chara</i>	Explanation
14.	General account on Xanthophyceae	Explanation
15.	Reproduction & Life History of <i>Chlorella</i>	Explanation
16.	General account on Bacillariophyceae	Explanation

Course – Major/ General:- Major

Paper Code:-102

Class/Semester- 1st semester (M)

Name of the Paper- Algae, Fungi and Lichen (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
1.	Introduction to Algae	Explanation
2.	Preparation of Slides of Algae	Practical
3.	Preparation of Slides of Algae	Practical
4.	Preparation of Slides of Algae	Practical
5.	Preparation of Slides of Algae	Practical
6.	Preparation of Slides of Algae	Practical

Course – Major/General:- General

Paper Code:-101

Class/Semester- 1st semester (G)

Name of the Paper- Lower Cryptogames(Theory)

Units Assigned- 1 (Mycology & Plant Pathology)

Marks Assigned- 12+3=15

Class	Topic/ Unit	Remarks
1.	General Characters of fungi & affinity with different groups	Explanations
2	General Characters of fungi & affinity with different groups	Explanations, Oral Assessment
3.	Thallus organization & cell wall composition of fungi.	Notes
4.	Classification of Fungi	Explanation
5.	Reproduction in Fungi	Explanation
6.	Economic importance of Fungi	Notes
7.	Salient Features, reproduction and life history of <i>Phytophthora</i>	Explanation
8.	Salient Features, reproduction and life history of <i>Synchytrium</i>	Explanation
9.	General account on Ascomycetes	Explanation, Oral Assessment
10.	Salient Features, reproduction and life history of <i>Peziza</i>	Explanation
11.	Salient Features, reproduction and life history of <i>Penicillium</i>	Explanation
12.	General account on Basidiomycetes	Explanation
13.	General account on Deuteromycetes	Explanations
14.	Symptoms of Plant diseases	Notes, Class test.
15	Control measures of plant diseases	Notes
16	Symptoms, C. O. and control measures of Bacterial diseases	Explanation
17	Symptoms, C. O. and control measures of Fungal diseases	Explanation
18	Symptoms, C. O. and control measures of viral diseases	Explanation

Course – Major/ General:-General

Paper Code:-102

Class/Semester- 1st semester (G)

Name of the Paper- Lower Cryptogames (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
1.	Introduction to Fungi	Explanation
2.	Preparation of Slides of Fungi	Practical
3.	Preparation of Slides of Fungi	Practical
4.	Study about bacterial plant diseases	Practical
5.	Study about Fungal plant diseases	Practical
6.	Study about Fungal plant diseases	Practical
7.	Study about Fungal plant diseases	Practical
8.	Study about Viral plant diseases	Practical

Course – Major/ General:-Major

Paper Code:-201

Class/Semester- 2nd semester (M)

Name of the Paper- Plant Pathology & Bryophyta (Theory)

Units Assigned- 1, 2, 3 & 4.

Marks Assigned- 24+6=30

Class	Topic/ Unit	Remarks
1.	Principals of Plant Pathology	Explanations
2.	Principals of Plant Pathology	Notes
3.	Classification of Plant Diseases	Explanation
4.	Symptoms of Plant diseases	Explanation, Oral Assessment
5.	Host Parasite interaction	Explanation
6.	Host Parasite interaction	Notes
7.	Management of Plant Diseases	Explanation
8.	Management of Plant Diseases	Notes, Oral Assessment
9.	Management of Plant Diseases	Notes
10.	Symptoms, C O and control measures of Late blight of Potato	Explanation
11.	Symptoms, C O and control measures of Ergot of Rye	Explanation
12.	Symptoms, C O and control measures of Loose Smut of Wheat	Explanation
13.	Symptoms, C O and control measures of Rusts of Wheat	Explanation
14.	Symptoms, C O and control measures of Rusts of Wheat	Notes
15.	Symptoms, C O and control measures of Red rot of Sugarcane	Explanation
16.	Symptoms, C O and control measures of Grey blight of tea	Explanation
17.	Symptoms, C O and control measures of Citrus Canker	Explanation
18.	Symptoms, C O and control measures of Tobacco Mosaic diseases	Explanation

Course – Major/ General:-Major

Paper Code:-201

Class/Semester- 2nd semester (M)

Name of the Paper- Plant Pathology (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
1.	Introduction to Phytopathology	Explanation
2.	Isolation Preparation of Slides of Parasitic Fungi	Practical
3.	Isolation Preparation of Slides of Parasitic Fungi	Practical
4.	Isolation Preparation of Slides of Parasitic Fungi	Practical
5.	Isolation Preparation of Slides of Parasitic Fungi	Practical
6.	Practical on drawing Camera lucida diagram	Practical
7.	Measurement of Spore by ocular micrometer	Practical
8.	Study about bacterial plant diseases	Practical
9.	Study about bacterial viral diseases	Practical

Course – Major/ General:-Major

Paper Code:-302

Class/Semester- 3rd semester (M)

Name of the Paper- Microbiology & Biotechnology (Theory)

Units Assigned- 1, 2, 3, 4, 5

Marks Assigned-: 32+8=40

Class	Topic/ Unit	Remarks
1.	History of Microbiology	Explanations
2.	Life & work of some notable Microbiologists	Notes
3.	Classification of Microorganism	Explanation
4.	Brief Knowledge about Cyanobacteria	Explanation
5.	Brief Knowledge about Virus	Explanation, Oral Assessment
6.	Brief Knowledge about Bacteriophage	Explanation Oral Assessment
7.	Brief Knowledge about Mycoplasma	Explanation Oral Assessment
8.	Principles of cultivation of Microorganisms	Notes
9.	Pure Culture Concept	Notes
10.	General Ecology of Soil Microorganism	Explanation
11.	Mycorrhiza	Explanation
12.	Bacteriorrhiza	Explanation
13.	Microbiology of Food and milk	Explanation & Notes
14.	Microbiology of water	Explanation & Notes
15.	Medical microbiology	Explanation
16.	Microbes related to Plant diseases	Explanation, & Notes

Course – Major/ General:-Major

Paper Code:- 302

Class/Semester- 3rd semester (M)

Name of the Paper- Microbiology (Practical)

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	Instruments used in Microbiology	Demonstration
2.	Culture Media preparation	Practical
3.	Serial dilution technique	Practical
4.	Pure Culture Technique	Practical
5.	Gram Staining method of bacteria	Practical
6.	Study about Curd bacteria	Practical
7.	Study about nodule bacteria	Practical

Course – Major/ General:-General

Paper Code:-301

Class/Semester- 3rd semester (G)

Name of the Paper- Morphology, Taxonomy and Reproduction of Angiosperm (Theory)

Units Assigned- 1 & 2

Marks Assigned- 12+3=15

Class	Topic/ Unit	Remarks
1.	Principals of Classification of Angiosperms	Explanations
2.	Linnaeus System of Classification	Explanations & Notes
3.	Bentham & Hooker's System of Classification	Explanations & Notes
4.	Engler & Prantal's System of Classification	Explanations & Notes
5.	Binomial Nomenclature	Explanation, Oral Assessment
6.	Identification & Classifications rules & norms	Explanation
7.	Morphological detail of Stem & Leaf	Explanation
8.	Morphological detail of Flower	Explanation
9.	Concept on Floral formula	Explanation, Oral Assessment
10.	Concept on Floral diagram	Explanation Oral Assessment

Course – Major/ General:- Major

Paper Code:-403

Class/Semester- 4th semester (M)

Name of the Paper- Cell Biology & Modern Laboratory Technique (Theory)

Units Assigned- 1

Marks Assigned- 16+4=20

Class	Topic/ Unit	Remarks
1.	Concept on Microscopy	Explanations, Oral Assessment
2.	Types of Microscopes, Working principals & Use	Explanations
3.	Separation techniques of Biomolecules	Explanation
4.	Chromatography types,	Explanation
5.	Centrifugation & Gel filtration	Explanation
6.	Spectrophotometry	Explanation
7.	Colorimetry	Explanation
8.	pH meter, BOD incubator, Autoclave, LAF Chamber, Hot Air Oven	Explanation
9.	Knowledge & Application of Computer in Biological science	Notes

Course – Major/ General:-Major

Paper Code:-404

Class/Semester- 4th semester (M)

Name of the Paper- Cell Biology & Modern Laboratory Technique (Practical)

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1.	Description of Instruments used in Biological Science	Demonstration
2.	Separation of Chlorophyll by Paper Chromatography	Practical
3.	Separation of amino acids by Paper Chromatography	Practical

Course – Major/ General:- Major

Paper Code:-401

Class/Semester- 4th semester (G)

Name of the Paper- Plant Physiology & Economic Botany (Theory)

Units Assigned- 1, 2, 3, 4, 5, 6

Marks Assigned-: 32+8=40

Class	Topic/ Unit	Remarks
1.	Water relation to Plant, Diffusion, Osmosis & imbibitions.	Explanations, Oral Assessment
2.	Absorption of Water	Explanation & Notes
3.	Ascent of Sap	Explanation & Notes
4.	Transpiration	Explanation & Notes
5.	Mineral nutrition	Explanation & Notes
6.	Translocation of Solute	Explanation
7.	Photosynthesis	Explanation, Oral Assessment
8.	Photosynthesis	Explanation
9.	Photosynthesis	Notes
10	Respiration in Plants	Explanation
11	Respiration in Plants	Notes
12	Phytohormones	Explanation & Notes
13	Phytohormones	Explanation & Notes
14	Physiology of Flowering	Explanation
15	Physiology of Flowering	Notes
16	Plant movement	Explanation
17	Plant movement	Notes

Paper Code:-402

Class/Semester- 4th semester (G)

Name of the Paper- Plant Physiology & Economic Botany (Theory)

Marks Assigned- 20=4=24

Class	Topic/ Unit	Remarks
1.	Experiment on Imbibitions	Practical
2.	Experiment on Plasmolysis	Practical
3.	Experiment on Transpiration	Practical
4.	Experiment on Transpiration	Practical
5.	Experiment on Photosynthesis	Practical
6.	Experiment on Photosynthesis	Demonstration

Course –Honours / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-506

Name of the Paper- Ecology & phytogeography

Units Assigned- 1, 2, 3, 4, 5

Marks Assigned- 48

Classes	Topic/ Unit	Remarks
1.	Basic concept & introduction to ecology	Explanations
2.	Biotic & abiotic factors & interactions	Explanations
3.	Components of ecosystem	Explanations
4.	Pedology, Physical, chemical & biological structure of soil.	Explanations
5.	Soil profile	Explanations
6.	Role of soil in development of vegetation.	Explanations
7.	Water quality & characters.	Explanations
8.	Hydrological cycle	Explanations
9.	Water in development of vegetation & climate.	Explanations
10.	Light & temperature in development of vegetation	Explanations
11.	Fire in development of vegetation	Explanations
12.	Biotic interaction	Explanations
13.	Biotic interaction	Explanations
14.	Biotic interaction	Explanations
15.	Plant community	Explanations
16.	Synthetic characters of Plant community	Explanations
17.	Analytical characters of Plant community	Explanations
18.	Plant Succession	Explanations
19.	Plant Succession	Explanations
20.	Plant Succession	Explanations
21.	Biogeochemical cycle	Notes
22.	Biogeochemical cycle	Notes
23.	Biogeochemical cycle	Notes
24.	Adaptation in Hydrophytes	Explanations
25.	Adaptation in Xerophytes	Explanations
26.	Adaptation in Epiphytes & Halophytes	Explanations
27.	Ecosystem	Explanations
28.	Structure of Ecosystem	Explanations
29.	Function of Ecosystem	Explanations
30.	Energy flow in Ecosystem	Explanations
31.	Habitat degradation	Explanations
32.	Ecological issues & problems.	Explanations
33.	Global ecological problems.	Explanations
34.	Concept on EIA	Explanations
35.	Conservation Biology, Ex situ & in situ conservation.	Explanations
36.	WWC, IUCN, NBWL, NBA	Explanations
37.	Concept on Biodiversity.	Explanations
38.	Flagship, Keystone & Endemic Species	Explanations
39.	Introduction to biodiversity.	Explanations
40.	Importance & conservation of biodiversity	Explanations
41.	Introduction to Phytogeography, Static & Dynamic Phytogeography	Explanations
42.	Phytogeographical regions of the world	PPT
43.	Phytogeographical regions of India	PPT
44.	Theories to explain distribution of Plants	Notes
45.	Origin of Life	Explanations
46.	Chemical origin of Life	Explanations
47.	Theories of organic Evolution	Explanations

48	Theories of organic Evolution	Explanations
49	Theories of organic Evolution	Explanations

Course –Honors / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-507

Name of the Paper- Ecology & phytogeography

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Instruments used in Plant ecology.	
2.	Practical related to plant ecology.	5 practicals
3.	Practical related to ecological adaptation.	4 Specimens
4.	Practical related to phytogeography.	Model submission

Course:-Honors/Generic –Generic

Class/Semester- 5th semester (G)

Paper code:-501

Name of the Paper- Cytogenetics, Evolution & Biostatistics

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Origin of Life	Explanations
2.	Chemical origin of Life	Explanations
3.	Theories of organic Evolution	Explanations
4.	Theories of organic Evolution	Explanations
5	Theories of organic Evolution	Explanations

Course –Honours/ Generic:- Generic

Class/Semester- 5th semester (G)

Paper code:-502

Name of the Paper- Cytogenetics, Evolution & Biostatistics

Class	Topic/ Unit	Remarks
1	Study about plant fossil	Demonstration
2.	Study about plant fossil	Demonstration

Course –Honours / Generic –Major

Class/Semester- 6th semester (M)

Paper code:- 606 Name of the Paper- Agrotechnology & Sustainable utilization of Plants.

Units Assigned- 1, 2, 3, 4, 5, 6.

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Centre of origin, Vavilov's concept.	Explanations
2.	Ethnobotany and its importance in Indian context.	Explanations
3.	Indigenous Knowledge System.	Explanations
4.	Agrotechnology & economic importance of cereals.	Notes
5.	Agrotechnology & economic importance of oil yielding plants.	Notes
6.	Agrotechnology & economic importance of Pulses.	Notes
7.	Agrotechnology & economic importance of beverages.	Notes
8.	Agrotechnology & economic importance of Vegetables.	Notes
9.	Agrotechnology & economic importance of Spices & condiments.	Notes
10.	Agrotechnology & economic importance of Spices & condiments.	Notes
11.	Agrotechnology & economic importance of timber yielding plants.	Notes
12.	Agrotechnology & economic importance of Aromatic & petrocrops.	Notes
13.	Agrotechnology & economic importance of Aromatic & petrocrops	Notes
14.	Domestication of Plants.	Explanations
15.	Germplasm & gene bank	Explanations
16.	Biofertilizer & biopesticides.	Explanations
17.	Organic farming.	Explanations
18.	Use of lower group of Plants.	Explanations
19.	Use of lower group of Plants.	Explanations

Course –Honours / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-607

Name of Paper- Agrotechnology & Sustainable utilization of Plants.

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Determination of pH of soil.	Practical
2.	Determination of WHC of soil.	Practical
3.	Determination of soil moisture.	Practical
4.	Determination of protein, fat & starch content of plant sample.	Practical
5.	Study of botanical character of useful plants.	15 nos.

Course –Honours / Generic –Major

Class/ Semester- 6th semester (M)

Paper code:-601

Name of the Paper- Ecology & phytogeography

Units Assigned- 1, 2, 3, 4, 5, 6

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Basic concept & introduction to ecology	Explanations
2.	Biotic & abiotic factors & interactions	Explanations
3.	Structure of Ecosystem	Explanations
4.	Function of Ecosystem	Explanations
5.	Succession in plants	Explanations
6.	Adaptation in plants	Explanations
7.	Pollution of air, water & soil	Explanations
8.	Green house effect	Explanations

9.	Ozone layer depletion	Explanations
10.	Deforestation, its cause & effects	Explanations
11.	Natural resource management	Explanations
12.	IUCN red list category	Explanations
13.	WWC, IUCN, NBWL, NBA	Explanations
14.	Concept on Biodiversity	Explanations
15.	Conservation Biology, Ex situ & in situ conservation	Explanations

Course –Honours / Generic –General

Class/Semester- 6th semester (M) Paper code:-602 Name of

the Paper- Ecology & phytogeography

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Instruments used in Plant ecology.	Demonstration
2.	Practical related to plant ecology.	2practicals

Course Plan January to June,2018

Class:2nd Semester

Name of Paper:

Units Assigned:

Marks Assigned:30

Class	Unit/Course	Remarks
1	Unit-1 : General account Bryophytes	Targeted to complete the course 15 classes
2	Classifications	
3	distribution in India	
4	Unit-2 : Evolution of sporophytes in Bryophytes	
5	spore dispersal mechanism ,	

6	Comparative account of the gametophyte	
	Unit-3:	
7,	A comparative knowledge of the structure	
8	and life history of the following types	
9	from the evolutionary point of view and	
	their ecology	
10	and economic importance.	
11	Riccia,	
12	Marchantia,	
13	Anthoceros,	
14	Shagnum,	
15	Polytricum	

4th Sem. Major

Name of paper: Cell Biology and Modern Laboratory technique

Units Assigned: Unit 4,5

Marks assigned: 8

Class	Unit/Course	Marks
1	Unit- 4:	10 classes needed to complete the course.
2 &4	Nucleoproteins	
	nature of genetic material.	
	Unit-5:	
5&6	Cell adhesion,	
7&8	Membrane transport,	
9&10	Signal transduction(G-Protein)	

Class: 4th Sem. General

Name of paper: Physiology and Economic Botany

Unit Assigned: 1

Marks Assigned: 20

Class	Unit/Course	Remarks
1 &2	Unit-1: A general knowledge of the following economically important plants with reference to their local names and plant parts used.	A total of 22 classes
3,4&5	Cereals: Rice, Wheat and Maize	
6,7	Pulses: Pea and Soyabean	
8,9,10	Oil Seeds: Mustard, Ground Nut, Coconut and Sunflower.	
11,12,13,14	Fibre Yielding Plants: Jute, Cotton, Ramie	
15,16,17,18	Medicinal Plants: Rawolfia, Swertia, Ocimum and Neem.	
19,20	Timber yielding Plants: Sal, Sisso, Teak, Holokh	
21,22	Non alcoholic beverages: Tea and Coffee.	

Class: 6th Sem. Major

Name of paper: Molecular Biology and Immunology

Units assigned: Molecular Biology: Unit: 1,2,3,4,5and Immunology Unit: 1,2,3

Marks Assigned: 60

Class	Unit/Course	Marks
	Molecular Biology: Unit-1:	27 Classes needed
1	Nucleic Acids,	
2	DNA as Genetic material,	
3	structure and functions of DNA	
4	Structure and functions of RNA.	
5	Watson and Crick Model of DNA,	
6	other forms of DNA(A-Z),	
7	Genome organization in prokaryotes	
8	Genome organization in eukaryotes.	
	Unit -2:	
9	Replication of DNA-Prokaryotes and eukaryotes,	
10	Transcriptions in prokaryotes and eukaryotes.	
	Unit-3:	
11	Features of genetic code,	
12	Wobble hypothesis,	
13	protein biosynthesis in prokaryotes	
14	Protein biosynthesis in eukaryotes .	
	Unit-4:	
15	Recombination in Prokaryotes,	
16	Transformation,	
17	Conjugation and Transduction,	
18	Concept of Transposons and Plasmids.	
	Unit-5:	
19	Regulation of gene expression in prokaryotes-	
20	Operon concept(Lac)	

	Immunology:	
	Unit-1:	
21	Plant health Management	
	Unit-2:	
22	Immunity and resistant in mammals,	
23	principles of antigens and antibodies reaction.	
	Unit-3:	
24	Interaction of plant with bacteria,	
25	Interaction of plants with Virus and Fungi;	
26	breeding for disease resistance,	
27	environment and immunity from infectious diseases in plants.	

Class: 6th Sem. General

Name of paper: Plant Ecology and Plant Geography

Units assigned: Unit- Plant ecology4

Marks Assigned:

Class	Unit/Course	Marks
	Plant Ecology:	Total-9classes
	Ecology: Unit-4:	
1	Pollution; Air,	
2	Pollution ;Water,	

3	Pollution; Soil,	
4	Global Climate change ;	
5	Green House effect, Ozone Depletion,	
6	Acid Rain,	
7	Deforestation and consequences of Deforestation.	
	Plant Geography	
8	Unit-2: Endemism and endemic flora-	
9	A general account of endemic flora.	

COURSE PLAN

2017-18

**DEPARTMENT OF CHEMISTRY,
DIGBOI COLLEGE**

NAME OF THE TEACHER-MRS. JONALI DUTTA
(June 2017 – Dec 2017)

Name of the Teacher-MRS. JONALI DUTTA

Course –MAJOR

Class/Semester-FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-II &III

Marks Assigned-16

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06 L -4
2	Vapour pressure, surface tension, determination	
3	viscosity, parachor-determination and application	
4	Newtonian and nonNewtonian liquid,	
5.	liquid crystals ,discussion	
Unit III – Solids		
1	crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 10 L-5
2	packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introduction to powder and single crystal methods of structure analysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors, semiconductors and insulators from band theory.	

(June 2017 – Dec 2017)

Name of the Teacher-MRS. JONALI DUTTA

Course –Non MAJOR

Class/Semester- FIRST SEMESTER

Name of the Paper-101 MM(PHYSICAL CHEMISTRY)

Units Assigned- II and III

Marks Assigned- 6+6

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06
2	Vapourpressure,surfacetension,determination	
3	viscosity, parachor-determination and application	
4	Newtonian and nonNewtonian liquid,	
5.	liquid crystals ,discussion	
Unit III – Solids		
1	Crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 06
2	packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introductionto powder and single crystal methods of structureanalysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors, semiconductors and insulators from band theory.	

June 17 – Dec 2017)

NAME OF THE TEACHER:MRS.JONALI DUTTA

CLASS/SEM-FIFTH SEMESTER

PAPER-501 MM (Physical Chemistry)

MARKS ASSIGNED:18

Unit III: System of variable composition		
Class	Topic	Remarks
1	Thermodynamics, Partial Molar quantities, chemical thermodynamics, chemical	Marks 08
2	Gibbs Duhem equation, Effect of temperature and pressure, Activity	
3	fugacity, Concept of equilibrium state, derivation of expression of equilibrium constant,	
4	temperature pressure and concentration dependence of equilibrium constant-Van't Hoff equation treatment).	
5	Le-Chatelier principle, effect of temperature, pressure and concentration, examples (qualitative	
6	Question -Answer discussion	
Unit: II- Dilute Solution		Marks 08
1	Introduction to dilute solutions, vapour pressure, lowering of vapour pressure, Raoult's and Henry's Law	
2	Immiscible liquids, Nernst's Distribution law, derivation	
3	Solvent extraction	
4	Colligative properties, definition, examples	
5	Thermodynamic derivation of lowering of	
6	Vapour pressure, chemical potential	
7	Elevation of boiling point	
8	Depression of freezing point	
9	Osmotic pressure	
10	Question answer discussion and revision	

(June 2017 – Dec 2017)

Name of the Teacher- Mrs Jonali Dutta

Course – Major (Non CBCS)

Class/Semester- Fifth

Name of the Paper- 507 (QM and Chemical bonding)

Units Assigned- II& III

Marks :33

Unit – II :Quantum Chemistry		
Class	TOPIC/UNIT	REMARKS
1	Black body radiation – Planck’s hypothesis, photoelectric effect, de Broglie hypothesis	MARKS 15
2	Heisenberg’s uncertainty principle. Schrodinger Wave Equation	
3	Operators,Postulates of quantum mechanics Normalization of wave functions- expectation values	
4	Interpretation of the wave function – orthogonal and ortho normal wave functions. Schrodinger equation and its application	
5	particle in a box.Onedimension,Three dimension	
6	Energy levels, probability distribution functions. Nodal properties, degeneracy	
7	Qualitative treatment of hydrogen atom ,Energy levels and quantum numbers	
8	The radial and angular part of wave functions, two dimensional plots of probability density.	
9	SternGerlach experiment, electron spin and spin quantum numbers,	
10	Pauli’s exclusion principle –Helium Atom	
11	(i) rigid rotator	
12	ii) harmonic oscillator	
13	Revision	
Unit:III:Chemical Bonding		MARKS:08
1	Valence bond and molecular orbital ,comparison With examples	
2	LCAO – MO treatment of H ₂	
3	MO Method of H ₂ molecules ion, Valence bond treatment of H ₂	
4	Localized and non localized molecular orbitals of Homonuclear and heter nuclear diatomic molecules	
5	MO diagram of H ₂ , N ₂ ,NO, CO, HF, CN	

(June 2017 – Dec 2017)

Name of the Teacher- MrsJonali Dutta

Course –Non Major

Class/Semester- Fifth Semester

Name of the Paper- 501,PHYSICAL CHEMISTRY

Units Assigned- II& IV

Marks :13

Unit –II Electrochemistry		
class	UNIT/TOPIC	
1	Reversible and irreversible cells, Concept of EMF of a cell.	L-6, Marks -6
2	Measurement of EMF of a cell. Nernst equation and its importance.	
3	Types of electrodes. Standard electrode potential and salt bridge	
4	pH determination using hydrogen electrode and quinhydrone electrode	
5	Commercial applications of galvanic cell, dry cell, lead storage battery,	
6	fuel cell	
7	NUMERICALS,DISCUSSION	
Unit IV Photochemistry		
Class	UNIT/TOPIC	REMARKS
1	Adsorption of light, Laws of photochemistry	Marks -5
2	Lambert Beer's law,	
3	Quantum yield, Quantum efficiency,	
4	Fluorescence, phosphorescence	
5	Chemiluminescence, phosphosensitized reaction	

JAN 2018 – MAY 2018

Name of the Teacher- MrsJonali Dutta

Course – Major

Class/Semester- SECOND semester

Name of the Paper- 201 MM, (PHYSICAL CHEMISTRY)

Units Assigned- II

Marks :12

Unit II – Ionic equilibrium		
Class	Unit/topic	Remarks
1	Strong and weak electrolyte with modern classification of electrolytes (true and potential electrolyte	Marks: 12
2	Factors affecting degree of ionization, ionization constant, ionic product of water,	
3	Degree of ionization, ionization of weak acids and bases, pH scale, common ion effect.	
4	Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis	
5	pH for different salts	
6	Buffer solution, derivation of Henderson equation and its applications	
7	Buffer capacity, buffer range, buffer action.	
8	Solubility and solubility product of sparingly soluble salts	
9	Application of solubility product principle	
10	Selection of indicators and their limitations.	
11	Qualitative treatment of acid-base titration curves. Theory of acids	
12	DISCUSSION&REVISION	

JAN 2018 – MAY 2018

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- IV Semester

Name of the Paper- 401 MM(Physical Chemistry)

Units Assigned- II & III

Marks Assigned- 15 + 6

Unit I: Unit III- Electrochemical cells		Marks:15
Class	Name of the Topic	Remarks
1	Quantitative aspects of Faraday's laws of electrolysis potentials	
2	Concept of oxidation/reduction of half cells, Numericals	
3	application of electrolysis in metallurgy and industry, electrolytic and galvanic cells,	
4	standard electrode potential, Nernst Equation types of electrodes-	
5	Hydrogen, calomel, quinhydrone and Glass electrodes	
6	E.M.F of a cell and its measurement, free energy, entropy and enthalpy of cell reactions,	
7	pH determination using hydrogen, SbO/Sb ₂ O ₃ electrode, glass, quinhydrone electrodes,	
8	Concentration cell with and without transference-	
9	liquid junction potential	
10	Potentiometric titration	
11	storage cells- Lead storage cell, mechanism of charging and	
12	fuel cells- hydrogen-oxygen cell	
UNIT: II Conductance		Marks: 6
1	application of conductance measurement: i) degree of dissociation of weak electrolytes	
2	ii) ionic product of water iii) solubility and solubility product of	
3	sparingly soluble salts iv) Hydrolysis constant of aniline hydrochloride,	
4	Conductometric (Acid Base and precipitation).	

JAN 2018 – MAY 2018

Name of the Teacher- Mrs Jonali Dutta

Course – Non major

Class/Semester- IV Semester

Name of the Paper- 401 NM (Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 21

Unit –I : Solution		
Class	Topic/unit	Remarks
1	Types of solutions, concentration units	Marks:8
2	Solution of gases in liquids-Henry's law. Solution of liquids in liquids	
3	Ideal solution-Raoult's law- Non ideal solution.	
4	Distillation of solutions, Lever rule, Azeotropes,	
5	Partial miscibility of liquids. Critical solution temperature.	
6	Immiscibility of liquids TheNernst distribution law and its applications	
7	Principle of steam distillation	
8	Solvent extraction	
9	Solutions of solids in liquids the solubility curves,discussion	
Unit – II Ionic Equilibrium		
1	Ionization,Strong and weak electrolytes, degree of ionization,	8Marks: 8
2	Factors affecting degree of ionization constant and ionic product of water.	
3	Ionization of weak acids and weak bases. pH and its determination	
4	pH scale, common ion effect.	
5	Salt hydrolysis – calculation of hydrolysis constant, degree of hydrolysis	
6	pH for differentsalts.	
7	Solubility and solubility product of sparingly soluble salts-	
8	Applications of solubility product	
9	Buffer solutions	
UNIT-Second law of thermodynamics		
1	Second law of thermodynamics, Spontaneous and Non-Spontaneous processes cyclic process	Marks: 5
2	Carnot cycle,	
3	Entropy, Entropy change in reversible and irreversible processes and for ideal gas,	
4	Concept of work function and free energy	
5	Q/ANS	

JAN 2018 – MAY 2018

Name of the Teacher-Mrs. Jonali Dutta

Course —MAJOR

Class/Semester-VI Semester

Name of the Paper- 601 (M) (Physical Chemistry)

Units Assigned-I&V

Marks :I&V:20

UNIT :1:Photochemistry		
CLASS	TOPIC/UNIT	Remarks
1	Absorption of light,Photochemicalreaction,Laws of photochemistr	
2	Beer lambert's Law,EinsteinLaw,Numericals	Marks-08
3	Quantum Yield,Determination,Reasons for high and low quantum yield	
4	Photodimerisation,Quenching,Combination of hydrogen and chlorine,H ₂ and Br ₂ Dissociation of HI,photosensitizedreaction,spin multiplicity	
5	Fluorescence and phosphorescence	
6	Chemiluminescence,Bioiluminescence	
7	Photoelectric effect,Photovoltaic cell	
8	Lasers,Numericals	
UNIT: V :Statistical Thermodynamics		
1	Statistical methods,Microand macro states,Ensembles	Marks-12
2	Relation between entropy and thermodynamic probality,Stirling approximation ,	
3	Boltzman distribution law	
4	Partition Function,Internalenergy,Entropy Heat capacity	
5	M.B.Statistics	
6	Bose –Einstein Statistics	
7	Fermi-Dirac Statistics Thermodynamic functions and molar partition function	
8	Translational Partition function function from particle in one dimensional box	
9	Vibrational Partition Rotational Partition function	

JAN 2018 – MAY 2018

Name of the Teacher-Mrs. Jonali Dutta

Course —Major

Class/Semester-VI Semester

Name of the paper:607(M) (Quantum Chemistry)

UNIT:I,II,III,IV:

Marks:26

UNIT:I&II:General Principle and Microwave Spectroscopy		
CLASS	UNIT/TOPIC	REMARKS
Unit IV Electronic spectroscopy		
Class	Electromagnetic radiation,Different types of spectra,and spectroscopy-An introduction	Marks 8+2=10
1	The Beer – Lambert Law, molar absorption	
2	coefficient MO energy level Marks 8	
3	Selection rules for electronic transitions	
4	Franck-Condon principle,	
5	Solvent effect ,bathochromic andhypsochromic shift.	
6	Chromophores, auxochromes	
7	Vibrational structures	
8	Revision	
UNIT: Microwave spectroscopy		
9	Microwave spectroscopy,rigid diatomic atomic molecule,	Marks-8
10	transitions between rotational energy levels,rotational constant	
11	Intensities of spectral lines	
12	Calculation of bond length of diatomic molecule	
13	Isotropic substitution	
14	Numericals and discussion	
UNIT:III: Raman Spectroscopy		
1	Raman Effect,Stokes and antistokes lines	Marks-8
2	Classical and quantum mechanical theories	
3	Polarizability tensor	
4	structure elucidation by Ramanspectroscopy (AB, A2B, and AB3)	
5	stretching frequencies of bonds and functional groups	
6	Q/ANS. DISCUSSION	

NAME OF THE TEACHER- NEELAKSHI HAZARIKA

Jun-Dec 2017

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 1st semester,

Name of the Paper-MM-101, Inorganic Chemistry

Units Assigned- All

Marks assigned- 34

Class	Topic/ Unit	Remarks
1	Section II Inorganic Chemistry	
2	Periodic properties: - Effective nuclear charge (screening constant – Slater's rule only),	
3	Ionic and covalent radii	
4	Ionization potential and periodic variation	
5	Electron affinity and periodic variation	
6	Electro negativity (Pauling-Mulliken's and Allred-Rochow scales).	
7	Bonding and structure: Electrovalent bond, covalent bond	
8	Covalent ionic resonance	
9	Partial ionic character in covalent bonds	
10	lattice energy, bond length	
11	bond angle and bond energy.	
12	Valence Bond Theory for H ₂ molecule	
13	Valence Bond Theory for H ₂ molecular ion	
14	Molecular orbital theory and its application	
15	Drawbacks of Valence Bond Theory	
16	MOT for hydrogen molecule	
17	LCAO and MO diagram of homo diatomic molecules	
18	LCAO and MO diagram of hetero diatomic molecules	
19	VSEPR theory and its applications	
20	VSEPR theory and its applications	

Course Plan Jun-Dec, 2017

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – NonMajor

Class/Semester- 1st semester,

Name of the Paper-NM-101, Section Inorganic Chemistry

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	Section A: Inorganic Chemistry-I Unit I: Atomic Structure: Electronic configuration of elements based upon electronic configuration in the periodic table	
2	Effective nuclear charge,	
3	Ionization energy,	
4	Electron affinity,	
5	Electronegativity,	
6	Redox potential.	
7	Unit II: Chemical Bonding and Molecular Structure: Ionic Bonding: Energy consideration in ionic bonding,	
8	Lattice Energy and Solvation Energy	
9	importance of Lattice energy and Solvation energy in the context of Stability and Solubility of ionic compounds.	
10	Polarizing power and polarizability.	
11	Fajan's rule	
12	dipole moment and percentage ionic character.	
13	Hydrogen Bonding.	
14	Covalent Bonding: VB Approach	
15	Concept of hybridization, sp, sp ² , sp ³ , sp ³ d, sp ³ d ² and dsp ²	
16	VSEPR Theory. Resonance and Resonance energy	
17	Study of some inorganic and organic compounds (O ₃ , NO ₃ ⁻ , CO ₃ ²⁻)	
18	Study of some inorganic and organic compounds(SO ₄ ²⁻ , RCOO ⁻ , C ₆ H ₆).	
19	Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals,	
20	non-bonding combination of orbitals,	
21	MO treatment of homonuclear diatomic molecules	
22	MO treatment of and heteronuclear diatomic molecules such as CO, NO and NO ⁺	

Course Plan Jan-May, 2017

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 3rd semester, Non-CBCS

Name of the Paper-MM-301, Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	UNIT – I:Coordination compounds: Types of ligands: monodentate, bidentate, ambidentate,	
2	Polydentate and macro cyclic ligand.	
3	Nomenclature of complex compounds, Isomerism in 4- and 6-coordinate compounds	
4	Inner complex and chelates.	
5	Effective atomic number rule	
6	Valence Bond Theory	
7	Application of Valence Bond Theory in tetrahedral complexes	
8	Application of Valence Bond Theory in octahedral complexes	
9	Drawbacks of Valence Bond Theory	
10	Crystal field splitting in Octahedral complexes	
11	Crystal field splitting in tetrahedral complexes	
12	Crystal field splitting in tetragonal and square complexes	
13	MO and introduction to ligand field theories and their applications.	
14	Spectroscopic terms,	
15	RS coupling,	
16	Mullikan's symbol (A, B, E, T)	
17	Spectrochemical and nephelauxetic series	
18	Electronic spectra of simple Td and Oh complexes	
19	Selection rules and Orgel diagram (d1 to d9 system).	
20	Magnetic properties: Paramagnetism, diamagnetism, magnetic properties of octahedral complexes	
21	Antiferromagnetism.	
22	UNIT – II: Inorganic reaction mechanism	
23	Introduction to inorganic reaction mechanism	
24	Inert and labile complexes	
25	Association mechanism	
26	Dissociation and concerted paths mechanism	
27	Acid hydrolysis (with reference to cobalt complexes only).	
28	Base hydrolysis (with reference to cobalt complexes only).	
29	Substitution reaction in octahedral and square planar complexes.	
30	Substitution reaction in square planar complexes.	
31	Trans effect, Irving-William Series	
32	UNIT – III:Chemistry of d- and f- block elements, Electronic structure, oxidation state, ionic radii	
33	Lanthanide and Actinide contraction	
34	Separation of lanthanides	

Course Plan (Session Jun-Dec, 2017)

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic :Non Major

Class/Semester- 5th Sem

Name of the Paper- NM 501, Inorganic Chemistry + Physical Chemistry

Units Assigned- I

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit–I Nuclear Chemistry: Mass defect and binding energy, packing fraction	
2.	Stability of nucleus, neutron-proton ratio	
3.	Artificial radioactivity, nuclear fission	
4.	Nuclear reactors, separation of isotopes	
5.	Detection and measurement of radioactivity by GM counter.	
6.	Application of radio-isotopes in agriculture, medicine and industry.	
7.	Radiocarbon dating.	
8.	Unit-II Preparative Chemistry Preparation, properties and uses of the following compounds : Lithium aluminium hydride	
9.	potassium ferro and ferricyanide	
10.	sodium cobaltinitrite	
11.	Sodium thiosulphate, Nessler's reagent,	
12.	Sodium borohydride, silica gel,	
13.	Pb containing paints	
14.	Zn containing paints	
15.	Unit-III Bioinorganic Chemistry:Role of zinc	
16.	Role of iron	
17.	Role of cobalt	
18.	Role molybdenum	
19.	Sodium, potassium in biological system.	
20.	Role of Mg^{++} in chlorophyll.	
21.	Role of Ca in blood clotting	
22.	Poisoning due to heavy metal ion -Mercury	
23.	Cadmium poisoning	

Course Plan Session Jun-Dec, 2017

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Sem,

Name of the Paper-MM 503, Inorganic Chemistry II

Units Assigned- II, III

Marks Assigned-27

Class	Topic/ Unit	Remarks
1.	UNIT – II: Transition metal clusters: Definition of cluster, metal – metal bond in cluster,	
2.	Synthesis of metal carbonyl cluster of Cr, Fe and Mo (only low nuclearity clusters up to 4 metal atoms).	
3.	Closed shell electronic requirement for cluster compounds – rules for Polyhedral Skeletal Electron Pair Theory.	
4.	Nitrosyl compounds: Synthesis, properties and structures of nitrosyls of Fe, Co and Ni.	
5.	UNIT – III: Error in quantitative analysis: Accuracy, precession	
6.	Deviation, standard deviation, Numericals	
7.	Classification of errors, minimization of errors,	
8.	Significant figures.	
9.	Indicators: Choice of indicators in neutralization reactions.	
10.	Redox, adsorption and complexometric	
11.	Adsorption indicator	
12.	Complexometric indicator	
13.	UNIT – IV: Organic reagents in inorganic analysis :- Cupferron, dithizone oxine	
14.	benzoin- α - oxime,	
15.	1- nitroso-2- naphthol, diphenyl carbazide,	
16.	Diphenyl carbazone, salicylaldoxime,	
17.	1,10- phenanthroline, magneson,	
18.	thiourea, zinc uranyl acetate,	
19.	UNIT – II: Transition metal clusters: Definition of cluster, metal – metal bond in cluster,	
20.	Synthesis of metal carbonyl cluster of Cr, Fe and Mo (only low nuclearity clusters up to 4 metal atoms).	
21.	Closed shell electronic requirement for cluster compounds – rules for Polyhedral Skeletal Electron Pair Theory.	
22.	Nitrosyl compounds: Synthesis, properties and structures of nitrosyls of Fe, Co and Ni.	
23.	UNIT – III: Error in quantitative analysis: Accuracy, precession	
24.	Deviation, standard deviation, Numericals	
25.	Classification of errors, minimization of errors,	

Course Plan Session JUN- DEC, 2017

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Semester,

Name of the Paper- MM 507, Symmetry and Quantum Chemistry

Units Assigned- Unit I

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Unit – I: Symmetry and Group theory: Symmetry elements and symmetry operations	
2.	Definition of group, symmetry group	
3.	point group and space group.	
4.	Perspective sketch and point group of some common molecules, H ₂ , HF,	
5.	CO ₂ , C ₂ H ₂ ,	
6.	C ₂ H ₄ , CHCl ₃ ,	
7.	PCl ₅ , NH ₃	
8.	BF ₃ , [PtCl ₄] ²⁻ , BrF ₅	
9.	symmetry and mathematical tools, matrix algebra,	
10.	reducible and irreducible representation, great orthogonality theorem	
11.	Character table for C _{2v}	
12.	Character table for C _{3v}	
13.	Determination of Γ_i for C _{2v}	
14.	Determination of Γ_i C _{3v} point groups.	

Course Plan Jan-May, 2018

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – NonMajor

Class/Semester- 2nd semester,

Name of the Paper-NM-201, Section Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	Unit-I Coordination Chemistry: Review of Werner's theory. Types of ligands, monodentate, bidentate	
2	ambidentate and polydentate ligands, π Acceptor and macrocyclic ligands.	
3	IUPAC Nomenclature of Co-ordination compounds.	
4	IUPAC Nomenclature of Co-ordination compounds.	
5	Isomerism of 4-and 6- coordinate compounds.	
6	Isomerism of 4-and 6- coordinate compounds.	
7	Introduction to Valence Bond	
8	Application of VBT	
9	Introduction to Crystal Field theory.	

10	CFT in octahedral complexes	
11	CFT in tetrahedral complexes	
12	Application of dimethyl glyoxime, EDTA, 8-hydroxy quinoline,	
13	Use 2,2-bipyridyl, and ethylenediamine in analysis.	
14	Unit-II Chemistry of non-metals Boron: Preparation, structure and bonding of diborane	
15	Silicon: Structure, properties and use of silicon carbide and silicon polymers (linear).	
16	Structure, properties and use of silicon polymers (linear)	
18	Nitrogen: Hydroxylamine, Hydrazine, preparation, properties, uses and electronic structure.	
19	Hydrazoic acid; preparation, properties, uses and electronic structure.	
20	Rare gases- Xenon compounds.	
21	Preparation and properties of xenon compounds	
22	Preparation and properties of xenon compounds	
23	Structure determination of xenon compounds with the help of VSEPR	
24	Phosphorous: Structures of oxides and oxyacids.	
25	<u>Unit-III Inorganic Material Chemistry</u> <u>Zeolites, it's structure and properties</u>	
26	Ceramics and its preparation	
27	Manufacturing of glass and its types	
28	Silicate minarals, it's properties and uses	
29	Cement – composition, raw materials, manufacturing process	
30	Setting of cement	
31	Types of Inorganic metal oxides	
32	Superconductor	
33	Synthesis, Structure and Application of Fullerenes	
34	Unit-IV General principles of metallurgy Physico-Chemical methods involved in metallurgy	
35	Concentration, calcinations, reduction	
36	roasting, zone refining, solvent extraction	
37	hydrometallurgy and electrochemical methods	
38	Metallurgy of gold,	
39	Metallurgy of nickel	
40	Metallurgy of thorium	
41	Metallurgy uranium and manganese	
42	Metallurgy of manganese	

Course Plan Jan-May, 2018

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic –Major

Class/Semester- 2nd semester,

Name of the Paper-MM-201, Section II (Inorganic Chemistry)

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	UNIT – I: Non Transition elements: Electronic structure, general Properties and comparative study of group of non transition elements.	
2	Noble Gas : Compounds of Xenon only	
3	Boron: Wade's rule, Nomenclature of closo, nido and arachno boranes,	
4	Structure of boron hydrides (B_2H_6), metalloborane and metallocarboranes.	
5	Preparation, structure and use of Borazine	
6	Preparation, structure and use of phosphazine	
7	Preparation, structure and use of S_4N_4	
8	Preparation, structure and use of $(SN)_x$	
9	Carbon : Fullerenes (C_{60}) preparation and properties	
10	Silicon: Silicones, classifications and structure of silicates.	
11	Zeolites, use of Zeolites as catalyst and molecular sieve	
12	Aluminosilicates	
13	Nitrogen: Preparation and properties of hydroxylamine	
14	Preparation and properties of Hydrazine	
15	Preparation and properties of hydrazoic acid.	
16	Phosphorus: Phosphines,	
17	oxy acids of phosphorus,	
18	organophosphorus compounds.	
19	Theory of reduction (Thermodynamic approach), role of carbon and other reducing agents,	
20	Electrolytic reduction, roasting and calcinations.	
21	Method of purification and refining of metals, zone refining	
22	Vacuum arc process, ion exchange,	
23	Solvent extraction and electrolytic method,	
24	Van – Arkel process and hydrometallurgy.	
25	Extraction of and study of some important compounds : Cr, chromyl chloride, lead chromate, potassium dichromate	
26	Extraction of the following metals and study of some of their important compounds : Mn, manganese dioxide, $KMnO_4$	
27	Extraction of and study of some of some important compounds : Mo, Ammonium molybdate	
28	Extraction of and study of some important compounds : Co, sodium cobaltinitrite, cobalt nitrate	
29	Extraction of and study of some important compounds : Ni, Ni-DMG	
30	Extraction of and study of some of compounds : V, vanadium pentoxide	

Course Plan, JAN-MAY, 2018

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic –Major

Class/Semester- 6th SEMESTER,

Name of the Paper- MM 603, Inorganic Chemistry III

Units Assigned- All

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	UNIT-I: Bio inorganic Chemistry Metal ion in biological system	
2.	Biological role of iron	
3.	Biological role of copper	
4.	Biological role of cobalt	
5.	Biological role of zinc	
6.	Biological role of molybdenum.	
7.	Metalloprotein and metalloenzymes, therapy.	
8.	Physiology of hemoglobin & myoglobin,	
9.	Plastocyanin, it's structure and function	
10.	Vitamin B12, it's structure and function.	
11.	Carbonic anhydrase, it's structure and function	
12.	Nitrogenase it's structure and function,	
13.	Metal ion in medicine -- cisplatin and carboplatin.	
14.	Use of EDTA in chelation	
15.	Role of alkali and alkaline earth metals	
16.	UNIT-II: Introduction to material chemistry	
17.	Idea about supra molecular interaction.	
18.	Solid state reactions	
19.	Nano materials – synthesis and characterization.	
20.	C – C composite	
21.	Polymer and nanocomposite	
22.	Introduction of chemistry of clay (Kaolinite, Montmorillonite and Laponite)	
23.	UNIT – III: Chromatographic Methods Paper chromatography	
24.	Thin layer chromatography	
25.	Column chromatography	
26.	Gas chromatography – separation of compounds, development and R _f values	
27.	HPLC – principle only.	
28.	UNIT IV: Industrial chemistry: Industrial water treatment: Demineralized (DM) water and effluent treatment.	
29.	Various types of cements, their composition,	
30.	Manufacturing of cement	

31.	Setting of cement	
32.	Ceramics	
33.	Paints: Constituents, role of binder and solvent	
34.	lead and zinc containing paints.	
35.	Introduction to Chemical Toxicology: Metal poisoning due to Pb	
36.	Metal poisoning of Cd	
37.	Metal poisoning of Hg	
38.	hazard from radioactive fallout	

Course Plan Jan-May, 2018

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 6th semester,

Name of the Paper-MM 607, Molecular Spectroscopy

Units Assigned- I, III, V

Marks Assigned- 22

Class	Topic/ Unit	Remarks
1.	Unit-I General Principles Interaction of electromagnetic radiation with molecules and various types of spectra, Selection rules.	
2.	Unit-III Infrared spectroscopy Classical equation of vibration, vibrational energies of diatomic molecules	
3.	zero point energy, Concepts of normal vibration	
4.	force constant, effect of isotopic substitution,	
5.	Vibrational frequency, Fundamental frequencies, overtones	
6.	hot bands	
7.	Degree of freedom of polyatomic molecules,	
8.	concept of group frequencies.	
10.	Numericals of IR	
11.	Unit V: Spin resonance spectroscopy Principle of NMR,	
12.	Larmour precession,	
13.	chemical shift and low resolutions spectra	
14.	Numericals of NMR	
15.	Different scales, spin-spin coupling and high resolution spectra	
16.	Interpretation of PMR spectra of ethanol,	
17.	1- and 2-chloropropane, acetaldehyde,	
18.	cyanohydrin and 1,2 & 1,3-dichloropropane.	
19.	Electron spin resonance (ESR) spectroscopy and its principle	
20.	hyperfine structure	
21.	ESR of simple free radicals methyl, Duterated methyl	
22.	ESR of simple free radicals propyl, ethyl	
23.	ESR of copper (II) compounds. L-12, Marks: 10	
24.	Difference between NMR and ESR	
25.	Numericals of ESR	

NAME OF THE TEACHER- DR NAYAN JYOTI KHOUND

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 1st Semester

Name of the Paper- 101 (Physical Chemistry)

Units Assigned- I +II

Marks Assigned- 10

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – NonMajor

Class/Semester- 1st Semester

Name of the Paper- 101 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 10

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major

Class/Semester- 2nd Semester

Name of the Paper- 201 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 14

Unit I: Chemical Thermodynamics –I		Marks Assigned- 14
Class	Topic	Remarks
1.	Extensive and intensive properties of a system,	
2.	thermodynamic processes: cyclic, reversible, irreversible processes,	
3.	Thermodynamic function, complete differential, Zeroth law of thermodynamics.	
4.	First law of thermodynamics-internal energy, enthalpy, molar heat capacities,	
5.	relation between C_p and C_v , work of expansion in reversible and irreversible process, adiabatic	
6.	Joule Thomson effect, calculation of Joule Thomson co-efficient for ideal and Vander Waal's gas.	
7.	Thermo chemistry- Hess's law,	
8.	Kirchhoff's law relation of reaction enthalpy with internal energy,	
9.	Bond energy and Bond dissociation energy	
10.	Bond energy Calculation from thermo chemical data.	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major

Class/Semester- 3rd Semester

Name of the Paper- 301 (Organic Chemistry)

Units Assigned- I

Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms	
3.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution vs elimination.	
5.	Haloform reaction	
6.	Aryl halides: Preparation from diazonium salts	
7.	Nucleophilic Aromatic Substitution SNAr intermediates.	
8.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
9.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
10.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
11.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
12.	Organometallic Compounds of Mg Use in synthesis of organic compounds.	
13.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
14.	Previous year Question paper discussion	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major

Class/Semester- 3rd Semester

Name of the Paper- 301 (Organic Chemistry)

Units Assigned- I

Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation	
2.	Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
3.	Nucleophilic substitution reactions: SN1 Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution reactions: SN2 Mechanisms with stereochemical aspects	
5.	Nucleophilic substitution reactions: SNi Mechanisms with stereochemical aspects	
6.	Nucleophilic substitution vs elimination	
7.	Haloform reaction	
8.	Aryl halides: Preparation from diazonium salts	
9.	Nucleophilic Aromatic Substitution SNAr intermediates.	
10.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
11.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
12.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
13.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
14.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
15.	Previous year Question paper discussion	
16.	Previous year Question paper discussion	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOOND

Course –Major

Class/Semester- 4th Semester

Name of the Paper- 401 (Physical Chemistry)

Units Assigned- I + II

Marks Assigned- 20 + 6

Unit II: Conductance		Marks Assigned- 20
Class	Topic	Remarks
1.	Arrhenius theory of electrolytic dissociation	
2.	conductivity, equivalent and molar conductivity	
3.	conductivity, equivalent and molar conductivity and their variation with dilution strong electrolytes	
4.	conductivity, equivalent and molar conductivity and their variation with dilution for weak electrolytes	
5.	molar conductivity at infinite dilution	
6.	kohlrausch law of independent migration of ions	
7.	Debye-Huckel – Onsagar equation,	
8.	Wien effect, Debye –Falkenhagen effect, Walden's rules.	
9.	Ionic velocities,	
10.	mobilities and their determinations	
11.	Transference numbers and their relation to ionic mobilities,	
12.	determination of transference numbers using Hittorf	
13.	determination of transference numbers using moving boundary methods	
14.	determination of transference numbers using Hittorf and moving boundary methods, ,	
15.	anomalous transference number	
16.	application of conductance measurement: i) degree of dissociation of weak electrolytes,	
17.	ii) ionic product of water	
18.	iii)solubility and solubility product of sparingly soluble salts	
19.	iv) Hydrolysis constant of aniline hydrochloride	
20.	v) Conductometric titration (Acid Base and precipitation)	
21.	Previous year Question paper discussion	
Unit I : Chemical Thermodynamics		Marks Assigned- 06
1	Second law of thermodynamics,	
2	Carnot's theorem	
3	Carnot cycle, efficiency of heat engines,	
4	thermodynamic scale of temperature	
5	Nernst heat theorem, consequence of the theorem,	
6	third law of thermodynamics,	
7	Determination of absolute entropies of pure substance	
8	Previous year Question paper discussion	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course –Non Major

Class/Semester- 4th Semester

Name of the Paper- 401 (Physical Chemistry)

Units Assigned- III + IV(a)

Marks Assigned- 10 + 12

Unit II: Chemical Kinetics		Marks Assigned- 10
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
10.	Collision theory of bimolecular reactions, its limitation,	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	
Unit IV(a) : Chemical Thermodynamics		Marks Assigned- 12
1	Thermal equilibrium and zeroth law of thermodynamics- concept of temperature	
2	Mechanical work, SI sign convention. 1st law of thermodynamics, internal energy, enthalpy, reversible and irreversible processes	
3	calculation of W, Q, ΔU , ΔH for expansion of ideal gas, isothermal work and enthalpy	
4	relation between enthalpy change, and entropy change,	
5	molar heat capacities, relation between C_p and C_v ,	
6	adiabatic processes- relation between P, V and T	
7	Joule-Thomson effect	
8	liquefaction of gases, conversion of heat into work, efficiency of heat engine	
9	Enthalpy of reaction,	
10	Types of Enthalpy of reaction,	
11	Thermodynamical equation	
12	variation of enthalpy of reaction with temperature-Kirchhoff's equation	
13	enthalpy of different processes	
14	Hess law, calculations based on Hess law.	
15	Previous year Question paper discussion	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I +IV + V

Marks Assigned- 15 + 07 + 08

Unit I: Chemical Kinetics		Marks Assigned- 15
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Evaluation of rate constant by integrated equation method & graphical method, Guggenheim method (1st order reaction),	
10.	Rate laws and mechanism, steady state approximation.	
11.	Rate equation of first order, opposite, parallel, consecutive reaction,	
12.	Rate equation of chain reactions, chain branching, explosion limit, hydrogen – bromine thermal reaction,	
13.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
14.	Collision theory of bimolecular reactions, its limitation,	
15.	Activated complex theory, Eyring equation, Lindeman's theory of unimolecular gas phase reaction.	
16.	Question paper discussion	
Unit IV: Surface Chemistry		Marks Assigned- 07
1	Adsorption and types of adsorption	
2	Physical and chemical adsorption of gases on solid surface	
3	Adsorption isotherms & types of adsorption isotherm	
4	Freundlich equation, Langmuir adsorption equation.	
5	Gibbs adsorption equation	
6	Determination of surface area of an adsorbent	
7	application of adsorption in chemical analysis and in industry,	
Unit V: Colloidal State		Marks Assigned- 08
1	Colloid and types of colloids	
2	Physical and electrical properties of colloids	
3	Electro kinetic phenomenon- electrophoresis, electro-osmosis,	
4	Electrical double layer and zeta potential, theory of stabilities of colloids,	
5	Protective action of Lyophilic sol-gold number,	
6	Determination of Avogadro's number	
7	Coagulation of colloids, Schultz – Hardy rule, association of colloids, emulsions	
8	Micelles and their structure, critical micelles concentration,	
9	Donnan membrane equilibria	
10	Question paper discussion	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I + III + IV

Marks Assigned- 05 + 05 + 04

Unit I: Conductance		Marks Assigned- 05
Class	Topic	Remarks
1.	Conductivity, equivalent and molar conductivity	
2.	Their variation with dilution for weak and strong electrolytes.	
3.	Kohlrausch law of independent migration of ions.	
4.	Transference number and its experimental determination using Hittorf and Moving boundary methods.	
5.	Ionic mobility.	
6.	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts,	
7.	Applications of conductance measurements: determination of degree of ionic product of water, hydrolysis constant of a salt.	
8.	Conductometric titrations of acid - base	
Unit III: Adsorption & Catalysts		Marks Assigned- 05
1	Adsorption & types of adsorption.	
2	Differences between chemisorptions and Physical adsorption	
3	Freundlich adsorption isotherm and Langmuir adsorption isotherm, application of adsorption.	
4	Catalysis & Types of catalysis	
5	Homogeneous heterogeneous catalysis, acid-base catalysis, catalytic promoter, poisoning, negative catalysis ,	
6	enzyme catalysis characteristics of enzyme catalysis ,Theories of catalysis.	
7	Question discussion	
Unit IV: Phase rule		Marks Assigned- 04
1	Statement of phase rule, definition of phase, components and degrees of freedom with examples	
2	Application of phase rule	
3	Phase diagram of water and sulphur system.	
4	Phase diagram of Pb –Ag system.	

June 2017 to May 2018

Name of the Teacher- Dr NAYAN JYOTI KHOUND
Course – Major
Class/Semester- 6th Semester
Name of the Paper- 601 (Physical Chemistry)
Units Assigned- II + III + IV
Marks Assigned- 08 + 08 + 12

Unit II: Macromolecules		Marks Assigned- 08
Class	Topic	Remarks
1.	Polymer and their classification	
2.	Step reaction polymerization & Addition polymerization,	
3.	Mechanism and kinetics of free radical polymerization,	
4.	Mechanism and kinetics anionic polymerization	
5.	Mechanism and kinetics of cationic polymerization	
6.	Weight and Number average molecular weight,	
7.	Viscometric and Osmometric methods of molecular weight determination,	
8.	Degree of polymerization & Carother equation,.	
9.	Zeigler Natta catalysts, Co-polymerisation	
10.	Question paper discussion	
Unit III: Catalysis		Marks Assigned- 08
1	Catalysis and its types	
2	Criteria of catalysis,	
3	Homogeneous and heterogeneous catalysis,.	
4	Acid – Base catalysis	
5	Effect of temperature on surface reactions	
6	Effect of particle size and efficiency of nano particles as catalysts,	
7	Autocatalysis & catalytic poison,	
8	Enzyme catalysis-mechanism	
9	Michaelis-Menten equation	
10	Question discussion	
Unit IV: Phase Equilibria		Marks Assigned- 12
1	Definition of phase components, degree of freedom	
2	Thermodynamic derivation of phase rule,	
3	application of phase rule to one component-water and sulphur,	
4	Phase diagram of simple eutic Pb-Ag, & KI-H ₂ O system	
5	Phase diagram of two component systems with congruent melting point (Zn-Mg) system	
6	Phase diagram of two component systems incongruent melting point (Na ₂ SO ₄ -H ₂ O) system	
7	Interpretation of vapour pressure composition and temperature-composition phase diagram	
8	Distillation of liquid mixtures and azeotropic mixture.	
9	Clapeyron equation, Clausius - Clapeyron equation, their derivation and application	
10	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course – Non Major
 Class/Semester- 6th Semester
 Name of the Paper- 601 (Organic Chemistry)
 Units Assigned- II + III + IV
 Marks Assigned- 05 + 06

Unit II: Organic Chemistry of Life		Marks Assigned- 05
Class	Topic	Remarks
1.	classification, preparation and properties of Amino acids	
2.	Glycine, Alanine and Phenylalanine	
3.	(Strecker synthesis and Gabriel phthalimide method).	
4.	Elementary ideas of peptides and proteins.	
5.	Elementary ideas of nucleoside, nucleotide,	
6.	Elementary ideas of nucleic acid (DNA, RNA	
7.	nucleic acid (DNA, RNA	
8.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
9.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
10.	Reactions of amino acids	
Unit III: Polymers		Marks Assigned- 06
1	Polymer and their classification	
2	Step reaction polymerization & Addition polymerization,	
3	Weight and Number average molecular weight,	
4	Viscometric and Osmometric methods of molecular weight determination,	
5	Question Paper discussion	

Name of the Teacher: **Dr. Bishwajit Saikia**
 Course: **Major**
 Class/Semester: **1st Semester**
 Name of the Paper: **MM-101 (Section -III Organic Chemistry)**
 Units Assigned: **I + II**
 Marks Assigned: **15 + 12**

Class	Topic	Remarks
Unit I: Basics of Organic Chemistry		
1.	Organic Compounds: Natural sources, classification and Nomenclature	
2.	Hybridization: Shape of molecules, Influence of hybridization on bond properties	
3.	Electronic displacements: Inductive, Electromeric, Resonance, Mesomeric effects and Hyperconjugation and their applications. Dipole moment.	
4.	Organic acids and bases: Their relative strength, hard and soft acids and bases.	
5.	(Homolytic and Heterolytic fission, Electrophiles and Nucleophiles:	

	Nucleophilicity and basicity.	
6.	Reactive intermediates: Carbocations, carbanions, free radicals, arbenes, nitrenes, benzyne, Types, Shape and their relative Stability.	
7.	Energy profile diagrams of one step, two steps and three steps reactions, Rate limiting steps. Activation Energy. Kinetically and thermodynamically controlled reactions.	
Unit II: Stereochemistry		
1.	Elements of symmetry and their application in simple organic molecules.	
2.	Definition and classification of stereoisomerism	
3.	Representation of organic molecules in three & two dimension: Fischer Projection, Newman projection, Saw horse and flying wedge projection formula and their interconversions.	
4.	Optical isomerism: Concepts of asymmetry, dissymmetry, optical activity, Specific rotation, Chirality, enantiomers, Diastereomers, racemic mixture, racemization and Resolution,	
5.	Erythro forms, Meso structures & Epimers. Relative and absolute configuration: D/L and R/S designations. Walden inversion and asymmetric synthesis.	
6.	Geometrical Isomerism: Restricted rotation about C=C bonds, physical and chemical properties of diastereoisomers, determination of configuration of geometrical isomers: cis-trans isomerism, syn-anti and E/Z notation with CIP rules.	
7.	Geometrical isomerism in oximes and alicyclic compounds.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **1st Semester**

Name of the Paper: **NM-101 (Section C: Organic Chemistry)**

Units Assigned: **VI + VII + VIII**

Marks Assigned: **10 + 12 + 5**

Class	Topic	Remarks
Unit VI: Introduction to Organic Chemistry		
1.	Importance of Organic Chemistry & organic systems to human beings & society. Electronic displacements: Inductive effect, Electrometric effect, Resonance and hyperconjugation.	
2.	Mechanism of organic reactions: Cleavage of Bonds- Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules- Nucleophiles and electrophiles.	
3.	Reactive Intermediates- Carbocations, carbanions, free radicals, carbenes & nitrenes.	
4.	Strength of organic acids and bases: comparative study with emphasis on factors affecting pka values.	
Unit VII: Stereochemistry		
1.	Conformations w.r.t. ethane, butane and cyclohexane (axial and equatorial bonds). Interconversion of wedge formula, Newman,	

	Sawhorse and Fischer projection representation.	
2.	Concept of symmetry: Elements of symmetry (Centre of inversion, axis of rotation, plane of reflection and improper axis of rotation) applied to organic molecules.	
3.	Optical isomerism: Concept of chirality (with two stereogenic centres) diastereomers, threo and erythro, meso compounds, enantiomerism, CIP Rules, R/S Nomenclature (up-to two chiral carbon atoms) Resolution of enantiomers and Racemisation.	
4.	Geometrical isomerism: \square -diastereoisomerism, Determination of configuration of geometric isomers. E&Z system of Nomenclature.	
Unit VIII: Aliphatic Hydrocarbons		
1.	Alkanes (upto 5 carbons) Preparation:- Catalytic hydrogenation, Wurtz reaction, Kolbe's Synthesis, from Grignard reagent.	
2.	Corey-House Synthesis. Reactions: Free radical Substitution: Halogenations	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **2ndSemester**

Name of the Paper: **MM-201 (Section–III Organic Chemistry)**

Units Assigned: **I + II + III**

Marks Assigned: **8 + 6 + 8**

Class	Topic	Remarks
Unit I: Carbon- Carbon sigma bonds		
1.	Chemistry of Alkanes: Formation of alkanes with special emphasis on Corey House Synthesis	
2.	Wurtz reaction, Wurtz-Fittig reaction. Reactions of alkanes: Free Radical substitution:- Halogenations-relative reactivities and selectivity.	
3.	Formation of alkenes and alkynes by Elimination: Mechanism of E1., E2, E1cB reactions. Saytzeff and Hoffmann elimination	
4.	Special emphasis on preparation of alkenes by syn- elimination:- pyrolysis of esters, Chugaev, Wittig, Heck reaction.	
5.	Reaction of alkenes: Addition Reaction- Electrophilic and free radical additions, their mechanisms. (Markonikoff/ Anti Markonikoff addition)	
6.	Regioselectivity (directional selectivity), and stereoselective of addition reactions. Mechanism of oxymercuration–demercuration, Hydroboration-Oxidation, Ozonolysis, reduction (catalytic and chemical).	
7	Syn and Anti hydroxylation (oxidation), simple effect of stereo selectivity and stereo specificity.	
8	Reactions of Alkynes: Acidity, Electrophilic and Nucleophilic additions, Hydration to form carbonyl compounds. Alkylation of terminal alkynes.	
Unit II: Cycloalkanes and conformational analysis		
1.	Synthesis and reactions of three, four, five and six membered cycloalkanes, Their relativestability, Baeyer strain theory. Sache-	

	Mohr theory.	
2.	Conformational analysis of Alkanes: (ethane & butane) Relative stability, Energy diagram.	
3.	Cyclohexane: Chair, Boat and Twist boat forms, Relative stability with energy diagram, axial and equatorial bonds including perspective representation and Newman projections. Conformation & conformational analysis of monosubstituted cyclohexane derivative.	
Unit III: Aromatic Hydrocarbons		
1.	Aromaticity: Huckel's rule, aromatic characters of arenes, benzenoid, non-benzenoid- aromatic compounds and heterocyclic and polynuclear hydrocarbons with suitable examples. Antiaromaticity and nonaromaticity	
2.	Electrophilic Aromatic Substitution: Halogenation, nitration, sulphonation and Friedel-Craft's alkylation / acylation with their mechanism. Activation /deactivation of aromatic ring and directing effects of groups. Partial rate factor (O/P ratio)	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **3rd Semester**

Name of the Paper: **MM-303 (Organic Chemistry-I)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Chemistry of Halogenated Hydrocarbons		
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid).	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects and effect of solvent. Nucleophilic substitution vs elimination. Haloform reaction.	
3.	Aryl halides: Preparation from diazonium salts. Nucleophilic aromatic Substitution SNAr, Benzyne intermediates.	
4.	Relative reactivity of alkyl, allyl /benzyl, vinyl and aryl halides towards nucleophilic substitution reactions. Organometallic Compounds of Mg and Li - Use in synthesis of organic compounds.	
Unit II: Chemistry of C-O Bond		
1.	Alcohols: Preparation, properties and relative reactivity of 1°, 2°, 3° alcohols. Bouveault Blanc Reduction and Baeyer-Villiger Oxidation Preparation and properties of Glycol: Oxidation by OsO4, alkaline, KMnO4, periodic acid and lead tetracetate. Pinacol Pinacolone rearrangement with mechanism	
2.	Trihydric alcohol: Glycerol: preparation & properties. Phenols: preparation and properties: -acidity- comparison with alcohol. Substitution reaction, Reimer-Tiemann and Kolbe-Schmidt reaction, Fries rearrangement with mechanism.	
3.	Other aromatic Hydroxy compounds: Cresol, nitrophenols, picric acid, benzyl alcohol, dihydric phenols. Ethers and Epoxides:	

	Preparation and reactions with acids.	
Unit III: Carbonyl Compounds: Aldehydes and ketones (aliphatic and aromatic)		
1.	Structure, Preparation and Reactions, Relative reactivity of aldehydes, ketones. Nucleophilic addition reactions.	
2.	Mechanism of Aldol, Benzoin, Stobbe, Darzen glycidic ester condensation, Perkin, Cannizzaro reaction. Beckmann and Benzil-Benzilic acid rearrangement, substitution, oxidation and reduction (Clemmensen, Wolf-Kishner and M P V reduction) Addition reactions of unsaturated carbonyl Compound: Michal addition.	
3.	Unsaturated aldehydes (Acrolein, Crotonaldehyde, Cinnamaldehyde) Unsaturated ketone (MVK).	
Unit III: Carboxylic acid and their derivatives		
1.	Preparation and properties and reactions of, monocarboxylic acids: effect of substituent on acidity, HVZ reaction and Schmidt reaction. Typical reactions and uses of dicarboxylic acids, Hydroxy acids, Unsaturated acids-: Succinic, phthalic, lactic, malic, tartaric, citric, maleic and fumaric acids.	
2.	Preparation and reactions of acid chlorides, anhydrides, esters, amides: Mechanism of acidic and alkaline hydrolysis of esters.	
3.	Claisen Ester Condensation, Dieckmann and Reformatsky Reaction, Hofmann bromamide degradation, Curtius rearrangement.	
Unit III:		
1	Sulphur containing compounds: Preparation and reactions of Thiols, Thioethers and sulphonic acids.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **3rd Semester**

Name of the Paper: **NM-301 (Organic Chemistry-I)**

Units Assigned: **I + II + III**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Aliphatic Hydrocarbons: Alkenes & Alkynes		
1.	Alkenes (upto 5 carbons) Preparation- Elimination reaction- Mechanism of E1, E2, E1cB.	
2.	Dehydration of alcohols and dehydrohalogenation of alkyl halides- Saytzeff's & Hoffmann's rule.	
3.	Reactions: cis-addition (alk. KMnO ₄) and trans addition (bromine). Addition of HX (Markownikoff's and anti-Markownikoff's addition). Hydration, Hydroxylation by Osmium tetroxide, Hydroxylation via epoxidation, Ozonolysis. Oxymercuration-demercuration, hydroboration-oxidation.	
4.	Alkynes (up-to 5 carbons) Preparation: Acetylene from CaC ₂ and conversion into higher alkynes: by dehydrohalogenation of tetra halides, dehydrohalogenation of vicinal-dihalides. Reactions- Formation of metal acetylides, addition of bromine and alkaline KMnO ₄ , ozonolysis and oxidation with hot alk. KMnO ₄ .	
Unit II: Aromatic Hydrocarbons		

1.	Preparation (only benzene) from phenol by decarboxylation, from acetylene, from benzenesulphonic acid.	
2.	Reactions-Electrophilic substitution in benzene- nitration, halogenations, sulphonation, Friedel-Craft alkylation and acylation with mechanism.	
Unit III: Alkyl and Aryl halides		
1.	Alkyl halides- Nucleophilic Substitution Reactions (SN2, SN1, & SNi) Preparation: from alkenes and alcohols	
2.	Reactions:: Hydrolysis, nitrite and nitro formation, nitrile and isonitrile formation. Williamson's Synthesis: elimination vs Substitution	
3.	Aryl halides Preparation (chloro, bromo, iodo benzene only): From phenol, Sandmeyer & Gattermann reaction.	
4	Reactions (chlorobenzene): Aromatic nucleophilic substitution (replacement by -OH) and effect of nitro substituent. Reactivity and relative strength of carbon-halogen bond in alkyl, allyl, benzyl and vinyl and Aryl halide.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **4th Semester**

Name of the Paper: **MM-403 (Organic Chemistry-II)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **6 + 10 + 8 + 6 + 10 + 8**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Keto-enol tautomerism, Preparation and properties of Acetoacetic ester and diethyl malonate.	
2.	Knoevenagel Condensation	
Unit II: Nitrogen containing functional groups		
1.	Effect of substituent and solvent on basicity. Preparation and properties: Gabriel Phthalimide synthesis and Hoffmann bromamide degradation, carbylamine reaction, Mannich Reaction, Hoffmann's Exhaustive methylation, Hoffmann-Elimination Reaction.	
2.	Distinction between 1°, 2° and 3° amines with Hinsberg reagent and nitrous acid. Nitro and nitroso compounds, Nitriles and isonitriles, cyanates and isocyanates: Preparation and important reactions.	
3.	Diazomethane and diazoacetic ester with synthetic application. Diazonium salts: Preparation and their synthetic applications.	
Unit III: Amino acids and proteins		
1.	Amino Acids and their classification, synthesis and Ionic properties, Reactions, Zwitter ions, pKa values, isoelectric point & electrophoresis. Study of peptides: Determination of their primary structure: end group analysis, Principles of peptide synthesis.	
2.	Proteins: Their classification and biological importance. Elementary idea on Primary, Secondary, Tertiary and Quaternary structure of	

	proteins, α - helix and β -pleated sheet structure, tertiary structure of proteins.	
Unit IV: Polynuclear Aromatic Hydrocarbons		
1.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbons: naphthalene, anthracene and phenanthrene.	
2.	Important derivatives of Naphthalene and Anthracene.	
Unit V: Heterocyclic Compounds		
1.	Classification, Nomenclature and structure. Aromaticity in 5-membered and 6-membered rings containing one heteroatom.	
2.	Synthesis, reactions, properties of furan, pyrrole (Paal-knorr synthesis), thiophene, pyridine (Hantzsch synthesis), quinoline (Skraup synthesis, Knorr quinoline synthesis, Pfitzinger reaction) and isoquinoline (Bischler-Napieralski reaction).	
Unit VI: Heterocyclic Compounds		
1.	Natural occurrence, General structural features, Isolation and their physiological action.	
2.	Hoffmann's Exhaustive Methylation with special reference to coniine, nicotine.	
3.	Emde' modification. Medicinal importance of Nicotine, Hygrine, Quinine, Morphine, Cocaine and Reserpine.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **5thSemester**

Name of the Paper: **MM-505 (Organic Chemistry-III)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **8 + 12 + 10 + 10 + 8**

Class	Topic	Remarks
Unit I: Pericyclic reactions		
1.	Definition. The conservation of orbital symmetry, Woodward-Hofmann Rules, HOMO-LUMO approach.	
2.	Cyclo addition reactions: (2+2) and (2+4) cycloadditions. Diels Alder Reaction, 1,3- dipolar cycloaddition, Sigma tropic rearrangements- Cope and Claisen rearrangement, electrocyclic reactions.	
Unit II: Bio-molecules		
1.	Carbohydrates- Occurrence, classification and biological importance, General properties of glucose and fructose (open and cyclic structure).	
2.	Monosaccharides: Constitution and absolute configuration of glucose and fructose, Epimerization, Mutarotation	
3.	Determination of ring size of glucose. Haworth projections and conformational structures. Ascending and descending in monosaccharides, Interconversions of Aldoses and Ketoses.	
Unit III: Nucleic acids & Enzymes		
1.	Components of Nucleic acids, Nucleosides and Nucleotides. Structure Synthesis and Reactions of Adenine, Guanine, Cytosine, Uracil & Thymine. Polynucleotides: Structure of DNA (Watson –	

	Crick Model) and RNA, Genetic code. Biological roles of DNA and RNA, Replication. Transcription and Translation (elementary idea only)	
2.	Enzymes and their functions as catalyst – Classification- Active site, Specificity, Mechanism of Enzyme action, Co-enzyme, Application of Enzymes.	
Unit IV: Pharmaceutical compounds: Structure and Importance		
1.	Introduction to natural and synthetic medicinal compounds: Azadirachtin (neem), Curcumin(haldi), Vitamin C- their medicinal values, Drug action. Classification, structure, preparation and therapeutic uses of Antipyretics: Paracetamol.	
2.	Analgesic: Aspirin, Ibuprofens (with green synthesis)	
3	Antimalerials: Chloroquine. Antacids: Ranitidine, Antibacterial: povidone –Iodine solutions, Sulphanilamide and other sulphadugs. An elementary treatment of Antibiotics and detailed study of chloramphenicol.	
Unit V: Terpenes		
1.	Occurrence, classification Isoprene Rule. Elucidations of structure and synthesis of Citral, Neral and α -Terpineol).	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **6thSemester**

Name of the Paper: **MM-605 (Organic Chemistry IV)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **10 + 10 + 4 + 8 + 10 + 6**

Class	Topic	Remarks
Unit I: Disconnection approach in organic synthesis		
1.	Elementary idea about disconnection, functional group interchange (FGI), functional group addition (FGA).	
2.	Synthon and synthetic equivalent, simple examples of reaction leading to C-C bond formation (Corey-House, Wittig & aldol condensation)	
3	Retrosynthesis of monofunctionalised compounds.	
Unit II: Spectroscopy		
1.	UV-visible Spectroscopy: Application of Woodward rules for calculation of λ_{max} for the following system: α,β -unsaturated aldehydes, ketones.	
2.	IR Spectroscopy: Application in functional group analysis.	
3.	NMR Spectroscopy: Anisotropic Effects in Alkenes, Alkynes, carbonyl compounds and benzene. Study of simple NMR spectra. Applications of IR, NMR and UV in Structural Identification of Simple Organic Molecules.	
Unit III: Lipids		
1.	Classification of Oils and Fats and their vegetable origin, structure of common fatty acid present. Structure, properties and biological importance of triglycerides and phosphoglycerides.	

2.	Change of flavor of oils, Reversion and Rancidity, Saponification value and Iodine number.	
Unit IV: Dyes		
1.	Classification, elementary idea of color and constitution, Chemistry of Dying. Synthesis and application of- Azo dyes-Methyl Orange and Congo red Triphenyl Methane Dyes-Malachite Green.	
2.	Rosaniline and Crystal Violet. Phthalein Dyes- Phnolphthalein and Fluorescein. Vat Dyes: Alizarin and Indigotin.	
Unit V: Polymers		
1.	Types of polymers- Isotactic, syndiotactic and atactic polymers.	
2.	Preparation and applications of plastics- Thermo-setting (Urea-formaldehyde, Phenol-formaldehyde, polyurethanes and thermo softening (PVC, Polythene) polymer additives.	
3	Synthetic fibers: Rayon, Nylon-6, terylene, Fabrics- natural and synthetic (acrylic, polyamido, polyester).	
4	Rubbers-natural and synthetic: Buna-S, chloroprene and neoprene, vulcanization.	
Unit VI: Green Chemistry		
1	Introduction to the principles of green chemistry – Twelve Principles.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **6thSemester**

Name of the Paper: **NM-601 (Organic Chemistry-II)**

Units Assigned: **I + II + III**

Marks Assigned: **4 + 5 + 7**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Synthesis of ethylacetoacetate (Claisen ester condensation), Diethylmalonate .Synthetic uses of ethylacetoacetate and diethylmalonate. Keto – enol Tautomerism.	
Unit II: Compounds containing more than one functional group		
1.	Hydroxy acid - Lactic and Tartaric acidsDicarboxylic acids- (Oxalic, Malonic, Succinic and Pthalic acid) and Citric acid.	
2.	Acrolein, Crotonaldehyde, Cinnamaldehyde,Acrylic acid, Crotonic acid, Maleic acid and Fumeric acid	
Unit III: Preparation, properties and reaction of the following Organic Compounds		
1.	Aromatic Sulphonic acids- Benzene sulphonic acid, nitro sulphonic acid, amino sulphonic acid, sulphuryl chloride, saccharin, chloramines-T.	
2.	Aromatic nitro compounds- Nitrobenzene, Dinitrobenzene, Nitro toluene, TNT, Reduction of nitro compounds in different conditions.	
3	Heterocyclic compounds- preparation and properties of five and six membered heterocyclic compounds: pyrrole, thiophene, furan, pyridine.	
4	Polynuclear Hydrocarbon : preparation and properties of apNhtalene and anthracene	

LESSON PLAN

(YEAR 2017-18)



DEPARTMENT OF COMMERCE
DIGBOI COLLEGE, DIGBOI

Stream: Commerce (Marketing)**Name of the Faculty: Dr. Deborshee Gogoi**

Course –General

Class/Semester- B. Com 1stSemesterName of the Paper- **Business Law**

Units Assigned- Unit 3 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Negotiable Instrument Act 1881	Unit 3
2.	Meaning & Characteristics	
3.	Detailed discussion on Promissory Note	
4.	Detailed discussion on Bills of Exchange	
5.	Detailed discussion on Cheque, types of crossing, effects of crossing	
6.	Promissory Notes vs. Bills of Exchange vs. Cheque	
7.	Presumptions associated with Negotiable instrument	
8.	Group Discussions	
9.	Tutorial	
1.	Industrial Disputes Act, 1948	Unit 4
2.	Meaning- industry, Industrial Disputes, Workmen, Employer, wages	
3.	Types Disputes, reasons for industrial disputes	
4.	Lockout, valid lockout, prohibition of lockout, penalty	
5.	Strikes, valid strikes, types, prohibition of strikes	
6.	Layoff and retrenchment	
7.	Compensation	

Course – General

Class/Semester- B. Com 2ndSemesterName of the Paper- **Principles of Business Management**

Units Assigned- Unit 1 & 4

Marks Assigned- 18= 18

Class	Topic/ Unit	Remarks
1.	Management- definition, concept, characteristics, benefits	Unit 1
2.	Classical Approach to management- Scientific Management, Administrative Management & Bureaucratic Model	
3.	Neo-Classical Theory of management, Characteristics	
4.	Behavioural Approach and Human Relation Approach	
5.	Modern Theory of Management- Characteristics	
6.	System Approach, Contingency Approach	
7.	Contribution of Henry Fayol towards development of Management thoughts	
8.	Motivation- Meaning, Characteristics	Unit-4
9.	Theories of motivation- Maslow's Need Hierarchy Theory	
10.	McGregor's Theory X & Y	
11.	Herzberg's Hygiene Theory	
12.	Leadership, Concept, qualities of a good leader, Leadership styles	
13.	Managerial Control	
14.	Need for control, steps in controlling	
15.	Methods of Controlling	

Course – Pass Course

Class/Semester- B. Com 3rd Semester

Name of the Paper- **Human Resource Management**

Units Assigned- Unit 2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	HRP- Introduction, Quantitative & Qualitative dimensions	Unit 2
2.	Job analysis – job description and job specification, need, features	
3.	Recruitment – Concept	
4.	Recruitment- Need and Importance	
5.	Sources of Recruitment- Internal and External	
6.	Selection – Concept and process	
7.	Methods of selection	
8.	test and interview	
9.	placement and induction	

Course – Honours

Class/Semester- B. Com 3rd Semester

Name of the Paper- **Principles of Marketing**

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Introduction: Nature and scope of marketing	Unit 1
2.	Marketing Concepts	
3.	Marketing vs Selling	
4.	Marketing Environment	
5.	Marketing Research	
6.	Importance of Marketing	
7.	Online Marketing	
8.	Case studies	
9.	Product- Introduction and Characteristics	Unit 3
10.	Types of Products- Consumer, shopping and speciality	
11.	Product Mix	
12.	Packaging, Branding and labeling	
13.	New Product Development	
14.	Marketing strategies with regard to NPD	
15.	Price- Importance	
16.	Factors influencing pricing decisions	
17.	Objectives of Pricing	
18.	Methods of Pricing	

Course – General

Class/Semester- B. Com 4th Semester

Name of the Paper- **Indian Banking System (IBS)**

Units Assigned- Unit 1 and 4

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Banking- Meaning & Definition, Role of banking in Indian economy	Unit 1
2.	Development of Banking sectors in India	
3.	India's Foreign Trade in global context.	
4.	Infrastructure Support for Export Promotion: Export Promotion Councils; Commodity boards/ product export development authorities;	Unit 4
5.	Specific service institutions;	
6.	State trading organizations;	
7.	Export and Trading Houses.;	
8.	Export Processing Zones/Special Economic Zone (EPZ/SEZ);	
9.	Export Oriented units (EOUs).	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Consumer Behaviour**

Units Assigned- Unit 3

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Socio-Cultural Factors of Consumer Behaviour	Unit 3
2.	Socio-Cultural Factors of Consumer Behaviour	
3.	Buyers' Black Box	
4.	Role of Culture in Consumer Behaviour	
5.	Role of Sub-Culture in Consumer Behaviour	
6.	Role of Social Class in Consumer Behaviour	
7.	Reference groups and their role in consumer behaviour	
8.	Family and its role in consumer behaviour	
9.	Role of rules and status in consumer behaviour	
10.	Revision and doubt clearing	
11.	Discussion of important questions and answers	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Service Marketing**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Nature & Types of services	Unit 1
2.	Difference between Services and goods marketing	
3.	Service Marketing Triangle	
4.	Service Marketing- Origin & Growth	
5.	Classification of Services	
6.	Macro & Micro Environments for Service Marketing	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Company Law**

Units Assigned- Unit 3 & 4

Marks Assigned- 20+20= 40

Class	Topic/ Unit	Remarks
1.	Company Meetings:Types	Unit 3
2.	Requisites of a valid meeting	
3.	AGM, Legal provisions associated with holding of AGM, business transacted	
4.	EGM, Legal provisions associated with holding of EGM, business transacted	
5.	Statutory Meeting	
6.	Board Meeting, legal provisions associated with holding of Board meeting	
7.	Company Management – Board of Directors	Unit 4
8.	Directors- Appointment, qualification, disqualification, removal, duties	
9.	Managing Directors- Appointment, qualification, disqualification, removal	
10.	Winding up- modes of winding up	
11.	Effects of winding up	
12.	Powers and duties of liquidators	

Course – Non-Honours

Class/Semester- B. Com 5th Semester

Name of the Paper- **Principles of Marketing**

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Introduction: Nature and scope of marketing	Unit 1
2.	Marketing Concepts	
3.	Marketing vs Selling	
4.	Marketing Environment	
5.	Marketing Research	
6.	Importance of Marketing	
7.	Online Marketing	
8.	Case studies	
9.	Product- Introduction and Characteristics	Unit 3
10.	Types of Products- Consumer, shopping and speciality	
11.	Product Mix	
12.	Packaging, Branding and labeling	
13.	New Product Development	
14.	Marketing strategies with regard to NPD	
15.	Price- Importance	
16.	Factors influencing pricing decisions	
17.	Objectives of Pricing	
18.	Methods of Pricing	

Course –Honours

Class/Semester- B. Com 5th Semester

Name of the Paper- **Retail Management**

Units Assigned- Unit 1 and Unit 2

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Retailing Concept	Unit 1
2.	Indian Retailing Overview	
3.	Nature and Scope of Retailing	
4.	Significance of Retailing	
5.	Reasons for growth of retailing	
6.	Emerging trends in retailing	
7.	Emerging trends in retailing	
8.	Concept and overview of e-tailing	
9.	Logistic issues	Unit 3
10.	Inventory Management	
11.	Warehousing	
12.	Transportation	
13.	Store Location	
14.	Revision and doubt clearing	

Course – SEC

Class/Semester- B. Com 4th Semester

Name of the Paper- **Retail Management**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Store based retailing: Meaning, Characteristics, Merits, Demerits	Unit 3
2.	Non-Store based retailing: Meaning, Characteristics, Merits, Demerits	
3.	Vertical Marketing System	
4.	Vertical Marketing System	
5.	Retailing Life Cycle	
6.	Retailing Life Cycle	

Course –NON-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- **Rural Marketing**

Units Assigned- Unit 1, 2, 3 and 4

Marks Assigned- 20+20+20+20=80

Class	Topic/ Unit	Remarks
1.	Indian Rural Market Overview	Unit 1
2.	Rural Marketing Meaning and Significance	
3.	Nature and Scope of Rural Marketing	
4.	Evolution of Rural Marketing	
5.	Dynamics in rural marketing	
6.	Dynamics in rural marketing	
7.	Revision and doubt clearing	
8.	Group Discussion	
9.	Class Assignment	
10.	Class Assignment	
11.	Rural Marketing Environment	Unit 2
12.	Rural Marketing Environment	
13.	Rural Marketing Environment	
14.	Influence of geographical factors on marketing operations	
15.	Influence of geographical factors on marketing operations	
16.	Influence of economic factors on marketing operations	
17.	Influence of economic factors on marketing operations	
18.	Influence of socio-cultural factors on marketing operations	
19.	Influence of socio-cultural factors on marketing operations	
20.	Influence of other factors on marketing operations	
21.	Market Segmentation	Unit 3
22.	Rural Market Segmentation	
23.	Pre-requisites of effective segmentation	
24.	Pre-requisites of effective segmentation	
25.	Approaches to rural segmentation	
26.	Approaches to rural segmentation	
27.	Influence of market segmentation in rural marketing	
28.	Influence of market segmentation in rural marketing	
29.	Case studies	
30.	Doubt clearing and revision	
31.	Rural Marketing Strategies	Unit 4
32.	Product Planning for rural marketing	
33.	Product features for rural marketing	
34.	Distribution channels	
35.	Pricing issues in rural marketing	
36.	Logistics issues in rural marketing	
37.	Doubt clearing and revision	

Course –Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Advertising Management**

Units Assigned- Unit 1 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Advertising Planning	Unit 1
2.	Decision Making in Advertising	
3.	Development of advertising programme	
4.	Market Segmentation	
5.	Selection of Advertising Media	
6.	Types of advertising media	
7.	Relative advantages of advertising media	
8.	Relative disadvantages of advertising media	
9.	Doubt Clearing and Revision	
10.	Doubt Clearing and Revision	
11.	Advertising Agency	Unit 4
12.	Role of advertising agency	
13.	Services provided by advertising agency	
14.	Types of advertising agency	
15.	Selection of advertising agency	
16.	Relationship with clients	
17.	Doubt clearing and revision	
18.	Ad-made show	
19.	Ad-made show	
20.	Ad-made show	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Basics of Academic Project Preparation**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Introduction to Research:	Unit 1
2.	Types of research projects	
3.	Fact, concept and theories;	
4.	Planning the research project-essential ingredients of planning;	
5.	Developing research questions.	
6.	Research Design-Components.	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Small Business Management**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Small Business – Micro and small enterprise – concept, definition, characteristics and rationale.	Unit 1
2.	Relationship between large and small enterprise.	
3.	Different types of micro and small enterprise and their distinctive characteristics.	
4.	Role of small business – a brief global perspective with special reference to Indian economy.	
5.	Features of Micro, small and medium enterprise Act 2006, governing the promotion and management of Micro and small enterprise in India.	
6.	Industrial policies of the Central and state Govt. governing the promotion and management of Micro and small enterprise in N. E. India with special reference to Assam	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **International Business**

Units Assigned- Unit 1 and 4

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	India's Foreign Trade- An Introduction	Unit 1
2.	Trends and Developments; Commodity composition and direction;	
3.	India's Foreign Trade in global context.	
4.	Infrastructure Support for Export Promotion: Export Promotion Councils; Commodity boards/ product export development authorities;	Unit 4
5.	Specific service institutions;	
6.	State trading organizations;	
7.	Export and Trading Houses.;	
8.	Export Processing Zones/Special Economic Zone (EPZ/SEZ);	
9.	Export Oriented units (EOUs).	

Stream: Commerce (Accounting & Finance)**Name of the Faculty: Pradip Chandra Das**

Course-No: 203

Class/ 2th Semester (H)

Name of the Paper: Corporate Accounting.

Units Assigned: II & III

Mark Assigned=40

Class	Topic/Units	Remarks
1.	Define current Assets,	
2	What is mean by Non-current Assets?	
3	What is meant by Current Liabilities?	
4	State the accounting treatment of preliminary expenses.	
5	Treatment of proposed dividend in Company final Account.	
6	Corporate dividend Tax, Interim Dividend	
7	State the statutory provisions relating to operations and presentation of Balance sheet of a listed Company under Company under Companies Act, 2013.	
8	State the statutory provisions relating to preparation and presentation of statement of profit and Loss of a listed Companies Act, 2013	
9	Meaning of Amalgamation, Absorption and Reconstruction	
10	Objectives of Amalgamation	
11	Types of Amalgamation.	
12	Concepts and accounting treatment as per Accounting Standard:14 (ICAI)	
13	Accounting entries of Transferor/vendor Company	
14	Accounting entries of Transferee/ purchasing Company	
15	Calculation of Purchase considerations.	
16	Intrinsic value Method, Net worth (or Net assets) method	
17	Net payment method & share Exchange Method	
18	Practical question solved (Transferee Company)	
19	Practical question solved (Transferor Company)	
20	Meaning of Internal Reconstruction	
21	Internal Reconstruction of Company (Scope)	
22	Accounting treatment of internal reconstruction	
23	Alteration of share capital	
24	Increase/decrease share capital,	
25	Procedure of capital Reduction.	

26	Reduction of share capital under section 100 to 105.	
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Course-No: 404

Class/4th Semester (H)

Name of the Paper: Security Analysis & Portfolio Management.

Units Assigned: I

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Definition of investment and an overview of the investment process	
2	various investment opportunities/alternatives investment.	
3	Differentiating between investors, gamblers, and speculators	
4	Variation of fixed , variable and convertible securities	
5	Measurement of Risk factor	
6	Assessment of risk and evaluation of return i.e. risk and return factor.	
7	various funding sources used by the investment	
8	Explain a variety of methods to demonstrate the process of funding measurement through time.	
9	Measurement of the time factor and determination of the capital interest rate	
10	Systematic and unsystematic Risk.	
11	Fundamental Analysis.	
12	Technical Analysis	
13	Market efficiency in various forms.	
14	Practically invested by the investor in financial instruments like the stock market and the Tata Digital fund. Life SBI. Birla sun life and Bajaj Alliance etc.	

Course-No.401

Class/ 4th Semester (H)

Name of the Paper: Cost Accounting.

Units Assigned: III

Marks Assigned: 20

<u>Class</u>	<u>Topic</u>	<u>Remarks</u>
<u>1</u>	Meaning Overhead cost. Fixed overhead cost , Semi-fixed overhead cost and variable overhead cost.	
<u>2</u>	Definition of overhead cost, objects and Importance of overhead cost.	
<u>3</u>	Classification of overhead cost	
<u>4</u>	The various bases for apportionment of overheads to cost centres.	
<u>5</u>	Overhead absorption:	
<u>6</u>	Various methods of absorption of the factory Overheads Techniques to control administrative overhead	
<u>7</u>	Selling and distribution overheads	
<u>8</u>	Examples of over absorption & under absorption	
<u>9</u>	Reasons of under or over absorption heads.	
<u>10</u>	Practical problem with solution of production Unit Method	

<u>12</u>	Practical problem with solution of Hourly Rate Methods	
<u>13</u>	Practical of Machine hour rate method solved.	

Course-No: 403

Class/4th Semester (H)

Name of the Paper: Auditing

Units Assigned: II

Marks Assigned: 20

Class	Topic/Units	Remarks
1	What is Audit procedure?	
2	Meaning of Routine Cheeking. Object of routine checking.	
3	Function of routine checking.	
4	Advantages and disadvantages of routine checking.	
5	.Scope of routine checking	
6	Test checking is necessary for auditor	
7	Importance of test checking,	
8	Auditing Techniques (Vouching, verification, valuation, confirmation and analysing)	
9	Object of vouching	
10	Verification and valuation of Assets.	
11	Verification of liabilities	
12	Types of evidence for audit procedure.	

Course No: 603

Class/6th Semester (H)

Name of the Paper: Indian Financial System

Units Assigned: II

Class	Topic/Units	Remarks
1	What do you mean by Banking Institution?	
2	What is Banking institution? , define CoOmmercial Bank.	
3	Present structure of commercial Bank (Scheduled of commercial Bank.)	
4	Role or Function of commercial bank.	
5	Sources and application of funds.	
6	Meaning of Rural banking. Objectives of Rural Banking	
7	Importance of rural banking.	
8	NABARD an Indian agricultural bank.	
9	NABARD's function in the agricultural industry.	
10	RBI is chief or Central bank. Object of central bank.	
11	Need of a Central Bank or Reserve Bank of India	
12	Functions of RBI	
13	Monetary policy of Reserve bank of India.	
14	Object of Reserve bank of India.	

Course-No: 602

Class/6th Semester (H)

Name of the Paper: Financial Statement Analysis

Units Assigned: 20

Class	Topic/Units	Remarks
1	Concept of Corporate Social Responsibility.	
2	Famous Quotes about Responsibility	
3	Object of Corporate Social Responsibility.	
4	Four dimension of Corporate Social Responsibility	
5	Political & Religious Beliefs on CSR.	
6	Benefits of CSR	
7	Business impact on CSR	
8	Driving forces behind CSR	
9	TYPES OF CSR	
10	Triple bottom line of CSR.	
11	Reporting of Corporate Social Responsibility.	
12	Impact on society of Corporate Social Responsibility	
13	Reporting of Corporate Governance	
14	Quality of Good Governance	
15	Object of Good Governance.	
16	Status of corporate Reporting in India.	
17	Object of Corporate Social Responsibility.	
18	Reporting of Corporate Social Responsibility.	
19	Impact on society of Corporate Social Responsibility	

Course-No 601

Class/ 6th Semester

Name of the Paper: Income Tax

Units Assigned: I, II, III, IV & V

Marks Assigned: 80

Class	Topic/Units	Remarks
1	Basic concepts of Income Tax,	
2	History of Income Tax	
3	Meaning of Income tax, objectives of Income Tax	
4	Scope of Income Tax, Advantages of Income Tax	
5	Heads of income Tax under section 14	
6	Agricultural income section 2(1A)	
7	Liable to pay tax, Persons under income Tax Act	
8	Assessee in person, Deemed Assessee , Assessee in default,	
9	Assessment Year, Previous year	

10	Total income, Gross total income	
11	Meaning of residential status and Tax liability	
12	Classification according to the residential status ; Resident and non-resident	
13	Determination of Residential status of an Assessee.	
14	Different taxable entities from the point of view of residence	
15	Determination of Basic condition and additional condition	
16	Meaning of person of Indian origin	
17	Resident and ordinarily resident.	
18	Residential status of Hindu Undivided Family.	
19	Determination of Tax Liabilities on the basis of residence.	
20	Meaning of tax liability of different types of Incomes.	
21	Exempted Income under section-10	
22	Tax Holiday for industrial Units in Trade Zones,	
23	Tax holiday for newly established units in Special Economic Zones,	
24	Tax holiday for 100% export oriented undertakings	
25	Meaning of salary, Tax free salary, surrenders salary.	
26	Computation of income from salaries, component of salaries	
27	Profits in lieu of salary	
28	Gratuity: gratuity received from Govt./Local Authorities.	
29	Gratuity received under payment of gratuity Act.	
30	Different types of salary, Advance, arrear leave salary etc.	
31	Calculation of pension, annuity, leave encashment	
32	Allowances to employees i.e. Fully exempted allowance, partly exempted allowance and fully taxable allowance.	
33	Meaning of perquisites, perquisites in respect of motor cars	
34	Perquisites taxable for all employees.	
35	Rent free house: furnished and unfurnished accommodation.	
36	Provident funds facilities for employees	
37	Deduction from salary. Deduction u/s 80c	
38	Meaning of house property. Essential conditions	
39	Income not taxable UNDER THE HEAD Income from House property.	
40	Meaning of Annual value, Gross annual value.	
41	Determination of the gross annual value of a let out property.	
42	Deduction from annual value.	
43	Computation of Income from House Property for different categories of properties	
44	Recovery of unrealised rent. Inadmissible deductions	
45	Treatment of income from Co-own property.	
46	Deemed ownership, Exempted	

	Property income	
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Course-No 103

Class/ 1st Semester (General & speciality)

Name of the Paper: Financial Accounting.

Units Assigned: IV & Tally

Marks=20

Class	Topic/Units	Remarks
1	Introduction to Branch	
2	Objective of Branch Accounting	
3	Types of Branches	
4	Concept of dependent branches,	
5	Accounting aspects.	
6	Goods-in-transit, Cash-in Transit/Remittance in transit, inter branch transfer, Normal loss, Abnormal Loss.	
7	Journal Entries in the Books of Head Office Under Debtors or Synthetic system	
8	Missing figure relating to petty cash/branch stock.	
9	Stock & Debtors system.	
10	Branch final Account System	
11	Whole sale basis system.	
12	Independent branches	
13	Concept Accounting treatment	
14	Important adjustment entries	
15	Preparation of consolidated profit and loss account and balance sheet.	
16	Objectives of sending Goods to branches at invoice price/ selling price	
17	Problem solving from question paper	
18	Final examination question paper 2011, 2012, 2013	
19	Final examination question paper: 2014, 2015, 2016	

Course-No: 301

Class/3rd Semester (H)

Name of the Paper: Advance Financial Accounting

Units Assigned: II

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Meaning of insurance, objectives of insurance	
2	Definition of insurance, element of insurance contract	
3	Meaning of various insurance terms	
4	Insurance regulatory and Development Authority	
5	Types of insurance: life insurance, General insurance.	
6	Books maintained under life Insurance business.	
7	Ascertainment of profit in life insurance business.	

8	Preparation of Revenue Account(Policyholders Account: Non-technical)	
9	Explanation of items in the Revenue Account that's Claims, Surrender value.	
10	Bonus in reduction of premium	
11	Premium, Consideration for annuities granted.	
12	Re-insurance /Commission on Re-insurance Accepted/Ceded	
13	Preparation of Profit and loss Account (Shareholders Account: non technical)	
14	Preparation of Balance sheet of life insurance company.	

Course-No:302

Class/3rd Semester (H)

Name of the Paper: Financial Management

Units Assigned: II, III

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Meaning of investment decision techniques.	
2	Capital budgeting is a predetermine cost.	
3	Method of capital budgeting i.e. traditional & Modern	
4	Cost of capital and its measurement	
5	Meaning of leverage	
6	Types of leverage	
7	Determination of Financial leverage	
8	Combined leverage and optimal leverage	
9	Capital structure	
10	Practical problem with solution (Pay back period method)	
11	Net present value method (Solved Practical problem)	
12	Meaning of working capital, definition of working capital	
13	Objectives of working capital	
14	Concept , need and influencing factors of working capital	
15	Estimation of working capital	
16	Sources of Working Capital.	
17	Types of working capital	
18	Advantages and disadvantages of working capital	

Course-No 504

Class/5th Semester (H)

Name of the Paper: Direct Tax-I.

Units Assigned: I, II, III , IV & V

Marks Assigned:

Class	Topic/Units	Remarks
1	Concepts of income tax	
2	An overview of income tax law in india	
3	Basic concepts: Income, Agricultural income,	
4	Person and Assessee	
5	Assessment year, Previous year, Gross total income.	
6	Total income, Maximum marginal rate of tax.	
7	Revised Gross total income and total income PAN(Permanent Account Number)	
8	Residential status: Assessment year, Nationality, Physical Presence.	
9	Testing the fulfilment of Basic conditions and additional conditions.	
10	Scope of total income	
11	Income exempted under section 10	
12	Income from salary: Meaning of Salary, Gross Salary.	
13	Basic Salary, Gross Salary and Net Salary.	
14	Profits in Lieu of Salary, Gratuity.	
15	Pension, Annuity	
16	Leave Encashment Sec 10 (10AA)	
17	Allowances to employees: Fully Exempted Allowances, Partly Exempted Allowances Fully Taxable Allowances.	
18	HRA: Allowances.	
19	Perquisites: Example of perquisites.	
20	Perquisites Exempted from Tax.	
21	Perquisites Taxable for All Employees.	
22	Rent free House: Furnished and Unfurnished Accommodation.	
23	Entertainment Allowances.	
24	Valuation of perquisites in respect of Motor Car.	
25	Deduction on account of Professional Tax Paid.	
26	Standard deduction Section -16(ia).	
27	Income From house property.	

28	Introduction to House Property, Essential Conditions of House Property.	
29	Types of Income from house property not chargeable to Tax.	
30	Meaning of Annual Value.	
31	Gross Annual Value	
32	Determination net Annual Value.	
33	Treatment of Unrealised rent.	
34	Interest on loan taken or money borrowed for the property.	
35	Interest for preconstruction periods.	
36	For House property Self occupied for Residential Purposes	
37	Direct tax authorities	
38	Duties and responsibilities of Director	
39	Powers of Directors, Income tax officer, inspector.	
40	Functions of various authorities	
41	Appellate tribunals	

Stream: Commerce (Accounting & Finance)

Name of the Faculty: Dr. Sampreeti Boruah

Class/Semester-B.com 1st semester

Name of the Paper-Financial Accounting

Units Assigned- I& IV

Marks Assigned- 40

Class	Topics	Remarks
1.	Issue of syllabus and Meaning and scope of accounting	
2.	Basic accounting concept and conventions	
3.	Accounting standard-concepts	
4.	Users of financial accounting information and their needs. Qualitative characteristics of accounting information, functions	
5.	Advantages and limitations of accounting. Branches of accounting. Bases of accounting; cash basis and accrual basis.	
6.	Financial accounting standards: IFRS, IndAS	
7.	Accounting standard	
8	Accounting Process and Revision	
9.	Royalty meaning, minimum rent, short working, excess	
10.	Recoupment of short working	
11	Practical problems of royalty accounts	
12	Practical problems of royalty accounts	
13	Practical problems of royalty accounts	
14	Practical problems of royalty accounts	
15	Sub lease- meaning, practical problem	
16	Practical problems of royalty accounts sub lease	
17	Practical problems of royalty accounts	
18	Revision & previous year question paper solving	
19	previous year question paper solving	
20	Class test	

Name of the Paper- Corporate Accounting
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 2nd Semester
 Units Assigned- I
 MarksAssigned- 20

Class	Topics	Remarks
1.	Introduction to course, accounting for share capital	
2.	Company meaning definition, share, debenture	
3.	Share, share capital – types, issue of share	
4.	Accounting for issue of share, journal entries	
5.	Problems related with issue of share, pro rata allotment	
6.	Share forfeiture, and reissue of share	
7.	Practicing problems of Share forfeiture, and reissue of share	
8.	Practicing problems of Share forfeiture, and reissue of share	
9.	Book building, process, bonus share-meaning, benefits, right share	
10.	Practical of bonus share	
11.	Buy back of share,	
12.	Practical of buy back of shares	
13.	Practicing problems	
14.	Practicing problems	
15.	Debenture – meaning, type, accounting entries	
16.	Practicing problems of issue and redemption of debenture	
17.	Redemption of debentures sinking fund method	
18.	Practicing problems	
19.	Practicing problems	
20.	Practicing problems of previous year papers	
21.	Revision.	

Name of the Paper-Advance Financial Accounting

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 3rdSemester

Units Assigned- I & IV

MarksAssigned- 40

Class	Topics	Remarks
1.	Definition and meaning of banking, terms related to banking	
2.	Books to be maintained; classification of Advances, provisioning of advances	
3.	Slip system of banking, advantages and disadvantages, e-banking	
4.	Problems of provisioning	
5.	Discount on bills discounted, rebate on bill discounted	
6.	Preparation of profit and loss account of banking	
7.	Problems of profit and loss account of banking	
8.	Problems of profit and loss account of banking	
9.	Preparation of balance sheet of banking.	
10.	Problems of profit and loss account of banking.	
11.	Problems of profit and loss account and balance sheet of banking	
12.	Problems of profit and loss account of banking	
13.	Revision and test	
14.	Test	
15.	Investment accounting-meaning, advantages and disadvantages, features	
16.	Cum interest and ex interest–meaning and problem	
17.	Cum dividend and ex dividend–meaning and problem	
18.	Problems of investment accounting	
19.	Problems of investment accounting	
20.	Problems of investment accounting	
21.	Problems of investment accounting	

Name of the Paper- Financial Management
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 3rd Semester
 Units Assigned- II & IV
 Marks Assigned- 40

Class	Topics	Remarks
1.	Financial Management-overview	
2.	Dividend policy-Residual Approach,	
3.	Modigliani & miller theory	
4.	Practical problems related with MM model	
5.	Walter Model and Practical	
6.	Gordon's Model	
7.	Factors affecting dividend decision	
8.	Types of dividend and forms	
9.	Optimal payout ratio	
10.	Revision of models and class test	
11.	Retained Earnings-meaning, advantages & disadvantages	
12.	Working capital- meaning, importance	
13.	Concept of working capital- balance sheet concept	
14.	Operating cycle concept- practical	
15.	Need of working capital, types	
16.	Factors influencing working capital	
17.	Sources of working capital	
18.	Estimation of working capital	
19.	Practical problems	
20.	Practical problems	
21.	Practical problems	
22.	Practical problems	
23.	Revision and discussion.	
24.	Student presentation	
25.	Class test	

Name of the Paper- Cost Accounting

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 4th Semester

Units Assigned- I & III

MarksAssigned-40

Class	Topics	Remarks
1.	Cost accounting- meaning, definition, nature, scope	
2.	Cost, costing advantages, disadvantages, differences	
3.	Cost concepts, cost classification,	
4.	Cost concepts, cost classification	
5.	Costing system, installation	
6.	Method of costing, techniques, cost standard	
7.	Preparation of cost sheet	
8.	Preparation of cost sheet	
9.	Preparation of cost sheet	
10.	Revision and Test	
11.	Overhead–meaning, definition, importance	
12.	Classification of overhead cost	
13.	Codification of overheads, allocation and apportionment of overhead	
14.	Reapportionment of overhead	
15.	Problems of apportionment and reapportionment	
16.	Problems of apportionment and reapportionment	
17.	Absorption of overhead	
18.	Absorption of overhead-problems	
19.	Activity based costing	
20.	Problems of absorption of overhead	
21.	Revision, Practicing previous year question paper	
22.	Class test	

Name of the Paper - SAPM

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 4th Semester

Units Assigned- II, III & IV

MarksAssigned- 60

Class	Topics	Remarks
1.	Overview of the syllabus, meaning of security analysis, portfolio management, investment, risk, return	
2.	Portfolio management, types, traditional portfolio management	
3.	Modern portfolio management, Markowitz model	
4.	Diversification, methods, needs	
5.	Markowitz efficient frontier	
6.	Sharpe's single index model, combination of different securities	
7.	Practical problems of combining two securities	
8.	Practical problems of combining three securities	
9.	Markowitz model revision and criticism	
10.	Revision and class test	
11.	Capital asset pricing model- assumption, practical	
12.	Characteristics line- security marker line, capital market line	
13.	Arbitrage pricing model- assumptions, practical	
14.	Factor model- one factor, multiple factor	
15.	Revision	
16.	Portfolio performance evaluation- methods, style comparison, benchmark	
17.	Performance evaluation models- practical	
18.	Performance evaluation models- practical	
19.	Component of performance evaluation	
20.	Revision of models	
21.	Viva- voce	
22.	Students presentation	
23.	Class test	

Name of the Paper- Management Accounting
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 5th Semester
 Units Assigned- I, II, III & IV
 MarksAssigned-80

Class	Topics	Remarks
1.	Management Accounting-meaning, definition, nature, scope	
2.	Objectives or role of management Accounting	
3.	Functions of Management Accounting,	
4.	Tools and techniques of management accounting	
5.	Distinction among financial, cost and management accounting	
6.	Role of management accountant and installation of management accounting system	
7.	Revision and group discussion	
8.	Class test	
9.	Absorption costing-meaning, advantages and disadvantages	
10.	Marginal costing–meaning, needs, advantages & disadvantages, difference between absorption and marginal costing.	
11.	Ascertainment of profit under marginal system	
12.	Breakevenanalysis,cost-volumeprofitanalysis,contribution,marginofsafety	
13.	Problems of marginal costing	
14.	Problems of marginal costing	
15.	Problems of marginal costing	
16.	Previous year question paper	
17.	Application of marginal costing-fixation of selling price, make or buy decision	
18.	Change of product mix,	
19.	Doubt clearing sessions	
20.	Budgeting- meaning, budgetary control, objectives	
21.	Types of budget, fixed budget – practical	
22.	Flexible budget- practical	
23.	Practical problem	
24.	Functional budget – practical	
25.	Practical problem	
26.	Practical problem	
27.	Practical problem	
28.	Zero base budgeting	
29.	Responsibility accounting	
30.	Performance budgeting	

31	Revision and test	
32	cash flow statement – meaning, objectives,	
33	Fund from various activities, Performa	
34	Practical problems	
35	Practical problems	
36	Practical problems	
37	Practical problems	
38	Fund flow statement – meaning, objectives, difference between cash flow and fund flow	
39	Sources and application of fund, Performa	
40	Practical problems	
41	Practical problems	
42	Practical problems	
43	Practical problems	
44	Viva and presentation	
45	Revision and test	

Name of the Paper- Direct Tax 2

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 6th Semester

Units Assigned- I, II, III, & IV

Marks Assigned- 80

Class	Topics	Remarks
1.	Tax introduction, heads/source of income, gross total income	
2.	Income from business or profession –Introduction, definition Basis of charge sec.28	
3.	Allowable expenses From sec.30 to 35. Including block of assets	
4.	Allowable expenses from 36 to 37. Provisions relating to depreciation, additional Depreciation	
5.	Deductions under sec.40	
6.	Special provision for computing income on estimated basis under sections.44 AD and 45AE	
7.	Computation of income from business.	
8.	Problem related to Profits and Gains to Business Income	
9.	Problem related to Profits and Gains to Business Income	
10.	Problem related to Profits and Gains from Professional income of Medical Practitioner.	
11.	Problem related to Profits and Gains from Professional income of lawyer	
12.	Problem related to Profits and Gains from Professional income	

	of Chartered Accountant.	
13	Previous year question paper solved	
14	Practical problems	
15.	Revision and test	
16.	Capital gain-definition, basis of charge, capital assets	
17.	Period of holding, transfer, transaction not regarded as transfer sec.46 & 47	
18.	Computation of capital gain both long term and short term, indexed cost of acquisition And improvement	
19.	Problems of capital gain, capital gain exempt from tax	
20.	Exemptions in respect of certain capital gain u/s 10 & 54	
21.	Problems related to Capital Gain.	
22.	Income from other sources-definition, specific incomes and other income.	
23	Problems related within come from other source and discussion.	
24	Carry forward and set off of losses definitions and provisions of inter-source set off	
25	Provision for Inter-head set off and problems.	
26	Practical problem	
27	Practical problem	
28	Unabsorbed depreciation	
29	Unabsorbed depreciation	
30	Tax planning, tax avoidance, tax evasion	
31	Difference between Tax planning, tax avoidance, tax evasion	
32	Tax planning for salaries assesses	
33	Tax planning for corporate assesses	
34	Revision and doubt clearing	
35	Previous year question paper discussion	
36	ITR filing	
37	Evaluation	

Name of the Paper- Financial Statement Analysis

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 6th Semester

Units Assigned-I & III

Marks Assigned- 40

Class	Topics	Remarks
1.	Financial statement- meaning, types, users, advantages.	
2.	Financial statement analysis- meaning, significance, limitation	
3.	Methods of financial statement analysis	
4.	Comparative statement- profit & loss- practical	
5.	Comparative balance sheet- meaning- practical	
6.	Practical problem	
7.	Common size profit and loss account	
8.	Common size balance sheet	
9.	Practical problem	
10.	Practical problem	
11.	Practical problem	
12.	Trend analysis	
13.	Value added statement	
14.	Economic value-added statement	
15.	Revision	
16.	Financial reporting- meaning, importance	
17.	Purpose of financial reporting	
18.	Corporate social responsibility- meaning, applicability, provisions	
19.	CSR disclosures and provision	
20.	CSR activities, Funding and use of unspent money	
21.	Corporate governance- meaning, importance	
22.	Corporate governance in India	
23.	Corporate governance models	
24.	Previous year question paper discussion	
25.	Student presentation	
26.	Student presentation	

Name of the Paper- Indian Financial System
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 6th Semester
 Units Assigned- III & IV
 Marks Assigned- 40

Class	Topics	Remarks
1.	Financial system- meaning, Indian financial system	
2.	Component of Indian financial system	
3.	Financial market- meaning, types	
4.	Money market- meaning, features, Indian money market,	
5.	Instruments of money market	
6.	Capital market- meaning, features,	
7.	Functions of capital market	
8.	Types of capital market- new issue market	
9.	Secondary market- stock exchange, functions	
10.	Role of stock exchange	
11.	Merchant banking- meaning, functions,	
12.	Underwriters	
13.	Marketable and nonmarketable securities	
14.	Revision and discussion	
15.	Security Exchange Board of India- meaning, organization, objectives	
16.	Functions of SEBI	
17.	Mutual fund- meaning, nature	
18.	Types of mutual fund schemes	
19.	Role of mutual fund in India	
20.	Revision	
21.	Seminar presentation	
22.	Seminar presentation	
23.	Viva- voce	
24.	Class test and discussion	

Course Plan
2017 (JULY - DEC)
1st Semester
Economics Major
Paper: ECO1:01: Microeconomics – I

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Approaches to Economics	M M Gogoi
12	Unit 2: Theory of Consumer Behaviour	M M Gogoi
12	Unit III: Analysis of Consumer's Demand	M M Gogoi
10	Unit IV: Theory of Production	Subhashish Gogoi
12	Unit V: Theory of Cost	Subhashish Gogoi

2017 (JAN - JUNE)
2nd Semester
Economics Major
PAPER 2.01 (MACROECONOMICS)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: National Income Accounting	M M Gogoi
10	Unit 2: Theories of Aggregate Income and Employment	M M Gogoi
11	Unit III: Theories of Consumption Function and Investment Spending	Pummy Singha
10	Unit IV: Rate of interest and IS-LM Analysis	Pummy Singha
10	Unit V: Exploring the Macroeconomics of an Open Economy	Pummy Singha

2017 (JULY - DEC)3rd Semester

Economics Major

PAPER 3.01(MICROECONOMICS-II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Pricing in Product markets	Dr. M.Sharma
8	Unit 2: Pricing with Market Power	Dr. M.Sharma
10	Unit III: Monopolistic Competition and Introduction to Oligopoly	Dr. M.Sharma
12	Unit IV: Theory of Factor Pricing	Subhashish Gogoi
11	Unit V: General Equilibrium and Economic Efficiency	Subhashish Gogoi

2017 (JULY - DEC)3rd Semester

Economics Major

PAPER 3.02 (STATISTICAL METHODS IN ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Measures of Central Tendency and Dispersion	Subhashish Gogoi
8	Unit 2: Elementary Probability Theory	Subhashish Gogoi
10	Unit III: Sampling	MM Gogoi
12	Unit IV: Correlation and simple regression	MM Gogoi
8	Unit V: Index Numbers	MM Gogoi

2017 (JAN - JUNE)4th Semester

Economics Major

PAPER 4.01 (MATHEMATICS FOR ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Sets and Set Operations	Pummy Shingha
11	Unit 2: Elements of Matrix Algebra and Input- Output Analysis	Pummy Shingha
8	Unit III: Differential Calculus and its Economic Applications	Pummy Shingha
10	Unit IV: Integral Calculus and its Economic Applications	Subhashish Gogoi
9	Unit V: Differential and Difference Equations	Subhashish Gogoi

2017 (JAN - JUNE)4th Semester

Economics Major

PAPER 4.02 (PUBLIC ECONOMICS – THEORETICAL ISSUES)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Role and significance of Public Finance	Dr. M Sharma
10	Unit 2: Public Revenue: Sources of Public Revenue,	Dr. M Sharma
8	Unit III: Public Expenditure	Dr. M Sharma
8	Unit IV: Public Debt: Role and Purpose	Subhashish Gogoi
5	Unit V: Public Enterprises	Subhashish Gogoi

2017 (JULY - DEC)5th Semester

Economics Major

PAPER 5.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – I)

No of Class	Unit No and Title	Name of the teachers
5	Unit 1: Development: Meaning and Measurement	Dr. M Sharma
11	Unit 2: Obstacles to Development	Dr. M Sharma
7	Unit III: Poverty, Inequality and Unemployment	Dr. M Sharma
10	Unit IV: Theories of Economic Growth	Dr. M Sharma
9	Unit V: Development Theories: Theories of Persistence of Underdevelopment	Dr. M Sharma

2017 (JULY- DEC)5th Semester

Economics Major

PAPER 5.02 (PUBLIC ECONOMICS: POLICY ISSUES)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Structure, Pattern and Policies of Taxation in Developing Economies	Dr. M Sharma
9	Unit 2: Trend and Pattern of Public expenditure in India	Dr. M Sharma
7	Unit III: Budget System and Policy	Dr. M Sharma
5	Unit IV: Fiscal Policy: Its role and objectives	Diksha Mahanta
8	Unit V: Fiscal Federalism: Principles of Allocation of Resources	Diksha Mahanta

2017 (JULY - DEC)5th Semester

Economics Major

PAPER 5.03 (HISTORY OF ECONOMIC THOUGHT)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Pre-Classical and Classical Economic Thought	Dikhsha Mahanta
8	Unit 2: Reaction against Classicism	Dikhsha Mahanta
9	Unit III: The Reconstruction of Economic Science	Dikhsha Mahanta
10	Unit IV: Keynesian Economic Thought	Dikhsha Mahanta
11	Unit V: Indian Economic Thought	Dikhsha Mahanta

2017 (JULY - DEC)5th Semester

Economics Major

PAPER 5.04 (MONETARY THEORIES AND FINANCIAL MARKETS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Theories of demand for and supply of money	M M Gogoi
8	Unit 2: Inflation and Deflation	M M Gogoi
9	Unit III: Business Cycle: Meaning, types and phases	M M Gogoi
7	Unit IV: Banking: Scheduled commercial banks	M M Gogoi
6	Unit V: Financial Markets	M M Gogoi

2017 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Planning: Concept and Justification	Pummy Singha
10	Unit 2: Role of Agriculture in Economic Development	AN Chakraborty
8	Unit III: Role of Industries in the Development Process	AN Chakraborty
11	Unit IV: India in the Global Economy:	AN Chakraborty
7	Unit V: Economic Problems of North-East India	Pummy Singha

2017 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.02 (ENVIRONMENTAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Basic Concepts: Ecology, Environment and Economy	AN Chakraborty
12	Unit 2: Market Failure: Concept and Common Sources of Market Failure	Pummy Singha
11	Unit III: Solution to the Environmental problems	Pummy Singha
10	Unit IV: Sustainable development	AN Chakraborty
8	Unit V: Global and Local Environmental Concerns	AN Chakraborty

2017 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.03 (INTERNATIONAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: International Economics and Trade Theories	AN Chakraborty
8	Unit 2: Terms of Trade and Gains From Trade	AN Chakraborty
9	Unit III: International Trade Policy:	MM Gogoi
10	Unit IV: Foreign Exchange Markets and Exchange Rates	MM Gogoi
7	Unit V: Evolution of International Monetary System:	MM Gogoi

2017 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.04 (ECONOMIC ISSUES OF ASSAM)

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Economic Characteristics of Assam	MM Gogoi
10	Unit 2: Agriculture: Trends and Pattern of Production	MM Gogoi
9	Unit III: Industry: Problems and prospects of Industrial development of Assam	AN Chakraborty
7	Unit IV: Infrastructure: Economic Infrastructure of the State	AN Chakraborty
10	Unit V: Economic Problems of Assam	AN Chakraborty

Course Plan
2017 (JULY - DEC)

1st Semester

Economics Non-Major

PAPER 1.01 (MICROECONOMIC THEORY)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction to Microeconomics	M M Gogoi
12	Unit 2: Consumer"s behaviour	M M Gogoi
12	Unit III: Producer"s Behaviour	M M Gogoi
9	Unit IV: The Theory of Firm	Dr. M Sharma
9	Unit V: Theories of Distribution	Dr. M Sharma

2017 (JAN - JUNE)

2nd Semester

Economics Non-Major

PAPER 2.01 (MACROECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction to Macroeconomics and National Income Accounting	M M Gogoi
11	Unit 2: Theory of Money: Demand for and supply of money	M M Gogoi
10	Unit III: Theories of Employment and Income	M M Gogoi
8	Unit IV: Banking: Types and role of bank	AN Chakraborty
10	Unit V: International Trade and Balance of Payment Analysis	AN Chakraborty

2017 (JULY - DEC)
3rd Semester
Economics Non-Major
PAPER 3.01 (Public Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Nature and scope of Public Finance	M M Gogoi
8	Unit 2: Public Revenue- Sources, Tax and Non-Tax Revenue	M M Gogoi
12	Unit III: Public Expenditure and Public Debt	Subhashish Gogoi
10	Unit IV: Budget System and Fiscal Policy	Subhashish Gogoi
12	Unit V: Indian Public Finance	Subhashish Gogoi

2017 (JAN - JUNE)
4th Semester
Economics Non-Major
PAPER 4.01 (Issues of Indian Economy)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Major features of Indian economy with special reference to Assam	AN Chakraborty
7	Unit 2: Basic issues in agriculture at national level and in Assam	Pummy Singha
12	Unit III: Industry and tertiary sectors in India	Pummy Singha
7	Unit IV: Industry, trade and commerce in Assam	Pummy Singha
8	Unit V: Economic Planning and Economic Reforms	AN Chakraborty

2017 (JULY - DEC)**5th Semester****Economics Non-Major**

PAPER 5.01 (Elementary Statistics for economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction: Definition of statistics, uses and abuses of statistics	Dr. M Sharma
10	Unit 2: Measurement of central tendency	Dr. M Sharma
10	Unit III: Measures of dispersion	Dr. M Sharma
8	Unit IV: Index numbers	MM Gogoi
6	Unit V: Interpolation	MM Gogoi

2017 (JAN - JUNE)**6th Semester****Economics Non-Major**

PAPER 6.01 (Development Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Growth and Development: Growth	Subhashish Gogoi
7	Unit 2: Theories of Economic Development and Economic Growth	Subhashish Gogoi
8	Unit III: Human Resource Development and Manpower Planning	Subhashish Gogoi
10	Unit IV: Sectoral Analysis of Development:	MM Gogoi
6	Unit V: Economic Development and Planning:	MM Gogoi

**COURSE PLAN
2017-2018**

**DEPARTMENT OF EDUCATION
DIGBOI COLLEGE**

Course plan for 2017-18

Course –General

Class/Semester-III -

Name of the paper- Educational measurement and evaluation-302

Units Assigned-I and IV

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit-I	Remarks
1	Meaning and nature of measurement and evaluation	
2	Scope of measurement & Evaluation	
3	Scope of Evaluation	
4	Importance of measurement in education	
5	Importance of and evaluation	
6	Relation between Measurement and Evaluation	
7	Continuous evaluation	
8	Comprehensive evaluation	
Unit IV	Statistics in education	
1	Meaning, nature and scope of educational statistics	
2	Types of data-group and ungrouped data	
3	Measures of central tendency	
4	Properties, application of Mean	
5	Properties, application of Median	
6	Properties, application of Mode	
7	Measures of variability and its application in Education	
8	Range	
9	Quartile deviation	
10	Standard Deviation	
11	Mean Deviation	
12	Practice	

Course –Honors’

Course –Major

Class/Semester-III -

Name of the paper- Educational measurement and evaluation-302

Units Assigned-I and IV

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit-I	Remarks
1	Meaning and nature of measurement and evaluation	
2	Scope of of measurement & Evaluation	
3	Scope of Evaluation	
4	Importance of measurement in education	
5	Importance of and evaluation	
6	Relation between Measurement and Evaluation	
7	Continuous evaluation	
8	Comprehensive evaluation	
Unit IV	Statistics in education	
1	Meaning, nature and scope of educational statistics	
2	Types of data-group and ungrouped data	
3	Measures of central tendency	
4	Properties, application of Mean	
5	Properties, application of Median	
6	Properties, application of Mode	
7	Measures of variability and its application in Education	
8	Range	
9	Quartile deviation	
10	Standard Deviation	
11	Mean Deviation	
12	Practice	

Class/Semester-III-Major

Name of the paper- Educational psychology -301

Units Assigned -I &II (psychology and education)

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit-I	Remarks
1	Concept of psychology and education	
2	Some important schools of psychology	
3	Behaviorism	
5	Gestaltism	
6	Psychoanalysis	
7	Importance of psychological thinking in education	
8	Educational psychology	
9	Concept and scope	
10	Importance of educational psychology	
11	Functions of educational psychology in classroom teaching	
Unit -II	Developmental psychology	
1	Meaning and nature of development	
2	Physical development in infancy	
3	Mental in infancy	
4	Social in infancy	
5	Emotional in infancy	
6	Physical development in childhood	
7	Mental in childhood	
8	Social in childhood	
	Emotional in childhood	
9	Physical development in adolescence	
10	Mental in adolescence	
11	Social in adolescence	
12	Emotional in adolescence	
13	Home ,school and society as a factor of learning	
14	School as a factor of learning	
15	Role of heredity and environment	

Course plan -

Course –major

Class/Semester-IV

Name of the paper-Great educators and educational thought 402

Units Assigned–II (**Rabindra Nath Tagore**)

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Rabindra Nath Tagore life philosophy	
2	Aim of Education	
3	Curriculum	
5	Role of teacher	
6	Discipline	
7	Santiniketan	
8	Biswa bharoti	
9	Relevance in present education system	
10	Mahatma Gandhi	
11	Gandhi's life philosophy	
12	Aim of Education	
13	Curriculum	
14	Role of teacher	
15	Discipline	
16	Sorbodoi samaj	
17	Basic education	
18	Classless society	
19	Relevance in present education system	

Course plan -

Course –major

Class/Semester-IV

Name of the paper-History of Indian education -401

Units Assigned–**growth and development of education from 1900-1921**

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Lord Curzon's education policy	
2	Indian university commission 1902	
3	Indian University Act	
5	Gokhale's Bill (1910-1912)	
6	Government resolution on education policy 1913	
7	Calcutta university commission, 1917	
8	Govt of India Act 1919	
9	Government resolution on education policy 1913	
10	Gokhale's Bill (1910-1912)	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 4th

Name of the Paper- ELTM401- **DIGITAL ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1	Decimal-Binary conversion	
2	Octal and Hexadecimal number system and their conversion to Decimal	
3	BCD number, compliment Technique, Floating point number	
4	Boolean postulates from basic gates, properties of Boolean algebra,	
5	De morgaris theorems	
6	simplification of compound expressions, sum of product and products of sum form	
7	Minimisation by the use of Karnaugh's map for 2, 3, 4, 5 and 6 variables.	
8	Need of Coding, Weighted codes (BCD), Excess - 3 code	
9	Gray code and conversion. Alpha numeric code- ASCII and EBCDIC	
10	Decimal to binary encoder, octal to binary encoder.	
11	Basic Logic operation, AND, OR, NOT, NAND, NOR, XOR, gates	

12	Universal gates, Truth tables, Bipolar logic families, DTL families	
13	RTL families, TTL families, Schottky TTL	
14	Emitter coupled logic (ECL), NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
15	Emitter coupled logic (ECL), NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
16	NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
17	Combinational and sequential circuits	
18	flip-flops, NAND flip-flop	
19	NAND flip-flop, SR flip-flop	
20	NAND flip-flop, SR flip-flop	
21	Clocked SR flip-flop	
22	D-latch, JK flip-flop	
23	Master-slave flip-flop.	
24	Asynchronous counter	
25	Asynchronous decade counter	
26	Synchronous counters	
27	Up/down counters	
28	Self stopping counter	
29	Sequential counter design procedure and applications	
30	Sequential counter design procedure and applications	
31	Serial in shift registers	

32	Serial in shift registers	
33	Parallel-in shift register	
34	Universal shift register	
35	3-bits CMOS shift register	
36	Half adder	
37	Full adder	
38	parallel binary adder	
39	Half subtractor. Full subtractor	
40	Parallel subtractor, subtraction using full adder	
41	Introduction, RAM, ROM, PROM	
42	Introduction, RAM, ROM, PROM	
43	EPROM, EAPROM,	
44	Secondary memory, floppy, Hard disk, Magnetic storage.	
45	Secondary memory, floppy, Hard disk, Magnetic storage.	
46	Digital to analog converter,	
47	Weighted Register DAC	
48	R-2R ladder DAC	
49	Analog to digital converter, Successive approximation ADC,	
50	Parallel ADC, Dual slope ADC	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM603- **POWER ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Concepts of power diodes and power transistors	
2	Concept of thyristor technology, ratings, symbol, characteristics, turn on methods and turn off methods of thyristors	
3	Concept of thyristor technology, ratings, symbol, characteristics, turn on methods and turn off methods of thyristors	
4	diacs,	
5	SCS, SVS,	
6	SVS, SBS,	
7	LASCR	
8	triacs	
9	MOSFETS	
10	MOSFETS	
11	Internal power dissipation	
12	Internal power dissipation and need for heat sinks for these devices.	
13	Basic structure, principle of operation and VI characteristics of UJT	

14	Explanation of working of UJT as relaxation oscillator and its use in thyristor	
15	Explanation of working of UJT as relaxation oscillator and its use in thyristor	
16	Working principle of converters single phase half wave and full wave	
17	Working principle of converters three phase half wave and full wave	
18	Working principle of converters three phase half wave and full wave	
19	Half controlled, full controlled principle of operation of basic inverter circuit	
20	Half controlled, full controlled principle of operation of basic inverter circuit	
21	Half controlled, full controlled principle of operation of basic inverter circuit	
22	Chopper circuit	
23	Chopper circuit	
24	Principle of working of AC Phase control circuit	
25	Principle of working of AC Phase control circuit	
26	Three terminal voltage regulator ICs (positive, negative and variable applications)	
27	Block diagram of a regulated power supply	
28	Concepts of cv, cc and foldback limiting	
29	Concepts of cv, cc and foldback limiting	
30	Short circuit and overload protection	
31	Major specifications of a regulated power supply and their significance (line and load regulation, output ripple and transients)	

32	Major specifications of a regulated power supply and their significance (line and load regulation, output ripple and transients)	
33	Basic working principles of a switched mode power supply	
34	Concept of floating and grounded power supplied and their interconnections to obtain multiple output supplied.	
35	Concept of floating and grounded power supplied and their interconnections to obtain multiple output supplied.	
36	Brief idea of CVT, UPS and dual tracking power supply.	
37	Brief idea of CVT, UPS and dual tracking power supply.	
38	Principle of operation and working of following switching circuits	
39	Automatic battery charger, Voltage regulator	
40	Emergency light, Time delay relay circuit	
41	Fan speed control, Temperature control	
42	Speed control of DC and small DC motors	
43	SMPS, UPS	
44	Static sensitive electronics Components, EC, (National Electrical Code)	
45	Tagging of wiring or equipment	
46	Equipment hazardous when turned off,	
47	Ground faults, Isolation transformers	
48	Ground blocks and rods, Electrical or chemical fire extinguishers,	
49	Ground blocks and rods, Electrical or chemical fire extinguishers,	
50	Metal chains—ornamentation hazards, Electrical shock, Leaded solder	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 2nd Sem

Name of the Paper- ELTG201- **Network Analysis**

Units Assigned- 2

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1	Poles and Zero's in the complex plane Complex frequency and the s-plane	
2	Poles and Zero's in the complex plane Complex frequency and the s-plane	
3	properties of poles and zeros in the complex plane	
4	properties of poles and zeros in the complex plane	
5	Network functions for one port and two port networks	
6	Network functions for one port and two port networks	
7	poles and zeros of network functions	
8	poles and zeros of network functions	
9	restrictions on locations of poles and zeros	
10	restrictions on locations of poles and zeros	
11	Time domain response from pole and zero plot	
12	Time domain response from pole and zero plot	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 4th Sem

Name of the Paper- ELTG401- **Digital Electronics**

Units Assigned- 3

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1	Combinational and sequential circuits	
2	flip-flops, NAND flip-flop	
3	SR flip-flop. Clocked SR flip-flop, D-latch	
4	JK flip-flop. Master-slave flip-flop	
5	Edge-triggered devices, Application of flip-flops	
6	Monostable and Astable multivibrators.	
7	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 6th Sem

Name of the Paper- ELTG601- **Electromagnetic and wave propagation**

Units Assigned- 1,2

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
2	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
3	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
4	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
5	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
6	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
7	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
8	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
9	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	

10	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
11	Coulomb's law, Gauss's law, applications	
12	concept of electric potential, work & energy in electrostatics	
13	electrostatics field in matter	
14	concept of electric displacement, Lorentz force	
15	bio-savart's law, Ampere's law	
16	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
17	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
18	Faraday's law of electromagnetic induction.	
19	Revision	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 6th Sem

Name of the Paper- RMEG601- **Repairing of Television and Computers**

Units Assigned- 3, 4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
1	Colour TV receivers- Primary colours	
2	mixing of colours, saturation, luminance, luminance signal colour different signals.	
3	Colour picture tube- Different types of tubes	
4	PIL, Trinitron, purity and convergence, degaussing	
5	PIL, Trinitron, purity and convergence, degaussing	
6	PIL, Trinitron, purity and convergence, degaussing	
7	Chroma section of Colour TV, colour signal matrix, RGB matrix.	
8	Chroma section of Colour TV, colour signal matrix, RGB matrix.	
9	Fault finding and rectification of colour TV receivers trouble shooting.	
10	Fault finding and rectification of colour TV receivers trouble shooting.	
11	The Main working functions of LCD TV.	

12	Concepts of Dish TV, Magic box	
13	Computer Software: Different type of computer software,	
14	formatting and installation of software	
15	Computer hardware identification: RAM, CPU,	
16	ROM, hard disc,	
17	SMPS and ICs.	
18	Computer Monitor's working function, Testing procedures.	
19	Computer Monitor's working function, Testing procedures.	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 1st

Name of the Paper- ELTM101- **ELECTRONICS MATERIALS & COMPONENTS**

Units Assigned- Unit- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Classical free electron theory	
2	Electrical and thermal conductivity of metals	
3	Relaxation time and mean free path	
4	Qualitative discussion of the bloch function	

5	Qualitative discussion of the bloch function, Kronig – Penny model	
6	Kronig – Penny model, E – K diagram	
7	Reduced zone representation, Brillouin zone	
8	Concept of effective mass and holes	
9	Brief idea of dielectric materials	
10	Spontaneous polarization	
11	Conductivity of metals	
12	Ohm's law	
13	Relaxation time & Collision time & Mean free path	
14	Electron scattering and resistivity of metals	
15	Heat developed in current carrying conductor	
16	Superconductivity (introduction), Hall effect	
17	Introduction to magnetic material	
18	Origin of dipole moment, Classification of Magnetic Material	
19	Origin of Magnetic moment	
20	Origin of dia, para, ferro and anti ferro magnetism and their comparison	
21	Origin of dia, para, ferro and anti ferro magnetism and their comparison	
22	Ferromagnetic materials	
23	Ferromagnetic materials and Saturation Magnetisation	
24	Saturation Magnetisation, Curie Temperature	
25	Curie Temperature	
26	Conductor, Insulator, Properties of insulator	

27	Insulation resistance, dielectric strength	
28	Dielectric constant, Polarization	
29	Polarization mechanism and total polarization	
30	Ferroelectric Materials	
31	Spontaneous Polarization	
32	Curie – Weiss Law, Classification	
33	Curie – Weiss Law, Classification	
34	Piezoelectricity	
35	Piezoelectricity	
36	Dielectrics in Alternating fields	
37	Dielectrics in Alternating fields	
38	Temperature and Frequency dependence of dielectric constant	
39	Temperature and Frequency dependence of dielectric constant	
40	Revision	
41	Electrical and electronics components, Classification and properties	
42	Resistance, Low resistance, effect of temperature on resistance	
43	Power rating, fixed and variable resistor, colour code, tolerance,	
44	Combination of resistors, varactor and thermistor	
45	Concept of capacitor and capacitance, parallel plate capacitor	
46	Energy store in capacitor, Paper capacitor, electrolytic capacitor, Tantalum and ceramics capacitors	
47	Air capacitor (gang and field type), voltage rating in circuit(CR, LC, LCR), combination of capacitor	
48	Inductance, inductive reactance, self & mutual reactance,	

49	Solenoids, iron core and ferrite core inductors, coefficients of inductors, quality factor	
50	Resonance circuits, couple circuits, variable inductor, combination of inductor	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM501- **ANALOG COMMUNICATION**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Signals and their classification	

2	Fourier analysis of Signals, Fourier Series representation of Signals(Continuous-Time periodic signals)	
3	Fourier Series representation of Signals(Continuous-Time periodic signals)	
4	Convergence of the Fourier series, Properties of continuous-Time Fourier series	
5	Properties of continuous-Time Fourier series	
6	Fourier Transform representation of signals(Aperiodic signals)	
7	Periodic signals, Properties of Continuous-time Fourier transform,)	
8	Periodic signals, Properties of Continuous-time Fourier transform,), Time domain and frequency domain. Sampling theorem.	
9	Time domain and frequency domain. Sampling theorem, Different types of noise	
10	Time domain and frequency domain. Sampling theorem, Different types of noise	
11	TTL and CMOS families and their comparison.	
12	Thermal, Shot Flicker noise, signal to noise ratio	
13	Noise factor, noise temperature, Friss formula	
14	Need of modulation, Amplitude modulation, Expression for AM	
15	Expression for AM and spectrum, modulation index and percentage modulation	
16	Generation of AM, non-linear devices	
17	Basic principle of DSB, SSB, VSB (Vestigial Side Band modulation)	
18	Frequency and Phase modulation	
19	Modulation index and frequency spectrum	

20	Equivalence between FM and PM, Generation of FM (direct and indirect methods).	
21	Linear diode detector	
22	Detection characteristics of diode and its uses	
23	Diode for automatic volume control, square law diode detection	
24	Frequency demodulation, discriminator	
25	Comparison between AM, FM and PM.	
26	Communication channels for AM and FM broadcast	
27	Communication channels for AM and FM broadcast	
28	AM transmitter: Low level and high level modulation, FM transmitter	
29	FM transmitter, Receiver parameters: sensitivity, selectivity and fidelity	
30	FM transmitter, Receiver parameters: sensitivity, selectivity and fidelity	
31	Super Heterodyne Receiver,	
32	Double Conversion Receiver	
33	AM receivers, FM receivers.	
34	Frequency Division Multiplexing.	
35	Radio reception at different frequencies,	
36	Reflected wave, ground wave	
37	Line of sight and through satellite aeri-als-radiation resistance	
38	Power radiated effect of earth.	
39	Picture elements, principle of image transmission	
40	TV camera tubes image orthicon & vidicon	

41	Electron beam scanning, synchronization-horizontal & vertical synchronization pulses	
42	Blanking horizontal & vertical	
43	Telephony, Telegraphy	
44	Radar, block diagram of pulsed & CW radar transmitter & receiver	
45	Radar range equation, power & frequency consideration	
46	e-mail , fax, internet	
47	Mobile communication, basic principle of satellite communication	
48	IMPATT, TRAPAIT diode	
49	BARTTT diodes, basic idea of gun & PIN diodes	
50	Basic idea of travelling wave tubes(TWT)	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 1st

Name of the Paper- ELTG101- **PHYSICS AND SEMICONDUCTOR**

Units Assigned- 2,6

Marks Assigned- 20

Class	Topic/ Unit	Remarks
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1	Inadequacies of classical mechanics, wave particle duality,	
2	Davisson and gramer's experiments, Group and Phase velocities	
3	de-Broglie waves, wave packet.	
4	Revision	
5	Fundamentals of quantum mechanics,	
6	Heisenberg uncertainty principle, concept of wave function, Postulates of quantum mechanics,	
7	Schrodinger equations and application to potential problems (in one dimensional box).	
8	Schrodinger equations and application to potential problems (in one dimensional box).	
9	Tunnel diode, Breakdown diodes,	
10	Transistor types, forward and reverse biased diode,	
11	common base, common emitter and common collector configurations,	
12	common base, common emitter and common collector configurations,	
13	equivalent circuits,	
14	characteristic curves of transistor,	
15	current amplification factors,	
16	working principles of FET,	
17	MQSFET	
18	MQSFET	
19	UJT.	
20	UJT.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned- 1,4

Marks Assigned- 13

Class	Topic/ Unit	Remarks
1	Power supply: The ideal rectifier,	

2	Half-wave rectifier, Full-wave rectifier	
3	Bridge rectifier, voltage doubler, capacitive filter,	
4	L-section filter, pi-section filter,	
5	controlled rectifiers, Electronic regulated power supply	
6	Feedback amplifiers - The feedback concept, feedback network, advantage of negative feedback's	
7	characteristics of negative feedback amplifiers, effect of negative feedback on input and output impedances and on bandwidth	
8	high input impedance transistor circuits,	
9	emitter follower and biasing,	
10	cascade configuration,	
11	Design of RC - coupled cascaded audio amplifiers,	
12	Basic design considerations for preamplifiers.	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 5th

Name of the Paper- ELTG501- **Electronics communication**

Units Assigned- 4

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1	Parameters of radio receiver, regenerative receivers,	

2	tuned radio receiver, super heterodyne receiver,	
3	FM receiver, Telephone receiver Picture elements,	
4	principle of image transmission, TV camera tubes-Image orthicon and Videocon,	
5	Image orthicon and Videocon,	
6	Electron beam scanning synchronization	
7	separation of horizontal and vertical pulses,	
8	TV Bandwidth and channels	
9	TV transmitter, and receiver,	
10	Colour TV,	
11	Colour TV transmitter and receiver	
12	Picture tube.	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –RMEG

Class/Semester- 5th

Name of the Paper- RMEG501- **BASICS OF ELECTRONICS & ELECTRONIC DEVICES**

Units Assigned- 1,2,4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
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1	Electrical and electronics materials and components,	
2	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
3	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
4	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
5	Definition of circuits, series circuits, parallel circuits	
6	Series and parallel circuits	
7	Combination of circuit, Ohm's Law.	
8	Transformers and Power supply: Different type of transformers, Basic rectifier circuits	
9	Half wave, full wave and bridge rectifiers	
10	Half wave, full wave and bridge rectifiers	
11	filter circuits, their uses and applications	
12	Zener diode as regulators	
13	Description of different type of power supply, power supply used in TV and computers,	
14	switch mode power supply (SMPS), Principle of SMPS, types, block diagram of SMPS	
15	switch mode power supply (SMPS), Principle of SMPS, types, block diagram of SMPS	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 2nd

Name of the Paper- ELTM201- **SEMICONDUCTOR & DEVICES**

Units Assigned- Unit- ALL

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1	Energy band in solids (metal, semiconductor and insulators)	
2	Conductors and insulators,	
3	Charge carriers in intrinsic semiconductors	
4	Charge carriers in extrinsic semiconductors	
5	Donor and acceptor impurities	
6	P-type semiconductors	
7	N- type semiconductors	
8	Majority and minority charge carriers	
9	Fermi level in semiconductors	
10	Fermi level in semiconductors	
11	Mobility current density	
12	Conductivity	
13	Revision	
14	PN junction	
15	Space charge region in a semiconductor junction	
16	Potential and field in P-N junction	
17	forward bias	
18	reverse bias	

19	Q-point and load line of a diode	
20	Q-point and load line of a diode	
21	Reverse breakdown avalanche	
22	Zener diode, breakdown voltage	
23	Special diodes-varactor diode	
24	Tunnel diode, Schottky diode	
25	Schottky diode, LED.	
26	PNP and NPN transistor	
27	Transistor biasing ,	
28	Transistor circuit configuration(CB, CE, CC)	
29	Transistor circuit configuration(CB, CE, CC)	
30	Transistor circuit configuration(CB, CE, CC)	
31	Relation between α and β	
32	Leakage current, thermal runaway	
33	Static characteristics (CB & CE).Emitter follower	
34	Field effect transistor, JFET	
35	MOSFET, types of MOSFET	
36	UJT (Construction, working and I-V characteristics of UJT)	
37	Basic construction and Characteristics of Thyristor, Semiconductor Controlled Device(SCR)	
38	Basic construction and Characteristics of Thyristor, Semiconductor Controlled Device(SCR)	
39	Introduction to integrated circuit technology	
40	Monolithic IC technology of substrate preparation,	
41	Monolithic components in Ics (resistor, capacitor)	

42	Inductance simulation in Ics, integrated circuit processing,	
43	Oxidation, diffusion, photo-lithography, epitaxy	
44	Fabrication of semiconductor diode	
45	Fabrication of transistor	
46	MOS transistor fabrication, Moore's Law,	
47	Medium Scale Integration (MSI), Large Scale Integration (LSI)	
48	Very Large Scale Integration (VLSI), Ultra Large Scale Integration (ULSI)	
49	Giant Scale Integration (GSI)	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM601- **ELECTROMAGNETIC, WAVE PROPAGATION & ANTENNA**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Equation of continuity, displacement current	
2	Maxwell equation, scalar and vector potential	
3	Gauss transformations, Poynting theorem,	
4	Conservation of energy and momentum for electromagnetic fields	
5	Maxwell's wave equation, the plane wave	
6	Polarization of electromagnetic waves, linear and circular polarization,	
7	Reflection, refraction and dispersion,	
8	Polarization by reflection and total internal reflection.	
9	Electromagnetic waves in the non-conducting media	
10	Reflection & transmission at oblique incidence, Snell's law, Fresnel's equation	
11	Brewster's angle, electromagnetic waves in conducting media	
12	Skin depth, reflection & transmission at a conducting surface	
13	Basic concept of transmission line, low & high frequency transmission line	
14	Distributed parameters, types of transmission line	
15	Voltage & current relation on radio frequency transmission line	
16	Characteristics impedance, transmission line as circuit element	

17	Voltage & current relation with distance from load end or receiving end	
18	Line terminator, propagation constant	
19	Conditions for distortion less transmission with minimum attenuation	
20	Loss free line, short circuit & open circuit lines	
21	Standing wave ratio, phase factor	
22	Reflection & transmission co-efficient	
23	Transmission Line matching	
24	Maximum power transfer	
25	Smith chart and its application	
26	Introduction to wave guide, rectangular wave guide, solution of wave equation	
27	TE and TM modes	
28	TE and TM modes	
29	Total internal reflection, calculation of wave impedance	
30	Cut-off frequency, phase constant and wavelength	
31	Brief idea about cylindrical wave guide and micro strips	
32	Electromagnetic spectrum	
33	Propagation of radio wave, ground waves	
34	Space waves, reflection of space waves from different layer of ionosphere	
35	Characteristics of various propagation media with referee to LF	
36	Characteristics of various propagation media with referee to HF, VHF	

37	Characteristics of various propagation media with reference to microwave signals.	
38	Basic antenna principles, Wire and Aperture Antennas	
39	The Retarded Potential, Hertzian Dipole	
40	Power radiated, Radiation Resistance,	
41	Antenna Characteristics, Antenna Patterns, Radiation Intensity	
42	Directive Gain, coordinate system, radiation fields	
43	Polarization, isotropic radiator, power gain of microwave antennas	
44	Antenna, folded dipole	
45	Rhombic & yagi antenna & their radiation pattern	
46	Vertical antenna, microwave antennas	
47	Microwave antennas, antenna equivalent	
48	Half-wave Dipole Antenna, Quarter-Wave Monopole Antenna,	
49	Small Loop Antenna, Aperture Antenna	
50	Antenna Arrays, Microstrip Antennas	

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 2nd Sem

Name of the Paper- ELTG201- **Network Analysis**

Units Assigned- 1,3

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Superposition theorem, Milman theorem	
2	Thevenin's theorem, Norton's theorem	
3	Maximum power transfer theorem, Reciprocity theorem	
4	Thevenin's theorem and Norton's theorem	
5	Thevenin's theorem and Norton's theorem in frequency domain	
6	Substitution theorem, Compensation theorem.	
7	Substitution theorem, Compensation theorem.	
8	Two port Networks Short circuit admittance parameters, open circuit impedance parameters	
9	relation between Z- and Y-parameters	
10	Transmission parameters (A, B, C, D,), A B C D parameters in terms of Z- and Y parameters	
11	hybrid parameters, g- parameters	
12	input, impedance in terms of Z, Y-, ABCD- parameters and output impedance in terms of Z, Y, ABCD- parameters	
13	T-section representation, Π -section representation	
14	Image impedances, Symmetrical Networks, Ladder Networks.	
15	Image impedances, Symmetrical Networks, Ladder Networks.	

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 4th Sem

Name of the Paper- ELTG401- **Digital Electronics**

Units Assigned- 1,2,5

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Decimal-Binary conversion, Octal and Hexadecimal number system and their conversion to Decimal, BCD number	
2	compliment Technique, Floating point number	
3	Boolean postulates from basic gates, properties of Boolean algebra	
4	De morgan's theorems, simplification of compound expressions	
5	simplification of compound expressions	
6	sum of product and products of sum form.	
7	sum of product and products of sum form.	
8	Basic Logic operation, AND, OR, NOT, NAND, NOR, XOR, gates.	
9	Universal gales, Truth tables	
10	Bipolar logic families, DTL families, RTL families,	
11	TTL families, Schottky TTL,	
12	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
13	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
14	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
15	Voltage transfer function. Fan-out, Noise-immunity and propagation delay of logic families.	

16	Half adder, full adder, parallel binary adder	
17	Half subtractor. Full subtractor, parallel subtractor	
18	subtraction using full adder, 4-bit adder/subtractor.	
19	Binary multipliers, speed up addition.	
20	Magnitude comparator	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 3rd

Name of the Paper- ELTM301- **ANALOG ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Ideal diode, dc load line analysis, Quiescent (Q) point	
2	Positive, negative and biased clipper circuits	
3	Clamping circuits	
4	Half wave rectifier, calculation of efficiency and ripple factor.	
5	Centre tapped Full wave rectifiers, calculation of efficiency and ripple factor.	
6	Bridge full wave rectifiers, calculation of efficiency and ripple factor.	

7	Block diagram of a power supply, qualitative description of shunt capacitor filter	
8	Zener diode as voltage regulator, temperature coefficient of Zener diode.	
9	Classification of transistor amplifiers, small signal amplifiers	
10	Concept of amplification, current gain, voltage gain	
11	Power gain, input and output resistance, Q-point, load line	
12	Class A, B and C and class AB amplifiers	
13	Class A, B and C and class AB amplifiers	
14	Analysis of transistor amplifiers	
15	Transistor biasing, stabilization	
16	Two – point representation of transistor	
17	AC equivalent circuit using h-parameters	
18	Determination of hparameters	
19	RC coupled amplifiers, impedance coupled	
20	Transistor coupled amplifiers	
21	Noise in amplifiers	
22	Feedback amplifiers	
23	General theory of feedback, positive & negative feedback	
24	Advantages of negative feedback,	
25	Types of negative feedback in transistor amplifier	
26	Current series, voltage series	
27	Current shunt, emitter follower	
28	Biasing, cascaded configuration	

29	Revision	
30	Ideal OPAMP characteristics, Practical OPAMS-off-set current	
31	Practical OPAMS-off-set current & voltage, CMRR	
32	Basic OPAMP application, inverting & non-inverting amplifiers	
33	Input off-set voltages, input bias current	
34	DC amplifier, summing	
35	Differentiation & integration using OPAMPS	
36	Active filters, low-pass,	
37	High – pass & band-pass	
38	Positive feedback in oscillator	
39	General & continuous oscillation	
40	Barkha-usen criterion, types of RC	
41	LC and crystal oscillators	
42	Wein Bridge Oscillator	
43	Phase shift, Hartley oscillator	
44	collpit, Chapp oscillator	
45	VHF & relaxation oscillator, frequency stability, Q- value	
46	VHF & relaxation oscillator, frequency stability, Q- value	
47	Bistable multivibrator, nenostabie multivibrator	
48	Astable multivibrator, high speed multivibrator	
49	Tunnel diodes, emitter coupled multivibrator	
50	Emitter coupled multivibrator {Schmitt trigger)	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep Khound

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM502- **DIGITAL COMMUNICATION**

Units Assigned- UNIT: All

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Sampling theorem, Errors in Sampling	
2	Pulse Amplitude Modulation (PAM)	
3	Pulse Amplitude Modulation (PAM)	
4	Time Division Multiplexing (TDM)	
5	Time Division Multiplexing (TDM)	

6	Pulse Width Modulation (PWM)	
7	Pulse Width Modulation (PWM)	
8	Pulse Position Modulation (PPM)	
9	Pulse Position Modulation (PPM)	
10	Generation and detection of PAM, PWM, PPM	
11	Generation and detection of PAM, PWM, PPM	
12	Generation and detection of PAM, PWM, PPM	
13	Need for digital transmission, Quantizing	
14	Uniform and Non uniform Quantization	
15	Quantization Noise, Compounding	
16	Coding, Digital Formats	
17	Decoding, Regeneration	
18	Transmission noise and Bit Error Rate	
19	Differential Pulse Code Modulation	
20	Differential Pulse Code Modulation	
21	Delta Modulation	
22	Delta Modulation, Quantization noise	
23	Adaptive Delta Modulation	
24	Adaptive Delta Modulation	
25	Time Division Multiplexing (TDM)	
26	Digital transmission	
27	Reception Techniques	
28	Information capacity, Bit Rate	
29	Band Rate and M-ary coding	

30	Amplitude Shift Keying (ASK)	
31	Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK)	
32	Frequency Shift Keying (FSK), Phase Shift Keying (PSK)	
33	Phase Shift Keying (PSK), Binary Phase Shift Keying (BPSK)	
34	Binary Phase Shift Keying (BPSK), Quadrature Phase Shift Keying (QPSK)	
35	Quadrature Phase Shift Keying (QPSK)	
36	Revision	
37	Revision	
38	Concept of Frequency Division Multiple Access (FDMA),	
39	Concept of Frequency Division Multiple Access (FDMA),	
40	Code Division Multiple Access (CDMA).	
41	Code Division Multiple Access (CDMA).	
42	Base band transmission	
43	Base band transmission	
44	Modem principle and architecture	
45	Modem principle and architecture	
46	Mobile Communication	
47	Mobile Communication	
48	Satellite Communication	
49	Optical Communication	
50	Optical Communication.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 1st

Name of the Paper- ELTG101- **PHYSICS AND SEMICONDUCTOR**

Units Assigned-1,4

Marks Assigned- 17

Class	Topic/ Unit	Remarks
1	Coulomb's law, Gauss's law, applications	
2	concept of electric potential, work & energy in electrostatics	
3	electrostatics field in matter	
4	concept of electric displacement, Lorentz force	
5	bio-savart's law, Ampere's law	
6	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
7	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	

8	Faraday's law of electromagnetic induction.	
9	Kirchoff's current &. voltage laws.	
10	Suspension Galvanometer, torque and deflection of the galvanometer, moving coil galvanometer.	
11	Ammeters, voltmeters (AC & DC), ohmmeters.	
12	Thermionic emission, Richardson's equation, Photoelectric emission, secondary emission	
13	high field emission, Space charge, Child-Langmuir law	
14	high field emission, Space charge, Child-Langmuir law	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned- 2,3

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	The ideal rectifier, Half-wave rectifier	
2	Full-wave rectifier, Bridge rectifier	
3	voltage doubler, capacitive filter, L-section filter, pi-section filter	
4	controlled rectifiers, Electronic regulated power supply.	
5	Analysis of transistor amplifiers, Transistor biasing, stabilization	
6	Analysis of transistor amplifiers, Transistor biasing, stabilization	

7	Two-port representation of a transistor, AC equivalent circuit using h-parameters, Determination - of h parameters	
8	Analysis of transistor amplifier using h parameters.	
9	Classification of amplifiers; Distortion in amplifier, amplitude, frequency and phase distortion,	
10	Impedance matching, frequency range of amplifiers	
11	Transistor as an amplifier in CE configuration, load line analysis, operating point, voltage gain	
12	Transistor as an amplifier in CE configuration, load line analysis, operating point, voltage gain	
13	dc and ac equivalent circuits.	
14	R-C coupled amplifiers, Impedance coupled amplifiers, Transformer coupled amplifier	
15	Band pass amplifiers, Video amplifiers, direct coupled amplifiers, Noise in amplifiers	
16	low noise amplifiers. Power amplifiers, efficiency of amplifiers,	
17	class A amplifiers, push-pull class A operation, parallel class A operation, class B audio frequency amplifiers,	
18	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	
19	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	
20	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 5th

Name of the Paper- ELTG501- **Electronics communication**

Units Assigned- 1,2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1	Amplitude modulation, frequency spectrum and power content	
2	generation of AM, SSB and vestigial sideband	
3	Angle modulation, frequency modulation, phase modulation,	
4	FM generation, the transistor reactance modulator	
5	varactor diode FM modulator	
6	pulse modulation	
7	pulse code modulation	
8	Linear diode detector, detection characteristics of diode and its uses	

9	effect of introducing C and R in a diode	
10	diode for automatic volume control	
11	square law diode detection	
12	Frequency demodulation, discriminator, limiter, detector	
13	Frequency demodulation, discriminator, limiter, detector	
14	SSB detection	
15	PCM encoders and decoders	
16	multiplexing	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 4th

Name of the Paper- ELTM402- **NETWORK ANALYSIS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Complex frequency and the s-plane	
2	Complex frequency and the s-plane	
3	Properties of poles and zeros in the complex plane	
4	Properties of poles and zeros in the complex plane	
5	Network functions for one port and two port networks	

6	Network functions for one port and two port networks	
7	Poles and zeros of network functions	
8	Poles and zeros of network functions	
9	Restrictions on locations of poles and zeros	
10	Restrictions on locations of poles and zeros	
11	Time domain response from pole and zero plot.	
12	Time domain response from pole and zero plot.	
13	Revision	
14	Superposition theorem	
15	Milman theorem	
16	Thevenin's theorem	
17	Norton's theorem	
18	Maximum power transfer theorem, Reciprocity theorem	
19	Thevenin's theorem in frequency domain	
20	Thevenin's theorem in frequency domain	
21	Norton's theorem in frequency domain	
22	Norton's theorem in frequency domain	
23	Substitution theorem	
24	Compensation theorem	
25	Revision	
26	Short circuit admittance parameters	
27	open circuit impedance parameters	
28	relation between Z- and Y-parameters	
29	Transmission parameters (A,B,C,D,)	

30	A B C D parameters in terms of Z and Y-parameters	
31	A B C D parameters in terms of Z and Y-parameters	
32	hybrid parameters, g- parameters	
33	input impedance in terms of Z- parameters	
34	Y-, ABCD- parameters; output impedance in terms of Z	
35	Output impedance in terms of Y, ABCD – parameter	
36	T-section representation, pi-section representation	
37	Image impedances. Symmetrical Networks	
38	Ladder Networks, Lattice Networks.	
39	Constant K-type filters(Low pass)	
40	Constant K-type filters(high pass)	
41	Constant K-type filters(band pass, band elimination)	
42	M – derived filters(low pass, high pass)	
43	M – derived filters(low pass, high pass)	
44	M – derived filters(low pass, high pass)	
45	Delay network	
46	Attenuators and attenuating pads	
47	Attenuators and attenuating pads	
48	Revision	
49	Revision	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM602- **MICROPROCESSOR & MICROCONTROLLER**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Introduction to microprocessors and microcomputers	
2.	Machine language, assembly language and high level language	
3.	Microprocessor architecture,	
4.	Types of buses, registers,	
5.	Memory mapping	

6.	Basic idea of INTEL 8085, 8086, 80386, 80486, Pentium processors	
7.	8085 Microprocessor : pin-out diagram	
8.	8085 Microprocessor: classification of the signals,	
9.	Bus timings	
10.	Types of machine cycles and their functioning.	
11.	Types of machine cycles and their functioning.	
12.	Revision	
13.	8085 programming model: Accumulator, register	
14.	flags, instruction classification & programming concepts	
15.	Stack and subroutine (CALL and RET statements)	
16.	Stack and subroutine (CALL and RET statements)	
17.	Delay subroutines, Code conversion	
18.	Delay subroutines, Code conversion	
19.	BCD Arithmetic	
20.	Introduction to transmission format	
21	Introduction to transmission format	
22	modes of data transfer	
23	Interrupts: Maskable and non-maskable interrupts	
24	Interrupts: Maskable and non-maskable interrupts	
25	RST (Restart), vectored interrupts	
26	RST (Restart), vectored interrupts	
27	Instructions (SIM & RIM).	
28	Instructions (SIM & RIM).	

29	Memory: Primary & Secondary Memory	
30	Memory Mapping	
31	Serial and Parallel I/O	
32	Memory Interfacing with 8085	
33	Programmable I/O	
34	DMA	
35	Memory Mapped I/O and I/O	
36	Mapped I/O techniques.	
37	8255-Programmable Peripheral Interface	
38	8253- Programmable interval Timer	
39	8259- Priority Interrupt Controller	
40	8279-Programmable Keyboard/Display Interface	
41	8251- USART	
42	8237/8257- Programmable DMA Controller	
43	8237/8257- Programmable DMA Controller	
44	Revision	
45	Introduction to microcontrollers, advantages of microcontrollers.	
46	8031/8051 Microcontroller	
47	Architecture, register bank,	
48	Flags, special function registers, I/O ports	
49	Timers, serial communication, interrupts	
50	Instruction set. Introduction to 8086 & 6800.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 2nd

Name of the Paper- ELTG201- **NETWORK ANALYSIS**

Units Assigned- 4

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Network Analysis Laplace transformation and theorem	
2.	Transient response of RC, RL and RLC networks	
3.	Laplacian transform method, Laplacian transform of step voltage and a rectangular pulse	
4.	Laplacian transform method, Laplacian transform of step voltage and a rectangular pulse	
5.	Laplacian transforms of either commonly used voltage waveforms	
6.	Determination of network response with Laplacian transform	

7.	Response of networks to a pulse series	
8.	Fouriers transforms of step voltage and rectangular pulse	
9.	Fouriers transforms of step voltage and rectangular pulse	
10.	use of Fourier transforms to describe input waveforms	
11.	use of Fourier transforms to describe input waveforms	
12.	Determination of network response by Fourier transforms	
13.	Determination of network response by Fourier transforms	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 4th

Name of the Paper- ELTG401- **NETWORK ANALYSIS**

Units Assigned- 4, 6

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Asynchronous counter. Asynchronous decade counter	
2.	Synchronous counters	
3.	Up/down counters	
4.	Self stopping counter	
5.	TTL1C counter	
6.	Sequential counter design procedure and applications.	

7.	Serial in shift registers, parallel-in shift register	
8.	Universal shift register	
9.	3-bits CMOS shift register	
10.	Introduction: RAM, ROM, PROM	
11.	EPROM, secondary memory, floppy, Hard disk	
12.	Magnetic storage, programmable logic devices	
13.	Digital to analog converter,	
14.	Weighted Register DAC	
15.	R-2R ladder DAC	
16.	Analog to digital converter, Successive approximation ADC	
17.	Parallel ADC	
18.	Dual slope ADC, IC ADC 0809	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 6th

Name of the Paper- ELTG601- **ELECTROMAGNETIC AND WAVE PROPAGATION**

Units Assigned- 3, 4

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Energy in a magnetic field	
2.	Maxwell's equation and Maxwell's wave equation	
3.	Pointing theorem & poynting vector	
4.	Simple problems.	
5.	The wave equation, the plane wave	
6.	polarization of electromagnetic waves,	
7.	linear and circular polarization	

8.	Reflection, refraction and dispersion	
9.	Polarization by reflection and total internal reflection	
10.	Electromagnetic waves in non-conducting media, reflection and transmission at oblique incidence	
11.	Snell's law, Fresnel's equation, Brewster's angle,	
12.	Electromagnetic waves in conducting media, skin depth	
13.	Reflection,& transmission at a conducting surface	
14.	Dispersion, normal and anomalous dispersion	
15.	Cauchy's equation	
16.	Revision	
17.	Basic antenna principles, Wire and Aperture Antennas	
18.	Dipole, Power radiated, Radiation Resistance	
19.	Antenna Characteristics, Antenna Patterns	
20.	Radiation Intensity, Directive Gain	
21.	Coordinate system, radiation fields, polarization, isotropic radiator.	
22.	Half-wave Dipole Antenna, Quarter-Wave Monopole Antenna	
23.	Small Loop Antenna, Aperture Antenna	
24.	Antenna Arrays, Microstrip Antennas	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – RMEG

Class/Semester- 6th

Name of the Paper- RMEG-601- **REPAIRING OF TELEVISION & COMPUTERS**

Units Assigned- 1, 2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Introduction to Television Principle and Theory - Principle of conversion of picture to electrical signal	
2.	Introduction to Television Principle and Theory - Principle of conversion of picture to electrical signal	
3.	Picture frame, scanning, scanning lines	
4.	Picture frame, scanning, scanning lines	
5.	Field and frame frequency, interlace scanning	

6.	Field and frame frequency, interlace scanning	
7.	B/W TV receivers: description of B/W TV receiver in block diagram form	
8.	B/W TV receivers: description of B/W TV receiver in block diagram form	
9.	Principle of TV signal reception by antenna, receiving antenna, balloon booster, tunners	
10.	Principle of TV signal reception by antenna, receiving antenna, balloon booster, tunners	
11.	Receiver circuits: Functional description of IF amplifiers	
12.	Video detector, video amplifiers, sound trap	
13.	Audio power amplifier, loud speaker	
14.	Deflection circuits: Description of picture tubes	
16.	Magnetic deflection yoke, system brightness	
17.	Magnetic deflection yoke, system brightness	
18.	Contrast, height and width control circuits	
19.	Contrast, height and width control circuits	
20.	Different type of picture tubes	
21.	Fault finding and rectification of B/W TV receivers trouble shooting	
22.	Fault finding and rectification of B/W TV receivers trouble shooting	
23.	Fault finding and rectification of B/W TV receivers trouble shooting	
24.	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 3rd

Name of the Paper- ELTM302- **INSTRUMENTATION, OPTOELECTRONICS & NANOELECTRONICS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Electronic instruments & their characteristics, a generalized instrumentation scheme	
2	Classification of instrumentation error and their statistical behavior	
3	Construction and working principle, equivalent ckt, of a transformer	
4	Types of transformers, efficiency	
5	Audio transformer, auto voltage transformer	
6	Impedance matching, coil winding of ordinary transformer	
7	Measurement of current, voltage power at audio & radio frequencies, Advantages of electronic voltmeters	
8	Vacuum tube voltmeter(diode type only), Measurement of resistance and current with VTVM	
9	Digital voltmeter, Q-meter, wave analyzer	
10	Spectrum analyzer, power factor meter, ohmmeter and multimeter analog & digital.	
11	Basic CRO operation, deflection of charged particles in electronic & magnetic field	
12	Block diagram of CRO, vertical deflection system	

13	CRT : construction & principle of focusing and deflection of electron beam, CRT screens	
14	Delay line, Lissajous figures, synchronization, CRO probes	
15	Trigger circuits, application of CRO in measuring voltage	
16	Application of CRO in measuring frequency & phase, type of CRO, spectrum analyzer.	
17	Definitions, types active & passive, analog & digital, Thermocouple & piezoelectric transducers	
18	Thermistors, LDVT, basic idea of displacement & temperature transducer	
19	Photo sensitive devices, magnetic measurements	
20	Insulation systems, magnetic type recorders	
21	Spontaneous emission, absorption and stimulated emission	
22	Population inversion, Einstein A & B co-efficient	
23	Properties of laser, gain coefficient	
24	Pumping processes, optical resonator	
25	Types of resonator. Laser diode and its applications	
26	LED, photo diode,	
27	Photo multiplier tube semiconductor optoelectronic materials	
28	Phototransistor, optocoupler	
29	Optocoupler, photo-detectors	
30	LCD and CCD.	
31	Optical fiber, principle of fabrication, types of optical fiber	
32	Characteristic parameters, modes, single mode, multi-mode fiber	
33	Transmission through fiber	

34	Advantage of optical communication	
35	Conceptual set up of an optical communication System	
36	Fibre optical wave guide, step index fiber	
37	Concept of graded index, dielectric waveguide	
38	Total internal reflection, fibre splicing	
39	Fibre splicing, low dispersion fibres	
40	Losses in fibres, fiber jointing.	
41	Introduction to nano, Definition of nano particles	
42	Quantum well	
43	Quantum wire,	
44	Characteristics of nano particles	
45	Plastic electronics	
46	Processes for nano electronics	
47	Processes for nano electronics	
48	Nano electronics devices	
49	PCM(Phase change memory)	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM503(A)- **INTRODUCTION TO COMPUTER PROGRAMMING AND**

NUMERICAL ANALYSIS

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Introduction to computer System	
2.	Block diagram of computer (CPU,MAIN Memory, I/O devices)	
3.	Block diagram of computer (CPU,MAIN Memory, I/O devices)	
4.	Concept of machine language	
5.	Concept of machine language	
6.	High level languages	
7.	High level languages	
8.	Compiler,	
9.	Interpreter	
10.	Assembler	
11.	Linker, loader	
12.	Revision	
13.	Introduction to Software	
14.	Need of software, system software	
15.	Types of software, system software, application software	

16.	Programming language	
17.	Machine languages, high level languages	
18.	High level languages	
19.	High level languages	
20.	Introduction to Operating system	
21	Introduction to Operating system and its function	
22	Disk operating system,	
23	Windows OS, Linux OS	
24	Unix OS	
25	Revision	
26	Algorithm, flowchart	
27	Control loops, pseudo code	
28	Modular design of a program	
29	Program development cycle and environment	
30	Level of programming language	
31	Introduction to C, standard data types,	
32	Constant and variables, expressions	
33	Assignment, control statement	
34	Functions and procedures, Parameter passing	
35	Recursion, Sub-range and enumerated data types	
36	Arrays, string, structures, files pointers	
37	Linked, list as example of using pointers	
38	Concept of structured programming-stepwise refinement	
39	Introduction to MATLAB & SIMULINK, Introduction to numerical Methods	

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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 1st

Name of the Paper- ELTG101- **BASIC PHYSICS & SEMICONDUCTOR**

Units Assigned – 3, 5

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Electron spin, Spin and Orbital angular momentum	
2.	Quantization and Larmor's theorem	
3.	Atoms in external magnetic fields:- Zeeman effect (Normal and Anomalous)	
4.	Atoms in external magnetic fields:- Zeeman effect (Normal and Anomalous)	
5.	Pauli's exclusion principle. Atomic Shell Model	
6.	Periodic table. Spin orbit coupling. Fine structure	
7.	Total angular momentum, Vector Model	
8.	L-S and J-J couplings (for 2 valence electrons only)	
9.	Charge carrier in intrinsic and extrinsic semiconductor	
10.	Charge carrier in intrinsic and extrinsic semiconductor	
11.	p-type and n-type semiconductor	
12.	majority and minority carrier Fermi Level in semiconductor	
13	Mobility current density	
14	conductivity	
15	properties of p-n junction	
16	I-V characteristics of p-n junction	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned – 5, 6

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Properties of feedback circuits	
2.	Feedback requirements for oscillator	
3.	Generation of continuous oscillation	
4.	Tuned collector oscillator	
5.	Hartley oscillator	
6.	Colpitts oscillator, phase-shift oscillator	
7.	Wien-Bridge oscillator, crystal oscillator	
8.	VHF oscillators, relaxation oscillators	
9.	Fabrication of monolithic integrated circuits	
10.	Integrated circuit component	
11.	Operational amplifier	
12.	Operational amplifier	
13	Some applications of operational amplifiers	
14	Measurement of operational amplifier parameters	
15	Measurement of operational amplifier parameters	
16	Frequency response of operational amplifiers	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 5th

Name of the Paper- ELTG501 – **ELECTRONICS COMMUNICATION**

Units Assigned – 3, 5

Marks Assigned – 25

Class	Topic/ Unit	Remarks
1.	Ground, space and sky wave propagation	
2.	Propagation through troposphere	
3.	Propagation through ionosphere	
4.	Propagation through space	
5.	Characteristics of various propagation media with reference to LF	
6.	Characteristics of various propagation media with reference to HF	
7.	Characteristics of various propagation media with reference to VHF	
8.	Characteristics of various propagation media with reference to Microwave signals	
9.	Line-of-sight microwave links and communication via satellite	
10.	Line-of-sight microwave links and communication via satellite	
11.	Line-of-sight microwave links and communication via satellite	
12.	Calculation of path Loss and transmitter power required	
13.	Calculation of path Loss and transmitter power required	
14.	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
15.	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
16.	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
17.	Radio aids to navigation-direction finders	

18	Radio aids to navigation-direction finders	
19	Aircraft navigation system	
20	Aircraft navigation system	
21	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –RMEG

Class/Semester- 5th

Name of the Paper- RMEG-501 – **BASICS OF ELECTRONICS & ELECTRONICS DEVICES**

Units Assigned – 3, 5

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Semi conductors: P-type and N-type semi conductors	
2.	Formation of P-N junction and its properties, specifications and uses	
3.	Formation of P-N-P transistor	
4.	Different types of terminal characteristics, field effect transistor (FET)	
5.	Silicon controlled rectifier (SCR)	
6.	Photo diodes, light emitting diode(LED), characteristics	
7.	Amplification principle of IC, study of common ICs used in Radio and TV receiver circuits	
8.	Amplification principle of IC, study of common ICs used in Radio and TV receiver circuits	
9.	Radio receivers: Block diagram presentation of Radio and working principles	
10.	Radio receivers: Block diagram presentation of Radio and working principles	
11.	Modulators: Purpose of modulators and their types (AM & FM)	

12.	Amplitude Modulation : Different types of amplitude modulation.	
13	Amplitude Modulation : Different types of amplitude modulation.	
14	Frequency modulation : Principle of frequency modulation.	
15	Frequency modulation : Principle of frequency modulation.	
16	Antenna: Different types of radio receiving antenna.	
17	Antenna: Different types of radio receiving antenna.	
18	AM Radio receivers: Tunners, RF amplifies	
19	IF amplifiers, detectors	
20	AVC and Audio preamplifier and output amplifiers	
21	FM Radio receivers: Identification and study of different stages.	

COURSE PLAN

2017-18

DEPARTMENT OF ENGLISH

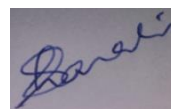
DIGBOI COLLEGE

NAME OF THE TEACHER: MR. PABITRA BHARALI

(Jun-Dec 2017)

Name of the Teacher: **Mr. Pabitra Bharali**
Programs: **Major and General**

Sem	Subject	Course	Units	Marks assigned	No of class per week	No of Projected class
BA1A	GEN.ENG	101	II: Letter V: Transcoding	35	2	20
BA3	MAJOR	301	II: Critical terms and Concepts	30	2	20
BA3	GEN.ENG	301	II: Langston Hughes: Ballad of the Landlord Seamus Heaney: The Wife's Tale Grace Nichols: Wherever I Hang Derek Walcott: The River	25	2	20
BCOM3	ALTE	301	IV: Naipaul:	11	1	10
BA5	MAJOR	502	II: Longinus: On the Sublime	20	2	20
BA5	MAJOR	503	Rousseau: Book I-Citizen	20	2	20
BA5	MAJOR	504	IV: Nissim Ezekiel: Night of the Scorpion K.N. Daruwall:Gulzamon's son A.K.Ramanujan:The last of the Princes Jayanta Mahapatra: Hunger	20	2	20



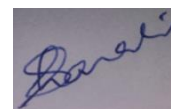
Signature of faculty

(Jan-Jun 2018)

Programs:

Major and General

Sem	Subject	Course	Units	Marks assigned	No of class per week	No of Projected class
BA2	MAJOR	Paper-II	IV: The Twentieth Century(1900-1945) V:The Twentieth Century(1945-2000)	32	2	20
BA2B	GEN.ENG	201	I: The Last Leaf II: Reflections on Gandhi	27	2	20
BA4	MAJOR	paper V	I: Of Studies Sir Roger in London II: The superannuated Man Politics and the English Language	40	2	20
BA4	AltEng	401	Kunti and the Nishadin	15	1	10
BA6	MAJOR	Paper XIII	I: Post-colonialism: concepts II: Colonialist Criticism	40	3	30
BA6	MAJOR	paper XIV	II: Basic Sentence Structures	30	3	30



Signature of faculty

NAME OF THE TEACHER- SANJOY DAS

(June- December 2017)

Course –101

Class/Semester- B.A. 1st Semester

Name of the Paper- General English B.A, B.SC

Units Assigned- Unit – II

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit II- Letter Writing	Introduction
2.	Various types of letter explained	Analysis
3.	Business letters	Analysis
4.	Letters of enquiry , sales letters	Analysis
5.	Contd...	Analysis
6.	Sample letters given	Analysis
7.	Letters of complaint format defined	Analysis
8.	Samples of letters given	Analysis
9.	Letter related to placing or orders	Analysis
10.	Job application defined	Analysis
11.	Some samples of job application given	Analysis
12	Additional samples provided	Analysis
13	Exercises given	Exercises
14	CV writing explained	Explanation
15	Contd...	Explanation
16	Letters to the Editor	Analysis
17	Contd...	Analysis
18	Contd...	Analysis
19	Exercises given	Exercises
20	Exercises given	Exercises
21	Student queries addressed	Discussion
22	Student queries addressed	Discussion

Course: 101, Class- BA 1st semester

Name of the Paper- History of English Society and Culture I (Anglo Saxon to the Restoration)

Units Assigned: Unit V, Marks assigned- 16

Class	Topic/ Unit	Remarks
1.	Unit V – The Restoration	Introduction
2.	Characteristics of the age explained	Appreciation
3.	Differentiation from previous ages shown	Appreciation
4.	Impact on English life and literature discussed	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Restoration poetry interpreted	Appreciation
8.	John Dryden and his literary works discussed	Appreciation
9.	Prose writers discussed	Appreciation
10.	Dryden and Pope as satirists	Appreciation
11.	Contd...	Appreciation
12	Contd...	Appreciation
13	Restoration plays sketched	Appreciation
14	Congreve as playwright	Appreciation
15	Contd...	Appreciation
16	Other playwrights detailed	Appreciation
17	Contd...	Appreciation
18	Students queries addressed	Discussion
19	Contd...	Discussion
20	Contd...	Discussion

(June-Dec, 2017)

Course –English Major, Course: 301

Class/Semester-3rd Semester

Name of the Paper- History of the English language, Critical Terms, and Classical Mythology

Units Assigned-I

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit- History of the English Language- introduction	Introduction
2.	Origin of English language elaborated	Analysis and interpretation
3.	Four types of the history or origin of language analysed	Analysis and interpretation
4.	Contd...	Analysis and interpretation
5.	Contd...	Analysis and interpretation
6.	Middle English language	Analysis and interpretation
7.	Contd...	Analysis and interpretation
8.	Contd...	Analysis and interpretation
9.	Change of meaning in English language	Analysis and interpretation
10.	Contd...	Analysis and interpretation
11.	Contd...	Analysis and interpretation
12.	Growth of vocabulary in language	Analysis and interpretation
13.	Contd...	Analysis and interpretation
14.	Contd...	Analysis and interpretation
15.	Contd...	Analysis and interpretation
16.	Contd...	Analysis and interpretation
17.	Revision	Revision
18.	Revision	Revision

(June-Dec, 2017)

Name of the Teacher- Sanjoy Das

Course –English Major, Course: 501

Class/Semester-5th Semester

Name of the Paper-Reading Drama (Paper VII)

Units Assigned- I & IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit I: Nature of Drama from the Renaissance to the Modern Period	Introduction
2.	Contd...	Appreciation
3.	Becket- Waiting for Godot	Appreciation
4.	Text	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Absurdist ideas explained	Appreciation
10.	As a tragic comedy	Appreciation
11.	Character analysis	Appreciation
12.	Character analysis	Appreciation
13.	Other important themes discussed	Appreciation
14.	Contd...	Appreciation
15.	Contd...	Appreciation
16.	Question of previous year paper discussed	Discussion
17.	Contd...	Discussion
18.	Contd...	Discussion

(Jan-June, 2018)

Course: General English Course 201

Class/Semester: B.A 2nd Semester

Name of the Paper-General English Paper II

Units Assigned-II, Marks assigned – 13.3

Class	Topic/ Unit	Remarks
1.	Unit I: Prose –introduction to the author	Introduction
2.	Orwell- Reflections on Gandhi	Appreciation
3.	Contd...	Appreciation
4.	Contd...	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Discussion	Discussion
8.	Discussion	Discussion
9.	Questions from text interpreted	Interpretation
10.	Questions from text interpreted	Interpretation
11.	Interaction regarding the text	Interaction
12.	Interaction regarding the text	Interaction

Course Plan

Name of the Teacher- Sanjoy Das

Course: 401

Class/Semester: 4th Semester

Name of the Paper: Alternative English

Unit's Assigned-Unit I, Marks assigned- 30

Class	Topic/ Unit	Remarks
1	Unit III- Mahashweta Devi- Kunti and Nishadin	Background to the author
2.	Text continued	Appreciation
3	Contd...	Appreciation
4.	Contd...	Appreciation
5.	Issues of caste discrimination analysed	Appreciation
6.	Issues of feminism discussed	Discussion
7.	Other underlying themes analysed	Analysis and interpretation
8	Character analysis	Analysis and interpretation
9	Character Analysis	Analysis and interpretation

(Jan-June, 2018)

Course: English Major, Course 401

Class/Semester: 4thSemester (English Major)

Name of the Paper- Reading Fiction

Units Assigned- IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit I- The socio-political contexts of the English novel – An overview	Introduction
2.	Contd...	Appreciation
3.	Contd...	
4.	Dickens- A Tale of Two Cities – introduction to the author	Background information
5.	Chapterwise discussion of the text	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Contd...	Appreciation
10.	Important issues discussed	Discussion
11.	Discussed the text as historical novel	Discussion
12.	Socio-cultural aspects discussed	Discussion
13.	Contd...	Discussion

(Jan-June, 2018)

Course: English Major, Course 601

Class/Semester: 6th Semester

Name of the Paper-601

Units Assigned- Unit III

Marks Assigned- 25

Class	Topic/ Unit	Remarks
1.	Unit I- Wordsworth's Preface to Lyrical Ballads Wordsworth as critic discussed	Introduction to the author
2.	Contd...	Introduction
3	Text - Preface to Lyrical Ballads	Appreciation
4.	Analysis of the text	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Important issues discussed	Discussion
10.	Contd...	Discussion
11.	Contd...	Discussion
12.	Queries addressed	Discussion

(Jan-June, 2018)

Name of the Teacher- Sanjoy Das

Course: English Major, Course: 604

Class/Semester- 6th Semester

Name of the Paper- Introduction to Linguistics and Phonetics

Unit's Assigned-I

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit I- Properties of language	Introduction to the unit
2.	Characteristics of human language	Appreciation
3.	Communicative vs. Informative language explained	Appreciation
4.	Language system	Appreciation
5.	Langue and Parole explained	Appreciation
6.	Contd...	Appreciation
7.	Sound and meaning explained	Appreciation
8.	Contd...	Appreciation
9.	Language varieties discussed	Appreciation
10.	Contd...	Appreciation
11.	Contd...	Appreciation

NAME OF THE TEACHER-DR. CHANDANA CHETIA

Jun-Dec 2017

Course –101

Class/Semester- B.A. 1st Semester

Name of the Paper- General English B.A, B.SC

Units Assigned- Unit – I &IV

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Comprehension	
2.	Understand what reading comprehension is	
3.	Know the importance of comprehension	
4.	Learn how to attempt comprehension –based questions	
5.	Exercise on comprehension	
6.	Precis Writing	
7.	What is a Precis	
8.	Uses of a Precis	
9.	How to write a Precis	
10.	Some specimen Precis	
11.	Unit IV : Paragraph Writing	

Course: 301

Name of the Paper: Communication Skills

Units Assigned:Unit I & IV

Marks Assigned:40

Class	Topic/ Unit	Remarks
1.	Unit I: Essay writing	
2.	Preparing an outline	
3.	Structuring & organizing of ideas	
4.	Writing coherently	
5.	Writing around a theme	
6.	Unit: IV: Grammar in Communication	
7.	Using Synonyms	
8.	Using Antonyms	
9.	Using one –word substitute	
10.	Framing sentences(Phrasal verbs, Idiomatic Expressions)	
11.	Word order/ Reordering jumbled sentences to form a coherent paragraph	

Course –English Major,Course: 302

Class/Semester-3rd Semester

Name of the Paper-Reading Poetry

Units Assigned-I & III

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1.	Unit I: Shakespeare's Sonnet- 18, 60, 65	
2.	Sonnet – Its Nature and Growth	
3.	The English Sonnet – A brief Survey	
4.	Shakespeare's Sonnets—A Survey	
5.	Explanation of Sonnet 18	
6.	Contd.	
7.	Explanation of Sonnet 60	
8.	Contd.	
9.	Explanation of Sonnet 65	
10.	Contd.	
11.	Discussion	
12.	Donne: Valediction Forbidding Mourning	
13.	Donne as a Poet	
14.	Explanation of the poem	
15.	Herbert : Collar	
16.	Herbert as a poet	
17.	Explanation of the poem	
18.	Contd.	
19.	Discussion	
20.	Unit III: Wordsworth: Tintern Abbey	
21	The Age of Romanticism and romantic poetry	
22	Wordsworth as a poet	
23	Explanation of the poem	
24	Contd.	
25	Keats's : Ode on A Grecian Urn	
26	Keats as a Poet	
27	Explanation of the poem	

Course –English Major . Course: 501

Class/Semester-5th Semester

Name of the Paper-Reading Drama(Paper VII)

Units Assigned-I & III

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Nature of Drama from the Renaissance to the Modern Period	
2.	Historical background of the age of Renaissance till Modern age	
3.	Background of the English drama	
4.	Discussion	
5.	Unit : III: Pygmalion	
6.	Introduction to G.B Shaw & his Age	
7.	Act wise Explanation of Pygmalion	
8.	Contd.	
9.	Contd.	
10.	After completion of the Acts discussed the Sequel of Pygmalion	
11.	Discussion	
12.	Discussion	
13.	Tutorial	

Course- English Major, Course :504

Class/Semester-5th Semester

Name of the Paper-Paper X: Indian Writing in English

Units Assigned-I & II

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: History of Indian Writing in English	
2.	History & Reception of Indian Writing in English	
3.Unit - II	Unit II: Kanthapura	
4.	Raja Rao as an Indian writer in English	
5.	Chapter wise explanation of the novel	
6.	Contd.	
7.	Contd.	
8.	After Completion of the novel Discussion on the various issues in Kanthapura: Indaianness in Kanthapura	
9.	Myth in Kanthapura	
10.	Gandhian Ideology in Kanthapura	
11.	Condition of the Coolies in Skeffington Coffee House	
12.	Model answers to questions of previous exams dictated	

(Jan-June, 2018)

Course – English Major, Course: 201

Class/Semester- B.Com 2nd Semester

Name of the Paper- Business Communication

Units Assigned-IV

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	Unit IV: Business letters and Memo Formats	
2.	Principles of Business Letters	
3.Unit - II	Sales Letters	
4.	Memos	
5.	Collection Letters	
6.	Complaint & Persuasive Letters	
7.	Request Letters	
8.	Good News & Bad News Letters	
9.	Office Memorandum	

Course : General English Course 201

Class/Semester : B.A 2nd Semester

Name of the Paper-General English Paper II

Units Assigned-I

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit I: Short Stories	
2.	O. Henry : The Last Leaf	
3.	Explanation	
4.	Explanation	
5.	After Completion discussed the Question Answers	
6.	Discussion	
7.	Discussion	
8.	Tutorial	

Course : 401

Class/Semester : 4th Semester

Name of the Paper: Alternative English

Units Assigned-Unit I

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit I: The Old Man and The Sea	
2.	Ernest Hemingway as a Novelist	
3.	Hemingway's Tragic Vision of Man	
4.	The Cuban context of the Old Man & the Sea	
5.	Explanation	
6.	Explanation	
7.	Underlying themes & symbolism in The Old Man & the Sea	
8.	Character Analysis	
9.	Discussion	

Course : English Major, Course 401

Class/Semester : 4th Semester (English Major)

Name of the Paper- Reading Fiction

Units Assigned- IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit IV: Sons & Lovers	
2.	D.H Lawrence & his Age	
3.	A General Estimate of Lawrence as a Novelist	
4.	An Introduction to Sons & Lovers	
5.	Chapter wise discussion of the Novel	
6.	Contd.	
7.	Contd.	
8.	Characters Analysis	
9.	Symbolism	
10.	Oedipus Complex in Sons & Lovers	
11.	Autobiographical Element in the novel	
12.	Discussion	
13.	Tutorial	

Course : English Major, Course 602

Class/Semester:6th Semester

Name of the Paper-602

Units Assigned- Unit III

Marks Assigned- 25

Class	Topic/ Unit	Remarks
1.	Unit III: Desire Under the Elms	
2.	American Drama: An Overview	
3	Eugene O' Neill as a Dramatist	
4.	Desire Under the Elma : Introduction	
5.	Themes of the Play	
6.	Analysis of Part One of the Play	
7.	Part Two Analysis	
8.	Part Three Analysis	
9.	Symbolism	
10.	Characterization	
11.	Discussion	
12.	Discussion	

Course : English Major, Course: 603

Class/Semester2nd Semester

Name of the Paper- Literature in the Postcolonial World

Units Assigned-IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit IV: Disgrace	
2.	Biographical Sketch of J.M Coetzee	
3.	Apartheid in South Africa	
4.	Disgrace: Introduction	
5.	Analysis of the Chapters	
6.	Contd.	
7.	Contd.	
8.	Characterization	
9.	Themes in Disgrace	
10.	Discussion	
11.	Discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2017-18)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-1st Semester (Non-CBCS)

Name of the Paper-Physical Geography

Units Assigned-1 and 3 Pass Course

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Basic concepts in Geomorphology	
2.	Major Landforms of the Earth:Plains : Definations and types	
3.	Major Landforms of the Earth:Plains : Elements	
4.	Major Landforms of the Earth:Plateaus : Definations and types	
5.	Major Landforms of the Earth:Plateaus : Elements	
6.	Major Landforms of the Earth: Mountains : Definations and types	
7.	Major Landforms of the Earth: Mountains : Elements	
8.	Earth's movements concept	
9.	Epeirogenic	
10.	Orogenic	
11.	Earthquakes:Types	
12.	Earthquakes Classification	
13.	Earthquakes, causes	
14.	Volcanoes : Types	
15.	Volcanoes : Causes	
16.	Volcanoes : Classification	
17.	Wegener's continental drift theory	
18.	Introduction to ocean floor	
19.	Salinity of ocean water	
20.	Ocean Current : Atlantic	
21.	Ocean Current : Pacific	
22.	Ocean Current : Indian	
23.	Composition of sea water	
24.	Ocean Deposits	
25.	Ocean Deposits Continue----	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2017-18)

Name of the Teacher-Dr. Sangeeta Boruah Saikia

Course –Honours / Generic – Pass Course

Class/Semester-3rd Semester (Non-CBCS)

Name of the Paper-Climate Change : Human and Population Geography

Units Assigned-1(Theory) and 2 (Practical)

Marks Assigned- 24+16=40

Class	Topic/ Unit	Remarks
1.	Meaning and definition Human Geo	
2.	Nature scope and importance of Human Geo	
3.	Man Environment relationship	
4.	Environment Determinism and environment possibilism	
5.	Way of life in Desert Region	
6.	Way of life Polar Region	
7.	Way of life in Equatorial Region	
8.	Bodo tribe dress and food habit	
9.	Naga tribe dress and food habit	
10.	Khasi tribe dress and food habit	
11.	natural region of the world	
12.	Continue natural region of the world	
13.	Meaning definition of Human races	
14.	Classification of Human races in the world	
15.	Human races in India	
16.	Classification of Human races in the world	
17.	Characteristics of human races	
18.	Bases of Human Race	
19.	Distribution of human races	
20.	Drawing of Climograph	
21.	Drawing of Hythergraph	
22.	Preparation of Line graph	
23.	Preparation of Bar graph	
24.	Weather map interpretation Winter	
25.	Weather map interpretation Summer	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2017-18)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2(Theory) Unit-2 (Practical)

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Classification of Industry	
2.	Iron and Steel Industry	
3.	Locational Factors of Iron and Steel Industry	
4.	Distribution of Iron and Steel Industry	
5.	Ruhr basin steel centres of West Germany	
6.	Iron and Steel Industry in Japan	
7.	Locational Factors of Cotton Textile Industry	
8.	Distribution of Cotton Textile Industry	
9.	Cotton Textile Industry in India	
10.	Cotton Textile Industry in U.K	
11.	Cotton Textile Industry in USA	
12.	Classification of Chemical Industry	
13.	Locational Factors of Chemical Industry	
14.	Chemical Industry in India	
15.	World Distribution of Rice	
16.	Practical-Pie Diagram	
17.	World Distribution of Wheat	
18.	Practical-Bar Diagram	
19.	Tea distribution in the World	
20.	Practical-Histogram	
21.	Tea in India	
22.	Practical-Frequency Curve	
23.	Coffee distribution in the World	
24.	Practical- Population distribution map of N.E. India	
25.	Coffee in Brazil	
26.	Practical-Population distribution map of India	
27.	Cotton Distribution in the World	
28.	Practical- Population Density map of N.E. India	
29.	Jute Distribution in the World	
30.	Practical- Population Density map of India	

31.	Rubber Cultivation in the World	
32.	Practical-Population literacy map of India	
33.	Rubber in S,E, Asia	
34.	Practical-Population literacy map of Assam	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2017-18)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-2nd Semester (Non-CBCS)

Name of the Paper- Physical Geography Part II

Units Assigned- 3 and 4

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Biogeography : Definition	
2.	Biogeography : Scope	
3.	Biogeography : Significance	
4.	World distribution of plant	
5.	Factors affecting world distribution of plants	
6.	Zoo geographical regions of the world	
7.	World Distribution of Animals	
8.	Factors affecting world distribution of animals	
9.	Major floristic regions of the world	
10.	Major floristic regions of the India	
11.	World Distribution of Animals	
12.	Soils: Definition	
13.	Soils: Characteristics	
14.	Soil profile and Horizons	
15.	Soil structure and formation	
16.	Soil texture	
17.	Factors affecting of Soil formation	
18.	Soil forming processes	
19.	Classification of Soil	
20.	Distribution of Soil	
21.	Soil Erosion	
22.	Soil Conservation	
23.	Major soil Types of India	
24.	Major soil Types of Assam	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2017-18)

Name of the Teacher-Dr. Sangeeta Boruah Saikia

Course –Honours / Generic – Pass Course

Class/Semester-4th Semester (Non-CBCS)

Name of the Paper-Regional Geography of India

Units Assigned- 2and 3

Marks Assigned- 24(Theory) 16 (Practical) =40

Class	Topic/ Unit	Remarks
1.	Concept of Heavy Industry Iron and Steel Industry	
2.	Production of Iron and Steel Industry in India	
3.	Distribution of Iron and Steel Industry in India	
4.	Production of Cotton Textile Industry in India	
5.	Distribution of Cotton Textile Industry in India	
6.	Classification of Chemical Industry in India	
7.	Heavy Chemical Industry in India	
8.	Petro- Chemical Industry in India	
9.	Industrial belt in India	
10.	Transport system in India, types of transport	
11.	Communication system in India	
12.	Causes of Population Growth	
13.	Factors of Population Distribution	
14.	Population Growth in India	
15.	Distribution of Population	
16.	Physiography of N.E.India	
17.	Climate of N.E.India	
18.	Soil of N.E.India	
19.	Natural vegetation of N.E.India	
20.	Major Minerals of of N.E.India	
21.	Transport and communication of N.E.India	
22.	Production of Major crops of N.E.India	
23.	Distribution of Major crops of N.E.India	
24.	Basic concept of Survey	
25.	Plain table survey by radiation method	
26.	Plain table survey by intersection method	
27.	Open traverse by Prismatic compass	
28.	Close traverse by Prismatic compass	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2017-18)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World

Units Assigned- Unit 1 (Asia)


Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Physical features of Asia	
2.	Climatic Region of Asia	
3.	Factors affecting the climate of Asia	
4.	Climatic Characteristics of Asia	
5.	Soil of Asia	
6.	Natural Vegetation of Asia	
7.	Tea Cultivation in Asia	
8.	Cultivation of Rice in Asia	
9.	Rubber Plantation in Asia	
10.	Coffee Cultivation in Asia	
11.	Maize Cultivation in Asia	
12.	Sugar cultivation in Asia	
13.	Wheat Cultivation in Asia	
14.	Spatial Distribution of Population in S.E. Asia	
15.	Density of Population in Asia	
16.	Practical-International Boundaries of Neighboring Countries	
17.	Iron and Steel Industry in Asia	
18.	Practical-Mac Mohon line	
19.	Petroleum and Natural Gas in S,E, Asia	
20.	Mineral Resources of Asia	
21.	Practical- Demarcation of Red-Cliff line	
22.	Jute Cultivation of Bangladesh	
23.	Practical-International Boundary of India with Myanmar and Bhutan	
24.	Coal recourses of Asia	
25.	Practical-SAARC Countries	
26.	Cotton Textile Industry in Japan	
27.	Practical-Durand Line	
28.	Fishing Industry in Japan	
29.	Practical-Asia political Map	
30.	Manufacturing industry in Japan	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2017-18)

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Pass Course
Class/Semester- 1st Semester (Non CBCS)
Name of the paper- Physical Geography Part I
Units Assigned- 1,2
Marks Assigned- 40

CLASS	UNITS/TOPICS TAUGHT	REMARKS
1	Geomorphic Processes:Agent	
2	Fluvial Processes	
3	Erosional features	
4	Depositional features	
5	Glacial Processes	
6	Erosional features	
7	Depositional features	
8	Krast Topography	
9	Erosional features	
10	Depositional features	
12	Arid Topography	
13	Erosional features	
14	Depositional features	
15	Normal cycle of Erosion	
16	Definition of Weather and Climate	
17	Elements and factors of Weather and Climate	
18	Horizontal and Vertical distribution of Temperature	
19	Insolation and heat budget	
20	Atmospheric pressure: Global pressure System	
21	Wind belts	
22	Concept of Air masses and fronts	
23	Classifications of Air masses	
24	Classifications of Fronts	
25	Cyclones and Anticyclones	
26	Different between Cyclones and Anticyclones	

DIGBOI COLLEGE, DIGBOI
Course Plan Odd Semester (2017-18)

Name of the Teacher-Mr.Narendra Kr.Das
 Course –Honours / Pass Course
 Class/Semester-3rd Semester (NON-CBCS)
 Name of the Paper- Human and Population Geography
 Units Assigned-II (Theory) and 2(Practical)
 Marks Assigned- 24+16=40

Class	Topic/ Unit	Remarks
1.	World population growth	
2.	Causes of population growth	
3.	World population distribution	
4.	Population growth in India	
5.	Population distribution in India	
6.	Causes of Uneven distribution of population	
7.	Consequences of population growth	
8.	Remedial Measures	
9.	Migration Concept and Pattern	
10.	Causes of Migration	
11.	Consequences of Migration	
12.	Types of Settlement:	
13.	Pattern of Rural Settlement	
14.	Pattern of Urban Settlement	
15.	Concept of towns	
16.	Classification of towns on the basis of its origin	
17.	Functional classification of towns	
18.	Interpretation of Toposheets	
19.	Interpretation of Toposheets	
20.	Interpretation of Toposheets	
21.	Preparation of Transact Chart	
22.	Preparation of Transact Chart	
23.	Preparation of Transact Chart	
24.	Drawing of profiles: Serial	
25.	Drawing of profiles: Serial	
26.	Drawing of profiles	
27.	Superimposed profiles	
28.	Projected profiles	
29.	composite profiles	
30.	Interpretation of Profiles	
31.	Interpretation of Profiles	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2017-18)

Name of the Teacher-Mr.Narendra Kr. Das

Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2


Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Introduction to economic Geography	
2.	Types of economic activities	
3.	Types of economic activities	
4.	Economic activities in the plains of NE India	
5.	Economic activities in the hills of NE India	
6.	Economic activities vs Env. Problems	
7.	Economic activities vs Env. Problems	
8.	Concept of natural resources	
9.	Classification of natural resources	
10.	World Distribution of iron ore	
11.	World Distribution of coal	
12.	Continue	
13.	World Distribution of petroleum	
14.	World Distribution of Gold	
15.	World Distribution of copper	
16.	World Distribution of aluminium	
17.	Hydro-electricity NE India- Problems & Prospects	
18.	Measures of Central tendency	
19.	Mean	
20.	Median	
21.	Mode	
22.	Measures of dispersion	
23.	Measures of dispersion-mean deviation	
24.	Measures of dispersion-standard deviation	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (20217-18)

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Pass Course
Class/Semester- 2nd Semester (Non CBCS)
Name of the paper- Physical Geography -II
Units Assigned- 1,2
Marks Assigned- 40

CLASS	UNITS/TOPIC	REMARKS
1	Concept of Environment	
2	Natural Environment	
3	Human Environment	
4	Man Environment relationship	
5	Emerging Environment issues	
6	Environmental degradation	
7	Causes of Environmental degradation	
8	Environmental pollution	
9	Causes of Environmental pollution	
10	Global Warming Concept	
11	Causes of Global Warming	
12	Climate Change	
13	Causes of Climate Change	
14	Evidences of Climate Change	
15	Consequences of climate change	
16	Meaning and definition of Ecology	
17	Food web and Food Chain	
18	Structure of Ecosystem	
19	Functioning of Ecosystem	
20	Ecology vs Ecosystem	
21	Need of Biodiversity	
22	Conservation of Biodiversity	
23	Concept and importance of sustainable development	
24	Principle and goal of sustainable development	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2017-18)

Name of the Teacher-Mr. Narendra Kr. Das

Course –Honours / Generic – Pass Course

Class/Semester-4th Semester (Non-CBCS)

Name of the Paper-Regional Geography of India

Units Assigned- 1 and 2

Marks Assigned - 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	India: Introduction	
2.	Geological Structure of India	
3.	Physiographical Divisions of India	
4.	Drainage system of India	
5.	Climate of India	
6.	Soil of India	
7.	Natural Vegetation	
8.	Agriculture: Major Crops	
9.	Paddy	
10.	Wheat	
11.	Cotton Textile	
12.	Sugarcane	
13.	Tea	
14.	Major minerals	
15.	Power resources	
16.	Iron ore	
17.	Copper	
18.	Aluminium	
19.	Coalpetroleum	
20.	Natural Gas	
21.	Hydro power	
22.	Projection Concept	
23.	Polar Zenithal Gnomonic Projection	
24.	Polar Zenithal Stereographic Projection	
25.	Polar Zenithal Orthographic Projection	
26.	Conical Projection	
27.	Cylindrical Equal Area Projection	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2017-18)

Name of the Teacher-Mr. Narendra Kr. Das

Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World

Units Assigned- Unit II (Europe)


Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Introduction to Europe: Location, Size, Shape etc.	
2.	Physical Divisions of Europe	
3.	Soils of Europe	
4.	Climate of Europe Summer Conditions	
5.	Climate of Europe Winter Conditions	
6.	Vegetation of Europe	
7.	Minerals of Europe: Iron Ore	
8.	Power Resources of Europe: Coal	
9.	Petroleum Resource of Europe	
10.	Hydro-Electricity of Europe	
11.	Agricultural Resources of Europe: Types of Agriculture in Europe	
12.	Wheat- Production & Distribution	
13.	Maize- Production & Distribution	
14.	Rice- Production & Distribution	
15.	Major Industries of Europe	
16.	Major Industries of Europe	
17.	Distribution of Population in Europe	
18.	Practical-Mac Mohon line	
19.	Map of China: Distribution of Industries	
20.	Map of Petroleum reserves of Middle East	
21.	Map of SAARC Countries	
22.	Population Density Map of South East Asia 2001	
23.	Map of China: Distribution of Industries	
24.	Map of Petroleum reserves of Middle East	
25.	Practical-Asia political Map	

Course Plan for the Session (June- December) 2017

Department of Hindi, Digboi College, Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL Hindi	Unit -II Rachanatmak Lekhan, Unit -III Kavya Khand, Unit -IV-Moukhik Prikshan,	Unit-I Apathit Bodh, Unit -III Gadya Khand & Vitan -1,
H.S.-I-Adv. Hindi	Unit -III Kahani, Unit -IV Nibandh, Unit -V History of Hindi Literature,	Unit -I Old Poetry, Unit -II Modern Poetry,
H.S.-II -MIL Hindi	Unit -II Rachanatmak Lekhan or Jansanchar, Unit -III Gadya Khand & Vitan-2,	Unit -I Apathit Bodh, Unit -III Kavya Khand,
H.S.-II-Adv. Hindi	Unit - I Modern Poetry, Unit - II Bhaskar Varman (Drama)	Unit -III Rani Laxmibai (Novel) Unit -IV Ras, Chhand, Alankar,
Sem.- I MIL Hindi	Unit -I Prachin & Madhya Kavya, Unit -II Aadhunik Kavya,	Unit - III Dhruvaswamini, (Novel) Unit - IV Jivan our Sahitya.
Sem.-I (Elec. Hindi)	Unit -I Gadya Katha Sahitya, Unit- III Naye Ekanki,	Unit- II Pachapan Khambhe Lal Deevaren, Unit- IV Jivan our Sahitya,
Sem.-III (Elec. Hindi)	Unit-I Karyalayee Hindi, Unit-IV Patra Lekhan, Aalekhan & Tippan,	Unit- II Pallavan, Unit- III Anuvad,
Sem.-III MIL (Com.)	Unit -II Vigyapan, Unit -III Karyalayee Hindi,	Unit -I Gadya Katha Sansar, Unit-IV Anuvad,
Sem. V (Elec. Hindi)	Unit-II Bharopiya Parivar, Prachin Bharatiya Arya Bhasha, Unit-III Aadhunik Bhartiya Arya Bhasha,	Unit- I Bhasha our Bhasha Vigyan, Unit- IV Devnagari Lipi, Lipi ka Manak Roop,


 HOD (HINDI) 27.6.17
 DIGBOI COLLEGE, DIGBOI

Course Plan for the Session (January- June) 2018, Department of Hindi, Digboi College Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL Hindi	Unit -II Rachanatmak Lekhan, Unit -III Kavya Khand, Unit -IV-Moukhik Prikshan,	Unit-I Apathit Bodh, Unit -III Gadya Khand & Vitan -1 ,
H.S.-I-Adv. Hindi	Unit -III Kahani Unit -IV-Nibandh, Unit -V History of Hindi Literature,	Unit -I Old Poetry, Unit -II Modern Poetry,
Sem.-II -MIL Hindi	Unit -I Gadya Katha Aalok, Unit -IV Nibandh	Unit -II Kall Aandhi, (Novel) Unit -III Vyakaran our Rachana,
Sem.-II-Elec. Hindi	Unit -I Prachin our Navin Kavya Unit -II Saket (Navam Sarg)	Unit - II Kavyashastra, Unit - IV Alankaar, Chhand,
Sem.- IV MIL Hindi	Unit -I Vyavaharik Hindi, Unit -III Patra Lekhan,	Unit - II Anuvad, Unit - IV Sankshepan,
Sem.-IV (Elec. Hindi)	Unit -III Asamiya Sahitya ka Parichayatmak Itihas Unit- IV Vaishnavyug, Aadhunikyug,	Unit- I Aadikal, Bhaktikal, Ritikal, Aadhunikkal, Unit- II Chhayavad, Prayogvad, Pragativad, Nal Kavita, Upanyas, Kahani, Natak, Ekanki,

P. K. Bharati
HOD (HINDI) 02/01/2018

DIGBOI COLLEGE, DIGBOI

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION: 2017 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER I SUBJECT: HISTORY PAPER: COURSE:I

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1671- 1826	Course contents to be covered
June	19	Theory-	English: Baruah, S.L. –A Comprehensive History of Assam Gait, E.A.- A History of Assam	Soures:Archaeological,Epigraphic,Literary. Numismatic and accounts of the Foreign Travellers.
August	20	Theory-	Assamese: Baruah, Surajit Boruah,Nirode- Asomar Itihas,2 nd edition (revised) Nath,D. –Asam Buranji, Revised and enlarged edition	Political condition Of The Brahmaputra Valley at the Time of Foundation of The Ahom Kingdom. Sukapha – An Assessment.Sudangpha. State Information in the Brhmaputra valley—The chutiya . Kachari and the Koch state.
September	18	Theory-		Expansion of Ahom Kingdom in the 16 th century-Dihingiya Raja, political Devolpments in the 17 th Century –rule of Pratap Singh (1603-1641) Ahom – Mughal wars –treaty of 1639.
October	12	Theory-		Administrative developments and role of Mumai Tamuli barbarua. Assam in the second half of the 17 th century –the Ahom –Mughal wars- Mirjumla;s Assam invasion-causes and consequences. Invasion of Ram Singha –the battle of Saraighat(1671)and its results.

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER III SUBJECT: HISTORY PAPER: COURSE:III

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Europe(1453-1815)	Course contents to be covered
June	19	Theory-	English: Hayes,C.J.H.-A Political and Cultural History of Early Modern Europe; Phukan ,Meenakshi- Rise of the Modern West: Social and Economic History of Early Modern Europe	American war of independence –Political and economic issues and significance. Enlightenment in Europe- its Impact. Enlightened Despotism in Europe – Russia and prussia and Austria.
August	20	Theory-	Assamese: Bhattacharya-Adhunik Paschattyar Utthan	The Industrial Revolution in Europe Causes and Significance. Transition From Feudalism to capitalism .French Revolution .causes course and significance. The Industrial Revolution in Europe Causes and Significance.
September	18	Theory-		Napoleon Bonaparte – internal and external polices-downfall of Napoleon Bonaparte
October	12	Theory-		The Congress of Vienna. Europe in 18 15

DIGBOI COLLEGE
TEACHERS' COURSE PLAN

STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY

NAME OF TEACHER: SRI PARTHA KR NARAH

CLASS: T.D.C. SEMESTER V SUBJECT: HISTORY PAPER: COURSE:V

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics:History of India(1526-1947)	Course contents to be covered
June	19			Political Conditions in Northern India in the beginning of the 16 th century –The Afghan Empire and the Mughals- resistance struggle for hegemony
August	20	Theory-	English: Banerjee,A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)	The Age of the Mughals-foundation of the Mughal Empire –Humayun and his struggle-his conflict with Sher-Shah.
September	18	Theory-	Assamese: Barua, P.K. Hussain, T.A.- Bharat Buranji Goswami, S.D. - Bharat Buranji	The Age of the Mughals-foundation of the Mughal Empire –Humayun and his struggle-his conflict with Sher-Shah.Akbar to Aurangzeb – politicalSupremacy and administrative developments. The later Mughal and the decline and fall of the Mughal Empire.
October	12	Theory-		Rise of the Marathas in Deccan – Sivaji and his career. Society Economy ,religious and culture under the Mughals. Beginning of the European settlements in India-the portugues,the Dutch,the French and the English.British conquest of India ,The Battle Of Plasesy and its effects

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION: 2017 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER I SUBJECT: HISTORY PAPER: COURSE:I

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1671- 1826	Course contents to be covered
June	19	Theory-	English: Baruah, S.L. -A Comprehensive History of Assam Gait, E.A.- A History of Assam	Post-Saraighat Assam ; Ascendancy of the Tungkhungia dynasty-the reign of Gadadhar Singha; Ahom rule at its zenith-the reign of Rudra Singha,
August	20	Theory-	Assamese: Baruah, Surajit Boruah,Nirode- Asomar Itihas,2 nd edition (revised) Nath,D. -Asam Buranji, Revised and enlarged edition	Rajeshwar Singha (1751- 1769); Lakshmi Singha (1769- 1780) : political history;Decline and fall of the Ahom Kingdom- the Moamariya Rebellion;
September	18	Theory-		The Burmese invasions ;The East India company in Assam politics- the Treaty of Yandabo and Assam; Ahom system of administration- the paik system
October	12	Theory-		Ahom policy towards the neighbouring hill tribes; Society in Assam under the Ahoms- caste and class structures; Sankardev and the Neo-Vaishnavite Movement- background and implications

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER III SUBJECT: HISTORY PAPER: COURSE:III

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Europe(1453-1815)	Course contents to be covered
June	19	Theory-	English: Hayes,C.J.H.-A Political and Cultural History of Early Modern Europe; Phukan ,Meenakshi- Rise of the Modern West: Social and Economic History of Early Modern Europe	Renaissance-meaning- backgrounds-impacts; Reformation-origin,courses and consequences; Counter Reformation
August	20	Theory-	Assamese: Bhattacharya-Adhunik Paschattyar Utthan	; The Thirty Years' War- causes and consequences; Colonial Expansion in the 15 th and 16 th centuries- causes , extent and implications; Absolute Monarchy in Europe-Spain
September	18	Theory-		Absolute Monarchy in Europe- France ,England and Russia
October	12	Theory-		The Glorious Revolution- background and results; The Scientific Revolution in the 16 th -17 th centuries- extent, nature and results Mercantilism and European Economy 17 th and 18 th centuries

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2017 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER V SUBJECT: HISTORY PAPER: COURSE:V

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics:History of India(1526-1947)	Course contents to be covered
June	19	Theory-	English: Banerjee,A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)	Expansion and consolidation of the British rule in India upto 1857- Conflict with the Marathas, Mysore, Awadh, Punjab and Sindh;
August	20	Theory-	Assamese: Barua, P.K. Hussain, T.A.- Bharat Buranji Goswami, S.D. - Bharat Buranji	Administrative developments and socio- economic reform upto 1857;Revolt of 1857 and its aftermath; Post 1858 administrative developments till 1919; Socio-religious reform movements in the post 1857 period; Growth of press and rise of national consciousness
September	18	Theory-		Freedom struggle upto 1919- Partition of Bengal and the Swadeshi Movement, Home Rule League; Rise of Muslim of Muslim Politics; Freedom Struggle from 1919 to 1939- Gandhi in politics- Khilafat and Non- Cooperation Movement- Civil Disobedience Movement; Government of India Act, 1935;
October	12	Theory-		Rise of Communalism, revolutionary terrorism, trade unionism and Leftist politics; Cripps Mission- Quit India Movement- Second World War- INA; Post- War Development- Cabinet Mission , Transfer of power

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH.
CLASS: T.D.C. SEMESTER II SUBJECT: HISTORY PAPER: COURSE:II

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1826- 1947	Course contents to be covered
January	18	Theory		Growth of National consciousness,-Assam association, sarbajanik sabhas,and Rayat sabhas. Impact of partition of Bengal and swadeshi Movement in Assam
February	20	Theory-	Assamese: Nath,D. -Asam Buranji, Revised and enlarged edition	Goverments of India Act,1919- Dyarchy on trial in Assam. Impact of partition of Bengal and swadeshi Movement in Assam.Goverments of India. Non Co-operation Movement and Swarajist Politices in Assam.The Civil Disobedience Movement.student in Assam
March	25	Theory-		Non Co-operation Movement and Swarajist Politices in Assam.The Civil Disobedience Movement.student in Assam. Trade Union and Allird Movements.Tribal League and Politics in Assam. Migration .line system and its Impact on Politics in Assam. Quit India Movement in Assam. Cabinet Mission Plane.
April	12	Theory-		The grouping Controversy. The Sylhet Referendum

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER IV SUBJECT: HISTORY PAPER: COURSE:IV

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of India	Course contents to be covered
January	18	Theory-	English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India	Sources – Asurvey. Harappan Civilization – origin and extent, morphology of the major sites, salient features, decline and the end of Civilization.
February	20	Theory-	Assamese: Barua, P.K.- Bharat Buranji Nath, D.- Bharatar Rajnoitik aru Sanskritik Buranji(Revised)	Harappan Civilization Origin and extent, morphology of the major sites, salient features, decline and the end of Civilization. Vedic Civilization society, economy, polity and culture of the Rig- Vedic and the Later Vedic periods. Rise of the Territorial States – Mahajanapadas. Ascendancy of Magadha- Alexander's invasion of India. Rise of the Mauryan Empire under Asoka-his inscription – the Dhamma.
March	25	Theory-		The Mauryan Empire under Asoka-his inscription – the Dhamma. Mauryan system of Administration. Political developments in the Post-Mauryan period (200BC-300BC) The Sungas. Khushanas and Satavahanas.
April	12	Theory-		The Tamils and Sangam Age, The Sakas and the Indo-Greeks in India -contribution

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER VI SUBJECT: HISTORY PAPER: COURSE: VI

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics Women in Indian History	Course contents to be covered
January	18	Theory-	English: Altekar, A.S.-The Position of Women in Hindu Civilization, 2 nd print Chandel, Bhuban(ed.)- Women in Ancient and Medieval India, Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women 1836-1937	Definition and Scope, Feminist movements and Developments of women's History
February	20	Theory-	Assamese: Goswami, Gita, Goswami, P-Bharator Itihasot Nari	Key Concepts in Women's studies -Gender. Patriarchy and sexual Division of Labour. Sources for Reconstruction of women's History -Oral, Narratives, Memoirs, Dairies, Autobiographies. Women in Ancient Indian Society; Vedic period.
March	25	Theory-		Status of women in Buddhism .Changing Status of women in the subsequent period. Women in Medieval India. Social Customs and Reform Movements in 19 th century; Sati, widow Remarriage, Female Infanticide.
April	12	Theory-		Role of Brahma Samaj, Arjya Samaj, Parthana Samaj, and Aligarh Movements

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER II SUBJECT: HISTORY PAPER: COURSE:II

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1826- 1947	Course contents to be covered
January	18	Theory-	English: Baruah, S.L. –A Comprehensive History of Assam Barpujari, H.K.-(ed) The Comprehensive History of Assam, Vol.IV&V	Political condition in Assam on the eve of the British rule; Establishment and consolidation of the British rule- Reforms and Reorganisations-David Scott-
February	20	Theory-	Assamese: Nath, D. –Asam Buranji, Revised and enlarged edition	Annexation of Lower Assam, Administrative Reorganisation and Revenue Measures of Scott; Robertson-Administrative and Revenue Measures; Jenkins' Administrative Measures;
March	25	Theory-		Ahom monarchy in Upper Assam(1833-38); Annexation of Cachar;; Early Phase of Revolts and Resistance to British Rule- Gomidhar Konwar, Piyali Phukan, U. Tirut Singh; The Khamti and the Singpho Rebellion;
April	12	Theory-		The 1857 Revolt in Assam and its aftermath; Establishment of Chief Commissionership in Assam ;Land Revenue Measures and Peasant Uprisings in 19 th century Assam

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER IV SUBJECT: HISTORY PAPER: COURSE:IV

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of India	Course contents to be covered
January	18	Theory-	English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India	India in the Gupta and post-Gupta period(upto 640 A.D.)- polity, society,economy and culture
February	20	Theory-	Assamese: Barua, P.K.- Bharat Buranji Nath, D.- Bharatar Rajnoitik aru Sanskritik Buranji(Revised)	Political developments in the South- the Pallavas, the imperial Cholas, the Rashtrakutas and the Chalukyas; The Arabs and the Turks in Indian politics- Ghaznivides and the Ghorid invasions
March	25	Theory-		Indian Society during 650-1200 A.D.-literature & language, temple architecture and sculpture;The Delhi Sultanate- (a) the Slave dynasty (b) the Khaljis- Alauddin Khalji's administration (c) the Tughlaqs- Muhammad Tughlaq's experiments;
April	12	Theory-		Disintegration of the Delhi Sultanate and rise of Provincial Kingdoms- Vijayanagar and Bahmani Kingdom; Polity, society, economy,religion and culture of the Sultanate period, Bhakti Movement and Sufism; Neo-Vaishnavism inAssam

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER VI SUBJECT: HISTORY PAPER: COURSE:VI

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics Women in Indian History	Course contents to be covered
January	18	Theory-	English: Altekar, A.S.-The Position of Women in Hindu Civilization, 2 nd print Chandel,Bhuban(ed.)- Women in Ancient and Medieval India, Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women1836-1937	Development of Women's Education in the 19 th and 20 th centuries: Role of Social Reformers and Missionaries;
February	20	Theory-	Assamese: Goswami,Gita, Goswami,P-Bharator Itihasot Nari	Sarda Act,1929 and Hindu Women's Right to Property Act,1937;Development of Women's Organisation; Women's Conference,1910 and National Council of Women in India; Demand for Women's Franchise; Women in Indian Freedom Struggle:Pre-Gandhian Phase;
March	25	Theory-		Women in Freedom Struggle-Gandhian Phase; Women in Revolutionary Movement;Women Society and Patriarchy in Medieval Assam;Social Reform Movement in 19 th and 20 th centuries
April	12	Theory-		Development of Women's Organisation in Assam

Department of Mathematics

Digboi College

Course Plan

Session 2017-2018

DIGBOI COLLEGE, DIGBOI

Department of Mathematics

Course Plan (Session June-December, 2017)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major/Pass

Class/Semester: First semester

Name of the Paper: MM101/NM101

Units Assigned: Vector Calculus, Unit-I

Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit-1: Vector Calculus, Introduction	
2	Ordinary derivatives of vectors, Definition Limit, derivative	
3	Examples	
4	Space curves, Definition of Continuity and differentiability	
5	Examples	
6	Differentiation formulae, addition, subtraction, uv and v/v form.	
7	Partial derivatives of vectors and related problems	
8	Vector differential operator del, Gradient, Directional derivative	
9	Divergence and Curl, Laplacian operator	
10	Vector identities and related problems.	

DIGBOI COLLEGE, DIGBOI

Department of Mathematics

Course Plan (Session June-December, 2017)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: Unit-IV

Marks Assigned: 4

Class	Topic/ Unit	Remarks
1	Unit-IV: Definition of Beta functions, Examples	
2	Problems of Beta functions.	
3	Definition of Gama functions, Examples	
4	Relation ship between Beta and Gama functions.	
5	Examples	

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session June-December, 2017)**

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major

Class/Semester: Fifth Semester

Name of the Paper: Fluid Mechanics: Paper MM503

Units Assigned: Complete Paper

Marks Assigned: Theory – 80.

Class	Topic/ Unit	Remarks
1	Unit-1: Kinematics introduction.	
2	Types of fluids and their properties	
3	Velocity of a fluid at a point and examples.	
4	Eulerian and Lagrangian method, stream lines and path lines and examples	
5	Steady and unsteady flows, velocity potential	
6	Tutorial	
7	Rotational and irrotational motions, local and particle rate of change.	
8	Equation of continuity in cartesian form	
9	Equation of continuity in vector form	
10	Equation of continuity examples	
11	Equation of continuity examples	
12	Tutorial	
13	Acceleration of a fluid at a point and examples.	
14	General analysis of fluid motion	
15	Unit-2: Equation of motion introduction	
16	Euler's equation of motion in cartesian form	
17	Euler's equation of motion in vector form	
18	Tutorial	
19	Bernoulli's equation and examples	
20	Steady motion under conservative forces,	
21	Impulsive motion	
22	Circulation, Kelvin's circulation theorem	
23	Examples on Circulation	
24	Tutorial	
25	Unit-3: General theory of irrotational motion introduction	
26	Potential flow, deductions from Green's theorem.	
27	Kinetic energy of a liquid,	
28	Uniqueness theorems, Kelvin's minimum energy theorem,	
29	Mean value of velocity potential	
30	Tutorial	
31	Unit-4: Fluid pressure. Introduction	
32	Definition and examples of Density and specific gravity	
33	Theorems on fluid pressure under gravity	
34	Rate of variation of pressure	

35	Differential equation of pressure	
36	Tutorial	
37	Condition of equilibrium of floating body	
38	Equi-pressure surfaces and lines of force	
39	Curves of equi-pressure	
40	Curves of equi-density	
41	Examples	
42	Tutorial	
43	Unit-5: Resultant Pressure and Centre of Pressure	
44	Definition of Resultant Pressure and Centre of Pressure	
45	Determination of centre of pressure of parallelogram	
46	Determination of centre of pressure of triangle	
47	Determination of centre of pressure of circle	
48	Tutorial	
49	Determination of centre of pressure of different examples	
50	Thrust on curved surface	
51	Example on thrust on curved surface	
52	Unit-6: Equilibrium and Stability of Floating Bodies	
53	Condition of equilibrium of floating bodies	
54	Examples	
55	Stable, Unstable and Neutral equilibrium	
56	Determination of Meta centre	
57	Examples	
58	Tutorial	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session January-May, 2018)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major

Class/Semester: Fourth semester

Name of the Paper: C-Programming and Computer Lab, Paper-MM401

Units Assigned: Complete paper

Marks Assigned: Theory 50 and Practical 30

Class	Topic/ Unit	Remarks
1	(A)Unit-I: Introduction to C-Programming	
2	Basic programming concept, data types etc	
3	Programming approach to solving problem, flowcharts, algorithm	
4	Character set, C tokens, keywords and identifiers	
5	Constants, variables, data types, declarations of variables	
6	Declaration of storage class, assigning values to variables.	
7	Examples	
8	Unit-II: Operators and expressions	
9	Arithmetic operators, relational operators, logical operators, assignment operators with examples	
10	Increment and decrement operators, conditional operators, bitwise operators with examples	
11	Arithmetic expressions, precedence of arithmetic operators	
12	Type conversions in expressions operator precedence and associativity with examples	
13	Mathematical functions like sin(x), cos(x), sqrt(x), fabs(x) etc.	
14	Unit-III: Input output operations, printf(), scanf() functions	
15	Reading and writing a character	
16	Formatted input, like scanf("%d, %f,x,y) etc.	
17	Formatted output, like printf("%d, %f",x,y)	
18	Unit-IV: Decision Making and Branching	
19	IF statement, IF ... ELSE statement, nested IF, ELSE IF Ladder with examples	
20	WHILE statement, DO statement with examples	
21	FOR statement, Jumps in Loops, goto statement with examples	
22	Unit-V: Arrays definition	
23	One dimensional arrays, declaration of one dimensional arrays,	
24	Initialization of one dimensional arrays, two dimensional arrays	
25	Examples and programming of one and two dimensional array	
26	Initializing two dimensional arrays with examples	
27	Initializing multi dimensional arrays with examples	
28	Example by matrix addition, subtraction and multiplication.	
29	Unit-VI: User defined functions:	
30	Elements of user defined functions, Definition of functions, return values and their types	

31	Function calls, function declaration	
32	Category of functions, no arguments and no return values, arguments with return values	
33	No arguments but returns a value, functions that return multiple values.	
	B. Computer Laboratory	
34	(a) Practical: C-Programming : Introduction	
35	Program for 1. Temperature conversion 2. Area of triangle	
36	Program for 3. Solution of linear equations	
37	Program for 4. Simple and compound interest, 5. Sum of series	
38	Program for 6. Solution of quadratic equation, 7. Checking of Prime numbers.	
39	Program for 8. Sum of sine, cosine and Fibonacci series,	
40	Program for 9. Mean and standard deviation 10. Printing of a matrix	
41	Program for 11. Matrix addition, subtraction, multiplication, transpose	
42	Program for 12. Solution of equation by Newton – Raphson method, Bisection method.	
43	Program for 13. Simpson's $\frac{1}{3}$ rule 14. Sorting of numbers (ascending and descending)	
44	Program for 15. Computation of salary 16. Find the largest number among three numbers	
45	Program for 17. Finding the factorial of a number 18. Printing of even and odd numbers in a range.	
46	Program for 19. Sum of digits of a number	
47	Program for 20. Printing of numbers in various forms, number tables.	
48	(b) Matlab: Evaluation of arithmetic expression	
49	Evaluation of exponential, logarithmic and trigonometric functions	
50	Computation of complex numbers	
51	Plotting of curves (Algebraic function, trigonometric function and exponential function),	
52	Operations in matrices	
53	Plotting of 3D curves and shapes	
54	Solution of algebraic equation	
55	Solution of simultaneous linear equations.	

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session January-May, 2018)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Major
Class/Semester: Fourth semester
Name of the Paper: Linear Programming, Part of Paper-MM402
Units Assigned: Unit – I to Unit- IV
Marks Assigned: 45

Class	Topic/ Unit	Remarks
	UNIT- I: LP Model formulation & Graphical Method:	
1	LP Model formulation, introduction	
2	General structure and assumption of LP model	
3	Mathematical formulation of a linear programming problem	
4	Examples LP model Formulation	
5	Examples LP model Formulation	
6	Feasible solution, basic solution	
7	Graphical method for the solution of a linear programming problem	
8	Convex set and its theorems	
	UNIT II: Theory of simplex algorithm and simplex method	
9	Standard form of an LP Problem	
10	Simplex Algorithm	
11	Solutions of unique optimal solution	
12	Examples	
13	Alternative optimal solution, unbounded solution, Examples	
14	Artificial variable technique	
15	Charnes' M-technique with example	
16	Two phase method with examples	
17	Degeneracy of LPP	
	UNIT III: Duality Theory:	
18	Concept of duality, Types of primal dual problem, standard form	
19	Rules for constructing the dual from primal	
20	Examples	
21	Simple and mixed type problems	
22	Theorem on duality, Fundamental duality theorem(Statement only)	
	UNIT IV: Transportation Problem	
23	Definition, Transportation Table	
24	Loops in transportation tables and their properties	
25	Determination of an initial basic feasible solution by North West corner method,	
26	Determination of an initial basic feasible solution by LCM	
27	Determination of an initial basic feasible solution by VAM	
28	Unbalanced transportation problem	
29	Optimization by Modi method	

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session January-May, 2018)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Pass
Class/Semester: Fourth semester
Name of the Paper: Linear Programming, Paper-NM401
Units Assigned: Full Paper
Marks Assigned: Theory 50, Practical 30

Class	Topic/ Unit	Remarks
	UNIT- I: LP Model formulation & Graphical Method:	
1	LP Model formulation, introduction	
2	General structure and assumption of LP model	
3	Mathematical formulation of a linear programming problem	
4	Examples LP model Formulation	
5	Examples LP model Formulation	
6	Feasible solution, basic solution	
7	Graphical method for the solution of a linear programming problem	
8	Convex set and its theorems	
	UNIT II: Theory of simplex algorithm and simplex method	
9	Standard form of an LP Problem	
10	Simplex Algorithm	
11	Solutions of unique optimal solution	
12	Examples	
13	Alternative optimal solution, unbounded solution, Examples	
14	Artificial variable technique	
15	Charnes' M-technique with example	
16	Two phase method with examples	
17	Degeneracy of LPP	
	UNIT III: Duality Theory:	
18	Concept of duality, Types of primal dual problem, standard form	
19	Rules for constructing the dual from primal	
20	Examples	
21	Simple and mixed type problems	
22	Theorem on duality, Fundamental duality theorem(Statement only)	
	UNIT IV: Transportation Problem	
23	Definition, Transportation Table	
24	Loops in transportation tables and their properties	
25	Determination of an initial basic feasible solution by North West corner method,	
26	Determination of an initial basic feasible solution by LCM	
27	Determination of an initial basic feasible solution by VAM	
28	Unbalanced transportation problem	
29	Optimization by Modi method	
30	Problems on NWCM	
31	Problems on LCM	
32	Problems on VAM	
33	Problems on MODI Method	
	(B) Computer Laboratory (Practical)	

34	(b) Matlab: Evaluation of arithmetic expression	
35	Evaluation of exponential, logarithmic and trigonometric functions	
36	Evaluation of logarithmic function	
37	Evaluation of trigonometric functions	
38	Computation of complex numbers	
39	Plotting of curves (Algebraic function, trigonometric function and exponential function),	
40	Plotting of curves trigonometric function	
41	Plotting of curves exponential function	
42	Operations in matrices	
43	Plotting of 3D curves and shapes	
44	Solution of algebraic equation	
45	Solution of simultaneous linear equations.	

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session January-May, 2018)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Major
Class/Semester: Six semester
Name of the Paper: Relativity, Part of Paper-MM604
Units Assigned: Unit – I to Unit- IV
Marks Assigned: 40

Class	Topic/ Unit	Remarks
	UNIT- I: Special Theory:	
1	The fundamental postulates	
2	Lorentz transformation, equations	
3	Composition of velocities in terms of rapidity	
4	Problems on Lorentz transformation	
5	Problems on Composition of velocities	
6	Lorentz transformation as rotation	
7	Consequences of Lorentz transformation equation	
8	Lorentz-Fitzgerald contraction	
9	Time dilation with problems	
10	The clock paradox with Problems	
11	Space like intervals	
12	Time like intervals	
	UNIT II: Relativistic mechanics	
13	The relativistic conception of mass increasing with velocity	
14	Examples	
15	Transformation laws of mass	
16	Transformation laws of velocity	
17	Transformation laws of acceleration	
18	Transformation laws of density	
19	Transformation laws of momentum	
20	Transformation laws of energy	
21	Transformation laws of force	
22	The mass energy relation.	
23	Problems on time dilation	
24	Problems on length contraction	
25	Problems on space and time like intervals	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain
Course –Major / Pass: Major
Class/Semester: First semester
Name of the Paper: MM101
Units Assigned: UNIT-I, II, III &IV
Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of e .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain
Course –Major / Pass: Pass
Class/Semester: First semester
Name of the Paper: NM101
Units Assigned: UNIT-I, II, III &IV
Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: UNIT-I, II

Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, sub normal, polar sub tangent and polar subnormal	
5	Derivative of arc length (Cartesian and polar forms), values of , angle between radius vector and tangent	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals,	
8	Differentiability, Darboux's theorem, Rolle's theorem,	
9	Lagrange mean value theorem, Cauchy's mean value theorem,	
10	Taylor's theorem,	
11	Taylor's series,	
12	Maclaurin's series	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM302

Units Assigned: UNIT-II

Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Normal subgroups	
2	Quotient groups	
3	Quotient groups related theorem	
4	Homomorphisms and properties of homomorphism	
5	Examples of homomorphisms	
6	Isomorphisms and examples	
7	Isomorphisms related theorem	
8	Permutations and examples	
9	Operations on permutations	
10	cyclic permutations, cycles of a permutation,	
11	Disjoint permutations	
12	Permutation Group	
13	Cayley's theorem.	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Fifth semester

Name of the Paper: MM502

Units Assigned: (A) Linear Algebra- unit 1 & 2, (B) Number Theory- unit 1,2,3,4

Marks Assigned: 80

Class	Topic/Unit	Remarks
1	A-Unit-1: System of linear equations	
2	Consistency and inconsistency of System of linear equations	
3	Definitions and examples of Vector space	
4	Properties of Vector space	
5	vector subspace	
6	Theorems on vector subspaces	
7	Linear independence and dependence	
8	Linear Span	
9	Base and dimension	
10	Theorems on base and dimension of vector spaces	
11	Dimension theorem	
12	Solved examples	
13	A-Unit-2: Definition of a line	
14	Theorem on lines	
15	Affine Space	
16	Theorem on Affine Space	
17	Quotient Space	
18	Theorems on Quotient Space	
19	Linear transformation with examples	
20	Properties of linear transformation	
21	Theorem on linear transformation	
22	Representation of Linear maps by Matrices	
23	Kernel and image of a linear transformation	
24	linear isomorphism	
25	Geometric Ideas and some loose ends	
26	B-Unit-1: Peano's axiom and Well ordering property of positive integer	
27	Division Algorithm	
28	G.C.D and LCM	
29	Euclidean Algorithm	
30	Unit-2: Prime numbers	
31	unique factorization theorem	
32	Euclid's theorem	

33	greatest integer function	
34	Unit-3: Definition and Basic properties of congruence	
35	complete residue system and reduced residue system	
36	Application of CRS and RRS	
37	Fermat's little theorem	
38	Euler's theorem	
39	Wilson's theorem	
40	Application of Fermat's, Euler's & Wilson's theorem	
41	Solution of Congruence	
42	Solutions of the problems of type $ax+by+c=0$	
43	Chines Remainder theorem	
44	Solutions of simultaneous equations by using Chines Remainder theorem	
45	Unit-4: Arithmetic Function	
46	Properties of arithmetic	
47	Euler's function	
48	Division function	
49	Mobius function	
50	Mobius inversion formula	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: First semester

Name of the Paper: MM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: First semester

Name of the Paper: NM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: UNIT-I, II

Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, sub normal, polar sub tangent and polar subnormal	
5	Derivative of arc length (Cartesian and polar forms), values of , angle between radius vector and tangent	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals,	
8	Differentiability, Darboux's theorem, Rolle's theorem,	
9	Lagrange mean value theorem, Cauchy's mean value theorem,	
10	Taylor's theorem,	
11	Taylor's series,	
12	Maclaurin's series	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM302

Units Assigned: UNIT-II

Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Normal subgroups	
2	Quotient groups	
3	Quotient groups related theorem	
4	Homomorphisms and properties of homomorphism	
5	Examples of homomorphisms	
6	Isomorphisms and examples	
7	Isomorphisms related theorem	
8	Permutations and examples	
9	Operations on permutations	
10	cyclic permutations, cycles of a permutation,	
11	Disjoint permutations	
12	Permutation Group	
13	Cayley's theorem.	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Fifth semester

Name of the Paper: MM502

Units Assigned: (A) Linear Algebra- unit 1 & 2, (B) Number Theory- unit 1,2,3,4

Marks Assigned: 80

Class	Topic/Unit	Remarks
1	A-Unit-1: System of linear equations	
2	Consistency and inconsistency of System of linear equations	
3	Definitions and examples of Vector space	
4	Properties of Vector space	
5	vector subspace	
6	Theorems on vector subspaces	
7	Linear independence and dependence	
8	Linear Span	
9	Base and dimension	
10	Theorems on base and dimension of vector spaces	
11	Dimension theorem	
12	Solved examples	
13	A-Unit-2: Definition of a line	
14	Theorem on lines	
15	Affine Space	
16	Theorem on Affine Space	
17	Quotient Space	
18	Theorems on Quotient Space	
19	Linear transformation with examples	
20	Properties of linear transformation	
21	Theorem on linear transformation	
22	Representation of Linear maps by Matrices	
23	Kernel and image of a linear transformation	
24	linear isomorphism	
25	Geometric Ideas and some loose ends	
26	B-Unit-1: Peano's axiom and Well ordering property of positive integer	
27	Division Algorithm	
28	G.C.D and LCM	
29	Euclidean Algorithm	
30	Unit-2: Prime numbers	
31	unique factorization theorem	
32	Euclid's theorem	

33	greatest integer function	
34	Unit-3: Definition and Basic properties of congruence	
35	complete residue system and reduced residue system	
36	Application of CRS and RRS	
37	Fermat's little theorem	
38	Euler's theorem	
39	Wilson's theorem	
40	Application of Fermat's, Euler's & Wilson's theorem	
41	Solution of Congruence	
42	Solutions of the problems of type $ax+by+c=0$	
43	Chines Remainder theorem	
44	Solutions of simultaneous equations by using Chines Remainder theorem	
45	Unit-4: Arithmetic Function	
46	Properties of arithmetic	
47	Euler's function	
48	Division function	
49	Mobius function	
50	Mobius inversion formula	

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DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Second semester

Name of the Paper: MM201

Units Assigned: Ordinary Differential Equation Unit -I, II & III

Marks Assigned: 30

Class	Topic/Unit	Remarks
1	Unit-I Differential equation of the type $\frac{dy}{dx} + Py = Q$	
2	Examples	
3	Exact differential equations of first order	
4	Equations of first order higher degree	
5	Clairaut's form and Examples	
6	wronskian, its properties and	
7	Application of wronskian	
8	Unit-II Linear differential equation of higher order with constant coefficients	
9	Linear differential equation of higher order with constant coefficients	
10	Linear differential equation of higher order with constant coefficients	
11	Linear differential equation of higher order with constant coefficients	
12	linear homogeneous equations.	
13	linear homogeneous equations.	
14	linear homogeneous equations.	
15	Unit III: Linear equation of second order with variable coefficients.	
16	Removal of first order derivative.	
17	Removal of first order derivative	
18	Change of independent variables	
19	Change of independent variables	
20	Method of variation of parameters	
21	Method of variation of parameters	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: Second semester

Name of the Paper: NM201

Units Assigned: Ordinary Differential Equation Unit -I, II & III

Marks Assigned: 30

Class	Topic/Unit	Remarks
1	Unit-I Differential equation of the type $\frac{dy}{dx} + Py = Q$	
2	Examples	
3	Exact differential equations of first order	
4	Equations of first order higher degree	
5	Clairaut's form and Examples	
6	wronskian, its properties and	
7	Application of wronskian	
8	Unit-II Linear differential equation of higher order with constant coefficients	
9	Linear differential equation of higher order with constant coefficients	
10	Linear differential equation of higher order with constant coefficients	
11	Linear differential equation of higher order with constant coefficients	
12	linear homogeneous equations.	
13	linear homogeneous equations.	
14	linear homogeneous equations.	
15	Unit III: Linear equation of second order with variable coefficients.	
16	Removal of first order derivative.	
17	Removal of first order derivative	
18	Change of independent variables	
19	Change of independent variables	
20	Method of variation of parameters	
21	Method of variation of parameters	

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DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Sixth semester

Name of the Paper: MM602

Units Assigned: (B) Graph Theory Unit -I & II

Marks Assigned: 35

Class	Topic/Unit	Remarks
1	(B) Unit-I: Introduction to graph Theory & definitions	
2	Directed and undirected graphs & basic terminologies	
3	finite and infinite graph	
4	incidence and degree of vertex, isolated and pendent vertices, null graph	
5	Handshaking theorem	
6	types of graphs, sub graphs	
7	graphs isomorphism	
8	Solved examples	
9	operations of graphs	
10	Solved Examples	
11	connected graph, disconnected graphs and components	
12	Theorems on connected graph, disconnected graphs and components	
13	Unit-II: Walk, path and circuits	
14	Eulerian graphs and Hamiltonian graphs	
15	Theorems on Eulerian graphs and Hamiltonian graphs	
16	Dirac's theorem	
17	Ore's, theorem	
18	Konigsberg's Bridge problem	
19	Representation of graphs and matrix representation of graph	
20	adjacency matrix, Incidence matrix	
21	Linked representation of graphs	

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DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Sixth semester

Name of the Paper: MM603

Units Assigned: Algebra-II, Unit -I , II & III

Marks Assigned: 40

Class	Topic/Unit	Remarks
1	Unit I: Automorphism of groups, ,	
2	Examples on Automorphism of groups	
3	Inner automorphism	
4	Inner automorphism related theorem and Examples	
5	external direct products.	
6	external direct products related theorem	
7	internal direct products and theorems	
8	Unit II: Definition and examples of Ring,	
9	Properties of rings	
10	Special kinds of rings	
11	Sub rings and Examples	
12	Theorems on sub rings	
13	Ideals and Examples	
14	Theorems on ideals	
15	Discussion on the whole unit.	
16	Sum and product of ideals.	
17	Unit III: Quotient Ring,	
18	Quotient Ring	
19	Theorems on Quotient Ring	
20	Homomorphism of ring, Imbedding of rings,	
21	Properties of Homomorphism of ring	
22	Imbedding of rings,	
23	Examples Imbedding of rings,	
24	Maximal and Prime ideal	
25	Theorems on Maximal and Prime ideal	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2017)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: First semester
 Name of the Paper: MM101
 Units Assigned: Theory of Equations, UNIT-III
 Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit III: Theory of Polynomial equations: Definitions.	
2	Division algorithm,	
3	Remainder theorem, factor theorem	
4	and theorems on Existence of real roots (statements only) with examples,.,	
5	Descartes' rule of sign	
6	Fundamental Theorem of Algebra and Existence of complex roots	
7	Relation between roots and coefficients and related problems	
8	Transformation of equation	
9	Cardon's method of solution of cubic equation.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2017)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Pass
 Class/Semester: First semester
 Name of the Paper: NM101
 Units Assigned: Theory of Equations, UNIT-III
 Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit III: Theory of Polynomial equations: Definitions.	
2	Division algorithm,	
3	Remainder theorem, factor theorem	
4	and theorems on Existence of real roots (statements only) with examples,.,	
5	Descartes' rule of sign	
6	Fundamental Theorem of Algebra and Existence of complex roots	
7	Relation between roots and coefficients and related problems	
8	Transformation of equation	
9	Cardon's method of solution of cubic equation.	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Major
Class/Semester: Third semester
Name of the Paper: MM302
Units Assigned: Co-ordinate Geometry (2D) UNIT-III
Marks Assigned: 27

Class	Topic/ Unit	Remarks
1	Unit I: Transformation of coordinates	
2	Translation of axes, Rotation of axes, Invariants,	
3	Removal of xy-term.	
4	Unit II: Pair of straight lines: Pair of straight lines through origin,	
5	Angle and Bisectors of the angle between the lines given by homogenous equation of 2nd degree,	
6	Condition for the general equation of second degree to represent a pair of straight lines,	
7	Solved problems of second degree to represent a pair of straight lines	
8	Pair of intersecting straight lines,	
9	Pair of parallel straight lines	
10	Unit III: General Equation of second degree	
11	Equation to the conic sections, ,	
12	Centre of a conic	
13	Reduction to central and non central conic,	
14	Tangent to the conic and condition of tangency,	
15	Chord of contact, Pole and Polar	
16	Conjugate diameter	

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DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2017)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Third semester
Name of the Paper: NM302
Units Assigned: Co-ordinate Geometry (2D) UNIT-III
Marks Assigned: 27

Class	Topic/ Unit	Remarks
1	Unit I: Transformation of coordinates	
2	Translation of axes, Rotation of axes, Invariants,	
3	Removal of xy-term.	
4	Unit II: Pair of straight lines: Pair of straight lines through origin,	
5	Angle and Bisectors of the angle between the lines given by homogenous equation of 2nd degree,	
6	Condition for the general equation of second degree to represent a pair of straight lines,	
7	Solved problems of second degree to represent a pair of straight lines	
8	Pair of intersecting straight lines,	
9	Pair of parallel straight lines	
10	Unit III: General Equation of second degree	
11	Equation to the conic sections, ,	
12	Centre of a conic	
13	Reduction to central and non central conic,	
14	Tangent to the conic and condition of tangency,	
15	Chord of contact, Pole and Polar	
16	Conjugate diameter	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: Fifth semester
 Name of the Paper: MM501
 Units Assigned: (A) Logic and Combinatorics- (a) Mathematical Logic Unit-I,II
 (b) Combinatoircs Unit-I,II
 (B) Analysis III (Complex Analysis) Unit-I,II,III,IV
 Marks Assigned: 80

Class	Topic/ Unit	Remarks
1	(a) Mathematical Logic Unit I: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value,	
4	Validity, truth function	
5	Tautology and related theorems,	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Theory of Inference:..	
8	Theory of Consequence	
9	rule of inference and applications.	
10	Predicate calculus:	
11	symbolizing language	
12	Discussion about the whole unit	
13	(b) CombinatoircsUnit-I: Fundamental Principles of Counting	
14	Binomial Theorem	
15	Pascal and Vander Monde's identity	
16	Multinational theorem	
17	Ramsey number, Catalan numbers, Stirling and Bell number.	
18	Unit II: The principles of Inclusion-Exclusion:	
19	Generalization of the principles of Inclusion-Exclusion,	
20	Pigeon Hole Principle,	
21	Derangement	
22	Generating function	
23	and introductory examples	
24	(B) Analysis III (Complex Analysis) Unit I: Analytic Function and Examples	
25	Limit, Continuity and differentiability	
26	Cauchy-Riemann equations.	
27	Necessary and sufficient condition for a function to be analytic	
28	Polar form of C.R. equation, Harmonic functions	
29	Construction of analytic function.	
30	Unit II: Complex Integrals :	
31	Definite integral,	
32	Jordan arc, contour,	
33	line integrals,	
34	Cauchy's theorem,	
35	Simply and multiply connected domains,	

36	Cauchys' integral formula,	
37	Derivatives of analytic function, Morera's theorem	
38	Liouville's theorem.	
39	Unit III: Power series	
40	Taylor's series.	
41	Laurent's series and their	
42	Power series related problems	
43	Unit IV: Poles & Residues	
44	Definition and statement of the related theorems of isolated singularity	
45	Removable singularity and poles	
46	Removable singularity and poles	
47	calculation of residues	
48	Cauchy's residue theorem	
49	Contour Integration	
50	Contour Integration (Integration round the unit circle, Integration of the type $\int_{-\alpha}^{+\alpha} f(x)dx$ where no poles on the real axis)	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Fifth semester
Name of the Paper: NM501
Units Assigned: Complex Analysis, Unit-I,II,III
Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Unit I: Analytic Function:	
2	Limit, Continuity and differentiability	
3	Cauchy-Riemann equations..	
4	Necessary and sufficient condition for a function to be analytic,	
5	polar form of C.R. equation,	
6	Harmonic functions, Construction of analytic function	
7	Unit II: Complex Integrals , Definite integral	
8	Jordan arc, contour,	
9	line integrals,	
10	Cauchy's theorem,	
11	Simply and multiply connected domains,	
12	Cauchys' integral formula,	
13	Derivatives of analytic function, Morera's theorem	
14	Liouville's theorem.	
15	Unit III: Taylor and Laurent theorem (statements only) and related problems,	
16	Taylor and Laurent theorem related problems,	
17	Definition and statement of the related theorems of isolated singularity,	
18	Definition and statement of the related theorems of isolated singularity,	
19	Removable singularity and poles	
20	Removable singularity and poles	
21	Cauchy's residue theorem,	
22	Contour Integration	
23	Contour Integration (Integration round the unit circle)	

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Course Plan (Session Jan-May, 2018)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Major
Class/Semester: Sixth Semester
Name of the Paper: MM601
Units Assigned: Statistics (UNIT I, II,III,IV,V & VI)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Unit I: Probability: Basic terminology,	
2	Mathematical probability, Statistical probability,	
3	Axiomatic approach to probability. Some theorems on probability	
4	Conditional probability, Multiplication theorem of probability,	
5	independent events, Extension of multiplication theorem of probability	
6	Independent events, Multiplication theorem of probability for independent events, Extension of multiplication theorem of probability	
7	Baye's theorem.	
8	Unit II: Measures of Dispersion: Standard deviation	
9	Quartile deviation	
10	Co-efficient of variation.	
11	Unit IV: Correlation and regression	
12	Karl Pearson's co-efficient of correlation	
13	Spearman Rank correlation co-efficient	
14	Regression lines and equation.	
15	Unit V: Theoretical Probability Distribution	
16	Binomial Distribution and their applications to simple problems.	
17	Binomial Distribution and their applications to simple problems.	
18	Poisson Distribution and their applications to simple problems.	
19	Poisson Distribution and their applications to simple problems.	
20	Normal Distribution and their applications to simple problems.	
21	Normal Distribution and their applications to simple problems.	
22	Unit VI: Time series analysis	
23	Different components of time series,	
24	Analysis of trends (Least Square Method)	
25	Analysis of trends (Moving Average Method)	

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Course Plan (Session Jan-May, 2018)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Sixth Semester
Name of the Paper: NM601
Units Assigned: Discrete Mathematics (UNIT I, II,III,)
Marks Assigned: 45

Class	Topic/ Unit	Remarks
1	Unit I: Logic: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value, Validity	
4	Truth function,	
5	Tautology and related theorems	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Logic: Theory of Inference:	
8	Consequence	
9	Rule of inference and applications	
10	Predicate calculus:	
11	Symbolizing language.	
12	Symbolizing language.	
13	Unit III: Lattice: Definition and examples,	
14	Hasse diagram,	
15	Properties of Lattice,	
16	Lattice as an Algebraic systems,	
17	Sub lattice and lattice isomorphism,.	
18	Special Classes : of lattice,	
19	Distributive lattice and Boolean algebras	
20	Unit IV: Boolean Algebra:.	
21	Boolean algebra as lattice,	
22	Boolean algebra as an algebraic system,	
23	Properties of Boolean algebra ,	
24	Sub-algebra and homomorphism of Boolean algebra,	
25	Boolean expressions	
26	Sum-of-products canonical form,	
27	Values of Boolean expression and Boolean functions	
28	Representation by Karnaugh Maps,	
29	Minimization of Boolean functions using Karnaugh Maps	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Mr K. N. Tinsina
Course –Major / Pass: Major/Pass
Class/Semester: First semester
Name of the Paper: MM101/NM101
Units Assigned: UNIT-II, Infinite series
Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Infinite Series and its convergence: Introduction, Necessary condition for convergence,	
2	Cauchy's general principle of convergence for series, Statements of preliminary theorems	
3	Positive series and its necessary condition of convergence, Geometric series	
4	Comparison series ,Statements of comparison test (first and second types)	
5	Cauchy's Root Test , D'Alembert's Ratio Test	
6	Raabe's Test	
7	Leibnitz's Test for convergence of an alternating Series.	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Mr K. N. Tinsina
Course –Major / Pass: Major
Class/Semester: Third semester
Name of the Paper: MM301
Units Assigned: DIFFERENTIAL CALCULUS (UNIT III) & INTEGRAL CALCULUS
Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Partial derivatives	
2	Euler's theorem on homogeneous function	
3	Euler's theorem on homogeneous function	
4	Evaluation of definite integrals by using properties only	
5	Evaluation of definite integrals by using properties only	
6	Reduction formula of the integrands $\sin^n \theta$	
7	Reduction formula of the integrands $\cos^n \theta$	
8	Reduction formula of the integrands $\tan^n \theta$	
9	Reduction formula of the integrands $\sin^n \theta \cos^n \theta$	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Third Semester
Name of the Paper: MM302
Units Assigned: UNIT I
Marks Assigned: 5

Class	Topic/ Unit	Remarks
1	Transformation of coordinates: Translation of axes	
2	Transformation of coordinates: Rotation of axes	
3	Invariants, Removal of xy-term.	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Pass
Class/Semester: Third Semester
Name of the Paper: NM301
Units Assigned: ANALYSIS (UNIT I, II, III & IV)
Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, Sub normal	
5	Curvature and radius of curvature	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals	
8	Differentiability, Darboux's theorem	
9	Rolle's theorem	
10	Lagrange mean value theorem	
11	Cauchy's mean value theorem	
12	Taylor's theorem	
13	Taylor's series	
14	Maclaurin's series	
15	Partial Derivatives	
16	Euler's theorem on homogeneous function.	
17	Euler's theorem on homogeneous function.	
18	Euler's theorem on homogeneous function.	
19	Evaluation of definite integrals by using properties only	
20	Evaluation of definite integrals by using properties only	
21	Reduction formula of the integrands $\sin^n \theta$	
22	Reduction formula of the integrands $\cos^n \theta$	
23	Reduction formula of the integrands $\tan^n \theta$	
24	Reduction formula of the integrands $\sin^n \theta \cos^n \theta$	
25	Rectification of plane curves	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Fifth Semester
Name of the Paper: MM504
Units Assigned: DYNAMICS (UNIT I, II & III)
Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	Motion in a straight line and plane	
2	Radial and transverse velocities and acceleration	
3	Angular velocity and angular acceleration, tangential and normal acceleration	
4	Simple Harmonic Motion	
5	Central forces	
6	Central forces	
7	Motion under resistance	
8	Motion under resistance	
9	Dynamics of Rigid Body: Moments of inertia,	
10	Theorems of parallel and perpendicular axes, Moment of inertia about a line	
11	Moment and product of inertia of a plane lamina	
12	Moment of inertia ellipsoid and moment of inertia ellipse	
13	D'Alembert's principle and general equations of motion	
14	Motion of the centre of inertia and relative to the centre of inertia	

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Course Plan (Session June-December, 2017)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Pass
Class/Semester: Fifth Semester
Name of the Paper: NM501
Units Assigned: DYNAMICS (UNIT I, II & III)
Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	Motion in a straight line and plane	
2	Radial and transverse velocities and acceleration	
3	Angular velocity and angular acceleration	
4	Tangential and normal acceleration	
5	Simple Harmonic Motion	
6	Central forces	
7	Central forces	
8	Motion under resistance	
9	Motion under resistance	
10	Motion under resistance	
11	Dynamics of Rigid Body: Moments of inertia,	
12	Theorems of parallel and perpendicular axes	
13	Moment of inertia about a line	
14	Moment and product of inertia of a plane lamina	
15	Momental ellipsoid and momental ellipse	
16	Momental ellipsoid and momental ellipse	

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DEPARTMENT OF MATHEMATICS

Course Plan (Session Jan-May, 2018)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major /Pass
Class/Semester: Second Semester
Name of the Paper: MM201
Units Assigned: MATRICES (UNIT I & II)
Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Rank of a matrix	
2	Elementary operations on a matrix	
3	Determination of rank by reduction into echelon (triangular) form & normal form	
4	Elementary matrices	
5	Solution of homogeneous & non homogeneous linear equations	
6	Solution of homogeneous & non homogeneous linear equations	
7	Characteristic polynomial	
8	Characteristic equation	
9	Eigen values and Eigen vectors	
10	Cayley-Hamilton theorem.	
11	Cayley-Hamilton theorem	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session Jan-May, 2018)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Sixth Semester
Name of the Paper: MM601
Units Assigned: METRIC SPACE (UNIT I, II, III & IV)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Definition and examples of metric spaces	
2	Open spheres and closed spheres	
3	Neighborhoods, Open sets, Equivalent metrics	
4	Interior points, Closed sets	
5	Limit points and isolated points	
6	Closure of a set, Boundary points	
7	Distance between sets and diameter of a set	
8	Subspace of metric space	
9	Product metric spaces (definition only), Bases	
10	Convergent sequences	
11	Examples of Convergent sequences	
13	Cauchy sequences	
14	Examples of Cauchy sequences	
15	Complete & separable spaces, dense sets	
16	Continuous functions	
17	Definition and characterizations	
18	Extension theorem	
19	Uniform continuity (definition only)	
20	Homeomorphism	
21	Examples of Homeomorphism	
22	Compact spaces	
23	Compact sets	
24	Examples of Compact spaces and compact sets	
25	Sequential compactness.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session Jan-May, 2018)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Pass
Class/Semester: Sixth Semester
Name of the Paper: NM601
Units Assigned: METRIC SPACE (UNIT I, II, III & IV)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Definition and examples of metric spaces	
2	Open spheres and closed spheres	
3	Neighborhoods, Open sets, Equivalent metrics	
4	Interior points, Closed sets	
5	Limit points and isolated points	
6	Closure of a set, Boundary points	
7	Distance between sets and diameter of a set	
8	Subspace of metric space	
9	Product metric spaces (definition only), Bases	
10	Convergent sequences	
11	Examples of Convergent sequences	
13	Cauchy sequences	
14	Examples of Cauchy sequences	
15	Complete & separable spaces, dense sets	
16	Continuous functions	
17	Definition and characterizations	
18	Extension theorem	
19	Uniform continuity (definition only)	
20	Homeomorphism	
21	Examples of Homeomorphism	
22	Compact spaces	
23	Compact sets	
24	Examples of Compact spaces and compact sets	
25	Sequential compactness.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session Jan-May, 2018)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Sixth Semester
Name of the Paper: MM604
Units Assigned: SPACE DYNAMICS (UNIT I, II, & III)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Introduction to Spherical Trigonometry	
2	Examples related to Spherical Trigonometry	
3	Spherical triangles and its properties	
4	Spherical triangles and its properties	
5	Examples of Spherical triangles	
6	The sine-cosine formulae	
7	Examples related to the sine-cosine formulae	
8	Four parts formula and examples	
9	Coordinate systems: Position on the earth surface	
10	Horizontal system	
11	Equatorial system	
13	Ecliptic system	
14	Elements of the orbit in space	
15	Rectangular coordinate system	
16	Orbital plane coordinate system	
17	Transformation of systems	
18	Problems and solutions	
19	Gravitation	
20	The one and two body problems	
21	Elliptic motion	
22	Attraction of irregular bodies	
23	Rotational distortion	
24	Coordinates the orbits in space	
25	Problems and solutions	

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 1ST Semester (M)

Paper Code : M 101, Name of the paper-Indian Philosophy (I)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	General characteristics of Indian philosophy	Explanation
2	Astika and Nastika Schools	Explanation
3	Charges against Indian philosophy	Note
4	Vedas Rita, Rina	Note
5	Vedas Yajna	Explanation
6	Upanisads—Brahman and Atman	Explanation
7	Carvaka epistemology	Explanation
8	Carvakas rejection of Anumana and Sabda	Note
9	Carvaka Metaphysics	Note
10	Carvakas rejection of non-material entities	Note
11	Jainism – concept of reality- sat	Explanation
12	Jainism ---concept of dravya and guna	Explanation
13	Jainisim ---concept of paryaya, jiva-ajiva	Explanation
14	Jainism—concept of Anekantavada	Note
15	Jainiam—concept of Syadvada and nayavada	note
16	Buddhism—four-noble truth	Note
17	Buddhism-- pratityasamudpada	Explanation
18	Buddhism—Anityavada and Nirvana	Explanation
19	Madyamprativeda schools of Buddhism	Explation
20	Nyaya—prama-aprama	Explanation
21	Theory of pramanas	Notes
22	Nyaya theory of error--Anyathakhyativada	Explanation
23	Vaisesika-- padartha	Notes
24	Vaisesika-- paramanuvada	Explanation
25	Theory of extrinsic validity and invalidity of knowledge	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (p)

Paper Code : M 501, Name of the paper—Indian and Western Logic

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Nyaya view of Anumana----	Explanation
2	Definition, Structure and kinds	Explanation
3	Nyaya kinds & ascertainment of Vyapti	Note
4	Hetabhasas	Note
5	Nature of logic	Explanation
6	Definition between traditional and modern logic	Explanation
7	Vharacteristics of symbolic logic	Explanation
8	Use of symbols	Note
9	Categorical Syllogism--- rules and figures---	Note
10	Moods and fallacies	Note
11	Venn diagram technique of testing the validity of syllogistic arguments	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 502, Name of the paper- WESTERN LOGIC

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature of logic	Explanation
2	Truth and validity of logic	Explanation
3	Nature of proposition , modern classification of proposition	Note
4	Square of proposition	Note
5	Classical and modern logic, use of symbols	Explanation
6	Categorical syllogism—Venn diagram	Explanation
7	Technique of testing the validity of syllogisms	Explanation
8	Truth functions	Note
9	Truth table method of testing the validity of argument—direct, indirect	Note
10	Formal proof of validity	Note
11	Proving invalidity	Explanation
12	Predicate logic—Quantification and its rules	Explanation
13	Symbolization of traditional categorical proposition	Explanation
14	Universal quantifiers	Note
15	Existential quantifiers	note
16	Problem of induction	Note
17	Problem of logical justification of induction	Explanation
18	Probability and induction	Explanation
19	Hypothesis-- conditions	Explation
20	Hypothesis—proofs and kinds	Explanation
21	Mill's method of Experimental enquiry	Notes
22	Mill's method of Experimental enquiry	Explanation
23	Mill's method of Experimental enquiry	Notes
24	Mill's method of Experimental enquiry	Explanation
25	Mill's method of Experimental enquiry	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 503, Name of the paper- HISTORY OF WESTERN PHILOSOPHY

Unit Assigned : I & II

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Greek philosophy—philosophy of number	Explanation
2	Greek Atomism	Explanation
3	Sophistic movement	Note
4	Socrates—Virtue is knowledge	Note
5	Plato's theory of ideas	Explanation
6	Aristotle's Form and matter	Explanation
7	Concept of Self in Plato	Explanation
8	Concept of Self in Aristotle	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 3rd Semester (M)

Paper Code : M 302, Name of the paper—Western Philosophy (II)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Definition and characteristics of Realism	Explanation
2	Different types of Realism	Explanation
3	Naive Realism	Note
4	Scientific Realism	Note
5	Neo- Realism & Neo –critical Realism	Explanation
6	Definition and characteristics of Idealism	Explanation
7	Different types of Idealism	Explanation
8	Subjective Idealism	Note
9	Phenomenalistic Idealism	Note
10	Objective Idealism	Note
11	Origin of the World	Explanation
12	Creative theory of the World	Explanation
13	Evolution theory of World	Explanation
14	Mechanical theory of evolution	Note
15	Teleological theory of evolution	note
16	Emergent theory of evolution	Note
17	Creative theory of evolution	Explanation
18	Nature and attributes of God	Explanation
19	Proofs for the existence of God	Explation
20	God and World, Deism	Explanation
21	Theism, Pantheism, Panentheism	Notes
22	God and the Absolute	Explanation
23	Pluralism, Monism , Dualism	Notes
24	Meaning of Value, kinds of Value	Explanation
25	Intrinsic and Extrinsic Value, Subjective –Objective Value	Explanation
26	Relative and Absolute Value	Explanation

SESSION: 2017--18

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – Non-Major

Class/Semester : 3rd Semester (NM)

Paper Code : M 301, Name of the paper: (Indian Philosophy -(II)

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Samkhya concept of Prakriti, Purusa	Explanation
2	Samkhya theory of Evolution	Explanation
3	Yoga Psychology	Note
4	Visistadvaita Vedanta, Saguna Brahma	Note
5	Rejection of Sankara's Maya	Explanation
6	Concept of Jiva, Jagat	Explanation
7	Nirguna Brahman	Explanation
8	Maya in Advaita Vedanta	Note
9	Budhistic Ethics, Four Noble Truth	Note
10	Eight Fold- Path	Note
11	Pancha Mahavrata	Explanation

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic —Major

Class/Semester : 5th Semester (M)

Paper Code : M 503, Name of the paper: History of Western Philosophy

Unit Assigned : II & III

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Platos theory of Ideas	Explanation
2	Aristotle's Form and Matter	Explanation
3	Concept of Self in Plato and Aristotle	Note
4	Descartes Innate Idea	Note
5	Descartes Cogito Ergo Sum	Explanation
6	Descartes Dualism	Explanation
7	Leibnitz's Monadology	Explanation
8	Pre-established harmony	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Bisti Ram Narzary
Course : Honours/Generic – MAJOR
Class/Semester : 5th Semester (M)
Paper Code : M 504, Name of the paper: (Philosophy of Religion)
Unit Assigned : Full Paper
Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and Scope of Philosophy of Religion	Explanation
2	It's Relation to Theology and Morality	Explanation
3	Religious consciousness	Note
4	Foundation of Religious belief- revelation, reason	Note
5	Mystic experience, Ecstasy	Explanation
6	Origin of Religion- anthropological theories	Explanation
7	Origin of Religion- psychological theory	Explanation
8	Development of the Idea of God- Polytheism, Monotheism	Note
9	Divine determinism	Note
10	Human freedom of Will	Note
11	Immortality of Soul----	Explanation
12	Metaphysical argument	Explanation
13	Religious argument	Explanation
14	Problem of Evil	Note
15	Anti-theistic trends—Positivism, Marxism	note
16	Freudian psycho-analysis	Note
17	Acquaintance with Buddhism	Explanation
18	Acquaintance with Christianity and Islam	Explanation
19	Basic features of Hinduism	Explanation
20	Principal sects of Hinduism- Saivism, Saktism	Explanation
21	Neo-vaisnavism—Sankaradeva, Madhabdeva	Notes
22	Objective of comparative religion	Explanation
23	Value of comparative religion	Notes
24	Possibility of Universal religion	Explanation
25	Secularism	Explanation
26	Religious Understanding	Explanation

DIGBOI COLLEGE, DIGBOI

Teacher's Course plan.

Session 2017-18

Name of the teacher- Dr. Reepa Sarmah. Department of Philosophy

Course- Major/ Non Major: **Non Major**

Class/semester – **1st semester**

Name of the Paper – Indian Philosophy (I)

Units Assigned – Half (2 units)

Marks Assigned – 40

Class	Topic/Unit	Remarks
1	Nature of Indian philosophy	Explain
2	Nature of Indian philosophy	Provide Notes
3	Orthodox Schools of Indian Philosophy	Explain
4	Orthodox Schools of Indian Philosophy	Provide Notes
5	Heterodox Schools of Indian Philosophy	Explain
6	Heterodox Schools of Indian Philosophy.	Provide Notes
7	Characteristics of Indian Philosophy	Explain
8	Characteristics of Indian Philosophy	Explain
9	Characteristics of Indian Philosophy	Provide Notes
10	Indian philosophy as Passimistic	Explain
11	Indian philosophy as Passimistic	Explain
12	Indian philosophy as Passimistic	Provide Notes
13	Indian philosophy as Dogmatic	Explain
14	Indian philosophy as Dogmatic	Explain
15	Indian philosophy as Dogmatic	Provide Notes
16	Characteristics of Contemporary Indian Philosophy	Explain
17	Characteristics of Contemporary Indian	Explain

	Philosophy	
18	Characteristics of Contemporary Indian Philosophy	Provide Notes
19	Nyaya theory of Perception	Explain
20	Nyaya theory of Perception	Provide Notes
21	Mimamsa Arthapatti	Explain
22	Mimamsa Arthapatti	Explain
23	Mimamsa Arthapatti	Provide Notes
24	Radhakrishnan's Intellect and Intuition	Explain
25	Radhakrishnan's Intellect and Intuition	Explain
26	Radhakrishnan's Intellect and Intuition	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2017—2018)

Name of the teacher- Dr. Reepa Sarmah

Course- Major/Non-Major: **Major**

Class/semester – 3rd semester

Name of the Paper – Indian Philosophy (II)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Samkhya theory of Causation	Explain
2	Samkhya theory of Causation	Explain
3	Samkhya theory of Causation	Provide Notes
4	Samkhya theory of Prakriti	Explain
5	Samkhya theory of Prakriti	Explain
6	Samkhya theory of Prakriti	Provide Notes
7	Samkhya theory of Parinamavada	Explain
8	Samkhya theory of Parinamavada	Explain
9	Samkhya theory of Parinamavada	Provide Notes
10	Samkhya theory of Purusa	Explain
11	Samkhya theory of Purusa	Explain
12	Samkhya theory of Purusa	Provide Notes
13	Samkhya theory of Plurality of Purusa	Explain
14	Samkhya theory of Plurality of Purusa	Explain
15	Samkhya theory of Plurality of Purusa	Provide Notes
16	Samkhya theory of bondage	Explain
17	Samkhya theory of bondage	Provide Notes
18	Samkhya theory of liberation	Explain
19	Samkhya theory of Libaration	Provide Notes

20	Yoga concept of Citta	Explain
21	Yoga concept of Citta	Provide Notes
22	Yoga concept of Cittavriti	Explain
23	Yoga concept of Cittavriti	Provide Notes
24	Role of God in Yoga Philosophy	Explain
25	Role of God in Yoga Philosophy	Provide Notes
26	Mimamsa philosophy	Explain
27	Difference between Kumarila and Prabhakara	Explain
28	Difference between Kumarila and Prabhakara	Provide Notes
29	Nature of valid knowledge.	Explain
30	Arthapatti	Explain
31	Arthapatti	Provide Notes
32	Anupalabdhi	Explain
33	Anupalabdhi	Provide Notes
34	Svatahpramanyavada	Explain
35	Svatahpramanyavada	Provide Notes
36	Paratahpramanyavada	Explain
37	Paratahpramanyavada	Provide Notes
38	Vedanta philosophy	Explain
39	Advaita vedanta	Explain
40	Advaita vedanta	Explain
41	Advaita vedanta	Provide Notes
42	jiva	Explain
43	jiva	Provide Notes
44	Jivan mukti	Explain
45	Jivan mukti	Provide Notes
46	Visistaadvaitavada	Explain
47	Visistaadvaitavada	Provide Notes
48	Saguna Brahman	Explain
49	Saguna Brahman	Provide Notes
50	Parinamavada	Explain
51	Parinamavada	Provide Notes
52	Refutation of Maya	Explain
53	Refutation of Maya	Provide Notes
54	Jiva	Explain
55	Bhakti	Explain
56	Prapatti	Explain
57	Rejection of Jivanmukti	Explain
58	Philosophy of Bhagavad Gita	Explain
59	Philosophy of Bhagavad Gita	Provide Notes
60	Concept of Ultimate Reality	Explain
61	Concept of Ultimate Reality	Provide Notes
62	Doctrine of Incarnation	Explain
63	Doctrine of Incarnation	Provide Notes
64	Concept of Soul	Explain
65	Concept of Soul	Provide Notes
66	Immortality of Soul	Explain

67	Immortality of Soul	Provide Notes
68	Sthitaprajna	Explain
69	Sthitaprajna	Explain
70	Sthitaprajna	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2017-18)

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 5 th semester

Name of the Paper – Logic (Indian) (M 501)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Nature of Indian Logic	Explain
2	Nature of Indian Logic	Explain
3	Nature of Indian Logic	Provide Notes
4	Development of Indian Logic	Explain
5	Development of Indian Logic	Explain
6	Development of Indian Logic	Provide Notes
7	Development of Indian Logic	Explain
8	Indian Logic and Epistemology	Explain
9	Indian Logic and Epistemology	Explain
10	Indian Logic and Epistemology	Provide Notes
11	Classification of Knowledge by Nyaya	Explain
12	Classification of Knowledge by Nyaya	Provide Notes
13	Prama	Explain
14	Prama	Explain
15	Prama	Explain
16	Prama	Provide Notes
17	Aprama	Explain
18	Apram	Explain
19	Apram	Provide Notes

20	Pramanas as the Karana of Prama	Explain
21	Pramanas as the Karana of Prama	Explain
22	Pramanas as the Karana of Prama	Provide Notes
23	Characteristics of Pramanas	Explain
24	Characteristics of Pramanas	Explain
25	Characteristics of Pramanas	Provide Notes
26	Kinds of Pramanas	Explain
27	Kinds of Pramanas	Explain
28	Kinds of Pramanas	Provide Notes
29	Nyaya pratyaksa	Explain
30	Nyaya pratyaksa	Explain
31	Nyaya pratyaksa	Provide Notes
32	Mimamsa Pratyaksa	Explain
33	Mimamsa Pratyaksa	Explain
34	Mimamsa Pratyaksa	Provide Notes
35	Definition of Anumana	Explain
36	Definition of Anumana	Provide Notes
37	Constituents of Anumana	Explain
38	Constituents of Anumana	Explain
39	Constituents of Anumana	Explain
40	Constituents of Anumana	Provide Notes
41	Kinds of Anumana	Explain
42	Kinds of Anumana	Explain
43	Kinds of Anumana	Provide Notes
44	Paksata	Explain
45	Paksata	Explain
46	Paksata	Provide Notes
47	Vyapti	Explain
48	Vyapti	Provide Notes
49	Ascertainment of Vyapti	Explain
50	Ascertainment of Vyapti	Explain
51	Ascertainment of Vyapti	Provide Notes
52	Types of Vyapti	Explain
53	Types of Vyapti	Explain
54	Types of Vyapti	Provide Notes
55	Marks of Valid Reason	Explain
56	Nyaya Hetabhasa	Explain
57	Nyaya Hetabhasa	Explain
58	Nyaya Hetabhasa	Explain
59	Nyaya Hetabhasa	Explain
60	Nyaya Hetabhasa	Explain
61	Nyaya Hetabhasa	Provide Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 4th Semester (M)

Paper Code : M 401, Name of the paper- INDIAN ETHICS

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Meaning of Dharma	Explanation
2	Classification of Dharma	Explanation
3	Varnasramadharma & Caturasrama	Note
4	Theory of Karma—ethical implication	Note
5	Purusartha	Explanation
6	Purusartha and their interrelations	Explanation
7	Purusarthasadhana in Vedas	Explanation
8	Carvaka ethics—gross egoism	Note
9	Buddhist ethics—Eight – fold - path	Note
10	Buddhist ethics-- Pancasila	Note
11	Jaina ethics—Triratna along with Dharmavidhi	Explanation
12	Jaina ethics-- Anuvrata	Explanation
13	Jaina ethics-- Mahavrata	Explanation
14	Yoga ethics—eight-foldpath	Note
15	Yoga ethics—Cittavritti nirodha	note
16	Gandhian ethics-- Ahimsa	Note
17	Gandhian ethics-- Satyagraha	Explanation
18	Ethics of Bhagavadgita-- Svabhava	Explanation
19	Ethics of Bhagavadgita-- Svadharma	Explation
20	Ways to attain the highest goal	Explanation
21	Synthesis of jnana	Notes
22	Karma and bhakti margas	Explanation
23	Niskama karma	Notes
24	Lokasangraha	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 603, Name of the paper- SOCIAL AND POLITICAL PHILOSOPHY

Unit Assigned : I & II

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Nature and scope of social philosophy	Explanation
2	Political philosophy and its relation to Sociology	Explanation
3	Political philosophy and its relation to Political Science	Note
4	Concept of Society	Note
5	Social nature of man	Explanation
6	Different theories regarding the relation between individual and society	Explanation
7	Different theories regarding the relation between individual and society	Explanation
8	Different theories regarding the relation between individual and society	Note
9	Different theories regarding the relation between individual and society	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 604, Name of the paper- PSYCHOLOGY

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature of psychology	Explanation
2	Methods of psychology-----	Explanation
3	Methods of psychology-----	Note
4	Methods of psychology-----	Note
5	Schools of psychology-----	Explanation
6	Schools of psychology-----	Explanation
7	Schools of psychology-----	Explanation
8	Applied psychology-- introduction	Note
9	Psychological basis of mental life	Note
10	Nervous system	Note
11	Doctrine of central localisation	Explanation
12	Sensation- its definition	Explanation
13	Weber-Fechner law of sensation	Explanation
14	Perception—its definition	Note
15	Gestalt theory of perception	note
16	Memory-- factors	Note
17	Condition and marks of good memory	Explanation
18	Forgetting—its causes	Explanation
19	Imagination--- nature and kinds	Explation
20	Freudian theory of dream	Explanation
21	The nature of feeling, feeling and emotion	Notes
22	James—Lange theory of emotion	Explanation
23	Learning—theories of learning	Notes
24	Personality- traits, factors, kinds	Explanation
25	Intelligence—Nature, Test IQ	Notes
26	Motivation—Nature and types	Notes

DIGBOI COLLEGE, DIGBOI B
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic –NON- MAJOR

Class/Semester : 6th Semester (NM)

Paper Code : M 601, Name of the paper- SOCIAL PHILOSOPHY AND PSYCHOLOGY

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Nature and scope of social philosophy----	Explanation
2	Its relation to Sociology	Explanation
3	Its relation to psychology	Note
4	Its relation to ethics	Note
5	Relation between individual and society----	Explanation
6	Its different theories	Explanation
7	Its different theories	Explanation
8	Definition and type of Social groups and institutions	Note
9	Definition and type of Social groups and institutions	Note
10	Definition and type of Social groups and institutions	Note
11	Nature, scope, methods of psychology	Explanation
12	Nature, scope, methods of psychology	Explanation
13	Physiological basis of mental life—structure of brain	Explanation
14	Physiological basis of mental life—structure of brain	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – NON-MAJOR

Class/Semester : 2ND Semester (NM)

Paper Code : NM 201, Name of the paper: (WESTERN PHILOSOPHY(I))

Unit Assigned : UNIT: I, II, & III

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Definition and nature of philosophy	Explanation
2	Scope and relevance of philosophy	Explanation
3	Relation between philosophy and epistemology	Note
4	Relation between philosophy and metaphysics	Note
5	Relation between philosophy and axiology	Explanation
6	Relation between philosophy and Theology	Explanation
7	Theories of Knowledge—Rationalism-- Empiricism	Explanation
8	Scepticism, Kant's critical theory	Note
9	Categories of Knowledge—Space, Time	Note
10	Categories of Knowledge—Substance, causality	Note
11	Theories of truth—correspondence theory	Explanation
12	Coherence theory	Explanation
13	Pragmatic & Self-evident theory	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Bisti Ram Narzary
Course : Honours/Generic – MAJOR
Class/Semester : 4th Semester (M)
Paper Code : M 402, Name of the Paper: (WESTERN ETHICS)
Unit Assigned : Full Paper
Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and Scope of Ethics	Explanation
2	Utility of the study of ethics	Explanation
3	Relation of ethics to psychology, Metaphysics	Note
4	Relation of ethics to politics & Religion	Note
5	Moral consciousness, object of moral consciousness	Explanation
6	Moral sentiment, moral obligation	Explanation
7	Meaning of good, ought, right	Explanation
8	Duty and conflict of duties	Note
9	Virtue ethics of Plato	Note
10	Virtue ethics of Aristotle	Note
11	Teleological ethics –Egoism, Altruism	Explanation
12	Deontological ethics of Kant	Explanation
13	Existential ethics of Kant	Explanation
14	Meta ethical theory of Moore	Note
15	Meta ethical theory of Stevenson	note
16	Meta ethical theory of R.M Hare	Note
17	Professional Ethics	Explanation
18	Environmental ethics	Explanation
19	Postulates of morality	Explantation
20	Crime and punishment	Explanation
21	Different theories of punishment	Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 602, Name of the Paper: (CONTEMPORARY OF WESTERN PHILOSOPHY)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	William James Pragmatism	Explanation
2	James theory of knowledge	Explanation
3	James nature and function of knowledge	Note
4	The conception of truth and error	Note
5	G.E Moore's refutation of Idealism	Explanation
6	Moore's Neo-Realism	Explanation
7	Moore's problem of sense data	Explanation
8	Ayer's Elimination of metaphysics	Note
9	Russell's Logical atomism	Note
10	Wittgenstein's facts and proposition	Note
11	Wittgenstein's picture theory of meaning	Explanation
12	Wittgenstein's language game	Explanation
13	Wittgenstein's refutation of atomism	Explanation
14	Salient features of existentialism	Note
15	Theistic and atheistic existentialism	note
16	J.P. Sartre's humanism	Note
17	Phenomenalism—a movement of thought	Explanation
18	Husserl's phenomenology	Explanation
19	Strawson's concept of person	Explantation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2017--18

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 603, Name of the Paper: (Social and political philosophy)

Unit Assigned : III & IV

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Social groups and institution-- family	Explanation
2	Social groups and institution-- Education	Explanation
3	Social groups and institution-- Religion	Note
4	Social evolution and social progress	Note
5	Social evil	Explanation
6	Relation between state and communities	Explanation
7	Relation between state and society	Explanation
8	Elements and function of state	Note
9	Theories of street Greek & Social contract	Note

DIGBOI COLLEGE, DIGBOI

Course plan (2017-18)

Name of the teacher- Dr. Reepa Sarmah

Course:Major/Non-Major: Major

Class/semester – 2nd semester

Name of the Paper – Western Philosophy (M201)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Definition of Philosophy	Explain
2	Definition of Philosophy	Provide Notes
3	Nature of Philosophy	Explain
4	Nature of Philosophy	Provide Notes
5	Scope of Philosophy	Explain
6	Scope of Philosophy	Provide Notes
7	Relevance of Philosophy	Explain
8	Relevance of Philosophy	Provide Notes
9	Philosophy and Epistemology	Explain
10	Philosophy and Epistemology	Provide Notes
11	Philosophy and Metaphysics	Explain
12	Philosophy and Metaphysics	Provide Notes
13	Philosophy and Theology	Explain
14	Philosophy and Theology	Provide Notes
15	Philosophy and Axiology	Explain
16	Philosophy and Axiology	Provide Notes
17	Science and Philosophy	Explain
18	Science and Philosophy	Provide Notes
19	Knowledge definition	Explain
20	Kinds of knowledge	Provide Notes
21	Knowledge by acquaintance	Explain
22	Knowledge by acquaintance	Provide Notes
23	Knowledge by Description	Explain
24	Knowledge by Description	Provide Notes
25	Necessary and Sufficient conditions of Propositional knowledge	Explain
26	Necessary and Sufficient conditions of Propositional knowledge	Provide Notes
27	Rationalism	Explain

28	Empiricism	Provide Notes
29	Critical theory	Explain
30	Critical theory	Provide Notes
31	Scepticism	Explain& provided notes
32	Categories of knowledge	Explain& provided notes
33	Space	Explain& provided notes
34	Time	Explain& provided notes
35	Causality	Explain
36	Causality	Provide Notes
37	Substance	Explain
38	Substance	Provide Notes
39	Problem of Certainty of knowledge	Explain
40	Problem of Certainty of knowledge	Provide Notes
41	Scepticism	Explain
42	Scepticism	Provide Notes
43	Answer to Scepticism	Explain
44	Answer to Scepticism	Provide Notes
45	Logical Positivism	Explain& provided notes
46	Refutation of Metaphysics	Explain
47	Refutation of Metaphysics	Provide Notes
48	Universals	Explain& provided notes
49	Realism	Explain& provided notes
50	Nominalism	Explain& provided notes
51	Conceptualism	Explain& provided notes
52	Correspondance theory of truth	Explain
53	Correspondance theory of truth	Provide Notes
54	Coherence theory of truth	Explain
55	Coherence theory of truth	Provide Notes
56	Pragmatic theory of truth	Explain& provided notes
57	Self-evident theory of truth	Explain
58	Self-evident theory of truth	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2017-18)

Name of the teacher- Dr. Reepa Sarmah

Course:Major/Non-Major: Non- Major

Class/semester – 4th semester

Name of the Paper – Western Philosophy (II)

Units Assigned – Half (2 units)

Marks Assigned – 40

Class	Topic/Unit	Remarks
1	Nature of God	Explain
2	Nature of God	Provide Notes
3	Attributes of God	Explain
4	Attributes of God	Explain
5	Attributes of God	Provide Notes
6	Proofs for Gods Existence	Explain
7	Proofs for Gods Existence	Explain
8	Proofs for Gods Existence	Explain
9	Proofs for Gods Existence	Explain
10	Proofs for Gods Existence	Explain
11	Proofs for Gods Existence	Explain
12	Proofs for Gods Existence	Explain
13	Proofs for Gods Existence	Provide Notes
14	Deism	Explain
15	Deism	Explain
16	Deism	Provide Notes
17	Theism	Explain
18	Theism	Provide Notes
19	Pantheism	Explain
20	Pantheism	Provide Notes
21	Panentheism	Explain
22	Panentheism	Provide Notes
23	Different theories of Moral Obligation	Explain
24	Different theories of Moral Obligation	Explain
25	Different theories of Moral Obligation	Explain
26	Different theories of Moral Obligation	Explain
27	Different theories of Moral Obligation	Explain
28	Different theories of Moral Obligation	Provide Notes

29	Postulates of Morality	Explain
30	Postulates of Morality	Explain
31	Postulates of Morality	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2017-18)

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 6 th semester

Name of the Paper – Contemporary Indian Philosophy (M601)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Contemporary Indian Philosophy	Explain
2	Characteristics of Contemporary Indian Philosophy	Explain
3	Characteristics of Contemporary Indian Philosophy	Explain & Provided Notes
4	Practical Vedanta	Explain
5	Practical Vedanta	Explain & Provided Notes
6	Vivekananda's Universal Religion	Explain
7	Vivekananda's Universal Religion	Explain & Provided Notes
8	Vivekananda's Philosophy of Education	Explain
9	Vivekananda's Philosophy of Education	Explain
10	Vivekananda's Philosophy of Education	Explain & Provided Notes
11	Aurobindo's Evolution	Explain
12	Aurobindo's Evolution	Explain
13	Aurobindo's Evolution	Explain & Provided Notes
14	Aurobindo's Supermind	Explain
15	Aurobindo's Supermind	Explain
16	Aurobindo's Supermind	Explain & Provided Notes
17	Synthesis of Yoga	Explain
18	Synthesis of Yoga	Explain
19	Synthesis of Yoga	Explain
20	Synthesis of Yoga	Explain & Provided Notes
21	Integralism	Explain
22	Integralism	Explain
23	Integralism	Explain
24	Integralism	Explain & Provided Notes

25	Tagore's Humanism	Explain
26	Tagore's Humanism	Explain
27	Tagore's Humanism	Explain
28	Tagore's Humanism	Explain & Provided Notes
29	Nature of Religion	Explain
30	Nature of Religion	Explain
31	Nature of Religion	Explain
32	Nature of Religion	Explain & Provided Notes
33	Iqbal's Intuition	Explain
34	Iqbal's Intuition	Explain
35	Iqbal's Intuition	Explain
36	Iqbal's Intuition	Explain & Provided Notes
37	Human Ego	Explain
38	Human Ego	Explain
39	Human Ego	Explain
40	Human Ego	Explain
41	Human Ego	Explain & Provided Notes
42	Man and his Destiny	Explain
43	Man and his Destiny	Explain
44	Man and his Destiny	Explain & Provided Notes
45	Gandhi's Truth	Explain
46	Gandhi's Truth	Explain
47	Gandhi's Truth	Explain
48	Gandhi's Truth	Explain & Provided Notes
49	Gandhi's Non-violence	Explain
50	Gandhi's Non-violence	Explain
51	Gandhi's Non-violence	Explain
52	Gandhi's Non-violence	Explain & Provided Notes
53	Radhakrishnan's Intellect and Intuition	Explain
54	Radhakrishnan's Intellect and Intuition	Explain
55	Radhakrishnan's Intellect and Intuition	Explain
56	Radhakrishnan's Intellect and Intuition	Explain
57	Radhakrishnan's Intellect and Intuition	Explain & Provided Notes

COURSE PLAN

2018-19

**DEPARTMENT OF PHYSICS,
DIGBOI COLLEGE**

DIGBOI COLLEGE, DIGBOI

Course Plan

Period: July-December 2018

Name of the Teacher - Dr Kanchan Konwar

Course – Honours

Class/Semester - 5th Semester (NCBCS)

Name of the Paper - PHYM -504 (Electronics)

Units Assigned - I, II, III

Marks Assigned - 60

Unit	Class	Topic/ Unit	Remarks
Unit I	1.	Charged particles and electronic structure of elements	
	2.	Energy band theory of crystals, conductors, semiconductors and insulators	
	3.	Electrons and holes in semiconductor	
	4.	Donor and acceptor impurity, generation and recombination of charge	
	5.	Diffusion, continuity equation	
	6.	Junction diode characteristics: the open circuited PN junction, I-V characteristics of P-N diode	
	7.	Breakdown diodes	
	8.	Diode as a rectifier	
	9.	Half-wave rectifier	
	10.	Full-wave rectifier with resistance load	
	11.	Ripple factor	
	12.	Smoothing filters	
	13.	DC power supply	
Unit II	1.	Transistors: NPN and PNP transistors	
	2.	Transistor action, common emitter connection	
	3.	Common base and common collector connections,	
	4.	Transistor biasing (fixed bias, base resistor, voltage divider) and thermal stabilization	
	5.	Amplifier equivalent circuits	
	6.	Hybrid parameters, small signal transistor voltage amplifier	
	7.	RC coupled and LC coupled amplifier	
	8.	Power amplifier (Class A and Class B)	
	9.	Distortion in amplifier	
	10.	Amplifier with negative feedback, effect of negative feedback on gain, output impedance and distortions	
Unit III	1.	Oscillators: transistor as sinusoidal oscillator	
	2.	Barkhausen criterion	
	3.	Tuned collector Oscillator	
	4.	Hartley, RC oscillator	
	5.	Wein Bridge and crystal oscillator	
	6.	Integrated Circuit: basic ideas, differential amplifier	
	7.	Operational amplifiers, CMRR, inverting, non-inverting modes	
	8.	Basic mathematical operations- addition, differentiation, integration.	
Unit IV	1.	Logic gates: binary numbers	
	2.	Decimal to binary conversion	

	3.	Binary to decimal conversion	
	4.	Logic gates and their realization by P-N diodes and transistor	
	5.	Half adder, full adder	
	6.	NAND, NOR and XOR gates	
	7.	Boolean algebra	
	8.	De Morgan's theorem and its applications	
	9.	K-maps	

Course – Honours

Class/Semester - 5th Semester (NCBCS)

Name of the Paper - PHYM -503 (Atomic and Molecular Physics)

Units Assigned - III

Marks Assigned - 21

Unit	Class	Topic/ Unit	Remarks
Unit III	1.	Molecular spectra: Pure rotation spectra	
	2.	Theory of pure rotation spectra, selection rules	
	3.	Vibration spectra and selection rules	
	4.	Theory of rotation-vibration spectra	
	5.	P and R branches	
	6.	Rayleigh scattering	
	7.	Raman scattering	
	8.	Raman effect	
	9.	Classical theory of Raman effect	
	10.	Introduction to Lasers: Spontaneous and stimulated emission,	
	11.	Population inversion and Einstein's A and B coefficients	
	12.	Ammonia beam maser	
	13.	Ruby laser	
	14.	He-Ne laser	

Course – Honours

Class/Semester – 3rd Semester (CBCS)

Name of the Paper - PHYSICS-C VII: DIGITAL SYSTEMS AND APPLICATIONS (THEORY)

Units Assigned – from 1 to 12

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Block Diagram of CRO. Electron Gun, Deflection System and Time Base. Deflection Sensitivity	
	2	Applications of CRO: Study of Waveform	
	3	Measurement of Voltage, Current, Frequency, and Phase Difference.	
II	1	Integrated Circuits : Active & Passive components. Discrete components. Wafer. Chip.	
	2	Advantages and drawbacks of ICs. Scale of integration: SSI, MSI, LSI and VLSI.	
	3	Classification of ICs. Examples of Linear and Digital ICs.	
III	1	Difference between Analog and Digital Circuits. Binary Numbers.	
	2	Decimal to Binary and Binary to Decimal Conversion.	
	3	BCD, Octal and Hexadecimal numbers.	

	4	AND, OR and NOT Gates (realization using Diodes and Transistor).	
	5	NAND and NOR Gates as Universal Gates.	
	6	XOR and XNOR Gates and application as Parity Checkers.	
IV	1	De Morgan's Theorems. Boolean Laws.	
	2	Simplification of Logic Circuit using Boolean Algebra.	
	3	Fundamental Products.	
	4	Idea of Minterms and Maxterms.	
	5	Conversion of a Truth table into Equivalent Logic Circuit by Sum of Products Method	
	6	Karnaugh Map.	
V	1	Basic idea of Multiplexers	
	2	De-multiplexers	
	3	Decoders	
	4	Encoders	
VI	1	Binary Addition	
	2	Binary Subtraction using 2's Complement	
	3	Half and Full Adders.	
	4	Half & Full Subtractors	
	5	4-bit binary Adder/Subtractor	
VII	1	SR, D Flip-Flops	
	2	JK Flip-Flops	
	3	Level and Edge Triggered Flip-Flops	
	4	Preset and Clear operations	
	5	Race-around conditions in JK Flip-Flop	
	6	M/S JK Flip-Flop	
VIII	1	IC 555: block diagram	
	2	Astable multivibrator	
	3	Monostable multivibrator.	
IX	1	Serial-in-Serial-out, Serial-in-Parallel-out Shift Registers	
	2	Parallel-in-Serial-out and Parallel-in-Parallel-out	
X	1	Ring Counter	
	2	Asynchronous counters	
	3	Decade Counter	
	4	Synchronous Counter	
XI	1	Input/Output Devices. Data storage (idea of RAM and ROM).	
	2	Computer memory	
	3	Memory organization & addressing	
	4	Memory Interfacing. Memory Map	
XII	1	Main features of 8085. Block diagram. Components. Pin-out diagram.	
	2	Buses. Registers. ALU. Memory. Stack memory	
	3	Timing & Control circuitry	
	4	Timing diagram of MOV and MVI.	
	5	Timing states. Instruction cycle	
XIII	1	Introduction to Assembly Language:	
	2	1 byte, 2 byte & 3 byte instruction	

Course – Honours

Class/Semester – 1st Semester (CBCS)

Name of the Paper - Physics-C- II (MECHANICS)

Units Assigned – from 6 to 10

Marks Assigned – 33

Unit	Class	Topic/ Unit	Remarks
VI	1	Fluid Motion: Kinematics of Moving Fluids:	
	2	Poiseuille's Equation	
	3	Poiseuille's Equation contd.	
VII	1	Gravitation and Central Force Motion: Law of gravitation.	
	2	Gravitational potential energy. Inertial and gravitational mass.	
	3	Potential and field due to spherical shell and solid sphere.	
	4	Motion of a particle under a central force field.	
	5	Two-body problem and its reduction to one-body problem and its solution.	
	6	The energy equation and energy diagram.	
	7	Kepler's Laws.	
	8	Satellite in circular orbit and applications. Geosynchronous orbits. Weightlessness.	
	9	Basic idea of global positioning system (GPS).	
VIII	1	Simple Harmonic Oscillations.	
	2	Differential equation of SHM and its solution.	
	3	Differential equation of SHM and its solution contd.	
	4	Kinetic energy, potential energy, total energy and their time-average values..	
	5	Damped oscillation	
	6	Forced oscillations: Transient and steady states;	
	7	Resonance, sharpness of resonance; power dissipation and Quality Factor	
IX	1	Non-inertial frames and fictitious forces. Uniformly rotating frame.	
	2	Laws of Physics in rotating coordinate systems.	
	3	Centrifugal force , Coriolis force and its applications	
	4	Components of Velocity and Acceleration in Cylindrical and Spherical Coordinate Systems	
X	1	Michelson-Morley Experiment and its outcome. Postulates of Special Theory of Relativity.	
	2	Lorentz Transformations. Simultaneity and order of events.	
	3	Lorentz contraction. Time dilation.	
	4	Relativistic transformation of velocity, frequency and wave number	
	5	Relativistic addition of velocities.	
	6	Variation of mass with velocity	
	7	Massless Particles. Mass-energy Equivalence	
	8	Relativistic Doppler effect.	
	9	Relativistic Kinematics. Transformation of Energy and Momentum .	

Period: January-June 2019

Course – Honours

Class/Semester – 2nd Semester (CBCS)

Name of the Paper - PHYSICS-C III: ELECTRICITY AND MAGNETISM

Units Assigned – I, II, VI, VII, VIII

Marks Assigned – 41

Unit	Class	Topic/ Unit	Remarks
I	1	Electric field: Electric field lines.	
	2	Electric flux.	
	3	Gauss' Law with applications to charge distributions with spherical, cylindrical and planar symmetry.	
	4	Electrostatic Potential. Laplace's and Poisson equations.	
	5	The Uniqueness Theorem.	
	6	Potential and Electric Field of a dipole. Force and Torque on a dipole.	
	7	Electrostatic energy of system of charges.	
	8	Electrostatic energy of a charged sphere.	
	9	Conductors in an electrostatic Field	
	10	Surface charge and force on a conductor	
	11	Capacitance of a system of charged conductors. Parallel-plate capacitor. Capacitance of an isolated conductor	
	12	Method of Images and its application to (1) Plane Infinite Sheet and (2) Sphere	
II	1	Electric Field in matter. Polarization, Polarization Charges. Electrical Susceptibility and Dielectric Constant.	
	2	Capacitor (parallel plate, spherical, cylindrical) filled with dielectric	
	3	Displacement vector D. Relations between E, P and D.	
	4	Gauss' Law in dielectrics	
VI	1	AC Circuits: Kirchhoff's laws for AC circuits.	
	2	Complex Reactance and Impedance.	
	3	Series LCR Circuit	
	4	Parallel LCR Circuit.	
VII	1	Ideal Constant-voltage and Constant-current Sources.	
	2	Network Theorems: Thevenin theorem, Norton Theorem,	
	3	Superposition theorem, Reciprocity theorem,	
	4	Maximum Power Transfer theorem.	
VIII	1	Torque on a current Loop.	
	2	Ballistic Galvanometer: Current and Charge Sensitivity.	
	3	Electromagnetic damping. Logarithmic damping. CDR.	

Course – Honours

Class/Semester – 4th Semester (CBCS)

Name of the Paper - PHYSICS-C-X : ANALOG SYSTEMS AND APPLICATIONS

Units Assigned – I to X

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Semiconductor Diodes	
	2	P and N type semiconductors.	
	3	Energy Level Diagram.	
	4	Conductivity and Mobility, Concept of Drift velocity.	
	5	Barrier Formation in PN Junction Diode. Static and Dynamic Resistance.	
	6	Current Flow Mechanism in Forward and Reverse Biased Diode. Drift Velocity.	
	7	Derivation for Barrier Potential, Barrier Width and Current for Step Junction	
II	1	Rectifier Diode: Half-wave Rectifiers.	
	2	Centre-tapped Rectifiers	
	3	and Bridge Full-wave	
	4	Calculation of Ripple Factor and Rectification Efficiency, C-filter	
	5	Zener Diode and Voltage Regulation.	
	6	Principle and structure of (1) LEDs, (2) Photodiode and (3) Solar Cell	
III	1	n-p-n and p-n-p Transistors.	
	2	Characteristics of CB, CE and CC Configurations	
	3	Current gains α and β Relations between α and β .	
	4	Load Line analysis of Transistors. DC Load line and Q-point.	
	5	Physical Mechanism of Current Flow. Active, Cutoff and Saturation Regions.	
IV	1	Transistor Biasing and Stabilization Circuits.	
	2	Fixed Bias	
	3	Voltage Divider Bias	
	4	Transistor as 2-port Network.	
	5	h-parameter Equivalent Circuit	
	6	Analysis of a single-stage CE amplifier using Hybrid Model.	
	7	Input and Output Impedance. Current, Voltage and Power Gains.	
	8	Classification of Class A, B & C Amplifiers	
V	1	RC coupled Amplifier	
	2	Two stage RC coupled Amplifier	
	3	frequency response	
VI	1	Effect of positive and negative feedback on Input impedance,	
	2	Effect of positive and negative feedback on Output impedance,	
	3	Effect of positive and negative feedback on Gain	
	4	Effect of positive and negative feedback on Stability, Distortion and noise.	
VII	1	Barkhausen's Criterion for self-sustained oscillations.	
	2	RC Phase shift oscillator	
	3	Hartley & Colpitts oscillators	
VIII	1	Characteristics of an Ideal and Practical Op-Amp. (IC 741)	
	2	Open-loop and Closed-loop Gain.	
	3	Frequency Response. CMRR.	
	4	Slew Rate and concept of Virtual ground	
IX	1	Applications of Op-Amps: Inverting and non-inverting amplifiers	
	2	Adder, Subtractor	
	3	Differentiator, Integrator	
	4	Log amplifier, Zero crossing detector	
	5	Wein bridge oscillator.	
X	1	Resistive network (Weighted and R-2R Ladder).	
	2	Accuracy and Resolution.	

	3	A/D Conversion (successive approximation)	
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Course – Honours

Class/Semester – 6th Semester (NCBCS)

Name of the Paper - PHYM – 604 (Laser and its Application)

Units Assigned – I to V

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Absorption and emission of radiation	
	2	Spontaneous emission of radiation, stimulated emission,	
	3	Einstein coefficients, significant of Einstein coefficients	
	4	Basic Laser system requirements	
	5	Method of creation of population inversion, optical resonator, Q factor, optical cavity, Standing wave ,	
	6	Threshold condition for laser oscillator .	
II	1	Description of Ammonia beam Maser	
	2	Ruby Laser	
	3	He-Ne Laser,	
	4	Semiconductor Laser.	
III	1	Intensity, Monochromaticity	
	2	Coherence properties of Laser radiation, spatial, and Temporal Coherence,	
	3	Purity of spectral line and Temporal Coherence relation with Coherence,	
	4	Visibility of fringes and degree of coherence	
	5	Relation between visibility and coherence.	
IV	1	Introduction: Basic principle of Fiber optics, structure and classification,	
	2	acceptance angle and numerical aperture,	
	3	Intermodal dispersion in a step index fiber,	
	4	Ray path in index fiber.	
	5	Advantages of fiber optics communication	
V	1	Faraday effect- Determination of magnetic rotation,	
	2	Classical theory of Faraday Effect,	
	3	Kerr electro Optic effect	
	4	Harmonic generation, second harmonic generation	

Course plan 2017-18

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-PSCM 101(Western Political Thought

Units Assigned- –I & III

Marks Assigned- 16

Serial number of classes	Topic/ Unit
1	Plato's life
2	Plato's theory of Justice
3	Criticism of Plato's theory of Justice
4	Plato's theory of Communism – Communism of wives and property
5	Criticism of Plato's communism of wives and property
6	Aristotle' on citizenship
7	Criticism of Aristotle's theory of citizenship
8	Aristotle on Justice- Distributive Justice and Corrective Justice
9	Aristotle on State
10	Aristotle on Revolution- Causes of Revolution
11	Prevention of Revolution
12	Discussion
13	Early life of Machiavelli, Views on Religion
14	Machiavelli's views on Ethics and Religion
15	Machiavelli's views on Human nature
16	Views on StateTheory of Statecraft
17	Concept of forms of government
18	Concept of Law
19	Place of Machiavelli in the history of political thought

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-PSCM 201 (Indian Government and Politics)

Units Assigned- **–II & III**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Preamble of the Indian Constitution
2	Philosophy of the the Indian Constitution
3	Fundamental Rights: Meaning and Definition, Characteristics
4	various fundamental rights
5	various fundamental rights
6	Directive Principles of State Policy: Meaning, Definition
7	Various Directive Principles
8	Various Directive Principles
9	Difference between Fundamental Rights and Directive Principles of State Policy
10	Fundamental Duties
11	Amendment procedure of the Indian Constitution
12	Federalism: Meaning, Na Definition
13	Federal Features of the Indian Constitution
14	Centre-State Conflict
15	Regionalism: Meaning, causes
16	Remedies of Regionalism
17	Secularism in India
18	Secular features of Indian Constitution
19	Hindrances of Secularism
20	Discussion

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Non- Major

Class/Semester-PSCG 201 (Indian Government and Politics)

Units Assigned- –II & III

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Preamble of the Indian Constitution
2	Philosophy of the the Indian Constitution
3	Fundamental Rights: Meaning and Definition, Characteristics
4	various fundamental rights
5	various fundamental rights
6	Directive Principles of State Policy: Meaning, Definition
7	Various Directive Principles
8	Various Directive Principles
9	Diference between Fundamental Rights and Directive Principles of State Policy
10	Fundamental Duties
11	Amendment procedure of the Indian Constitution
12	Federalism: Meaning, Na Definition
13	Federal Features of the Indian Constitution
14	Centre-State Conflict
15	Regionalism: Meaning, causes
16	Remedies of Regionalism
17	Secularism in India
18	Secular features of Indian Constitution
19	Hindrances of Secularism
20	Discussion

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-III

Paper-PSCM 301(Public Administration)

Units Assigned- **–IV & V**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Recruitment: Meaning and Definition
2	Problems of Recruitment
3	Types of Recruitment: Direct Recruitment, Merits and demerits
4	Types of Recruitment: Indirect Recruitment, , Merits and demerits
5	Promotion Meaning and Definition
6	Principles of Promotion
7	Seniority principle of Promotion, Merits and demerits
8	Merit principle of Promotion, Merits and demerits
9	Promotion system in India
10	Morale: Meaning, definition
11	Measures to boost morale
12	Importance of Morale in Administration
13	Training: Meaning and Definition
14	Kinds of Training
15	Methods of Training
16	Union Public service Commission
17	State Public service Commission
18	Budget: Meaning and Types
19	Principles of Budget

20	Budget making process in India
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Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-IV

Paper-PSCM 401(Comparative Politics)

Units Assigned- **–II, III & IV**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Parliamentary Executive in Britain: King
2	Powers and functions of the British King
3	Role and Position of the King
4	Distinction between King and the Crown
5	British Prime Minister, Powers and functions
6	British Council of Ministers: Powers and functions
7	American President: Powers and Functions
8	American President: Powers and Functions
9	Comparison between the American President and British Prime Minister
10	Swiss Federal Council: Powers and Functions
11	Chinese President: Powers and Functions
12	Chinese Premier: Powers and Functions
13	British Parliament, Powers and Functions of the House of Lords
14	Powers and Functions of the House of Commons
15	American Congress, Senate and House of representatives

16	Powers and Functions of the Senate
17	Powers and Functions of the House of Representatives
18	Swiss federal Assembly: Composition, Powers and Functions
19	Chinese National People's Congress: Composition, Powers and Functions
20	Standing Committee of the National People's Congress
21	Comparison between the Various legislatures
22	British Judiciary; Composition, Powers and Functions
23	American Supreme Court: Composition, Powers and Functions
24	Judicial Review of the Supreme Court of America
25	Swiss Federal Tribunal: Composition, Powers and Functions
26	Swiss Federal Tribunal: Composition, Powers and Functions
27	Chinese Judiciary: Composition, Powers and Functions
28	Comparison between the Various Judiciaries
29	Comparison between the Various Judiciaries
30	Comparison between the Various Judiciaries

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-IV

Paper-PSCM 402(Politics of North-East India with special reference to Assam))

Units Assigned- II

Marks Assigned- 16

Serial number of classes	Topic/ Unit
1	Genesis of the Problem of Autonomy
2	Meaning of Regionalism, Causes for the growth of Regionalism
3	Arguments in favor and against of regionalism
4	Development Regionalism in Assam
5	Assam Accord
6	Sub-Regionalism: Meaning, Causes for Sub-Regionalism
7	The Remedy to avoid Regionalism
8	Demand for Autonomous State
9	Causes of Demanding Autonomous state in Assam
10	Bodo Movement

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-V

Name of the paper- PSCM 503 (Indian Foreign Policy)

Units Assigned- –I,II,III,IV & V

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Origin and evolution of Indian foreign Policy	
2	Origin and evolution of Indian foreign Policy	
3	Origin and evolution of Indian foreign Policy	
4	Determinants of Foreign Policy	
5	Domestic determinants of Foreign Policy	
6	External determinants of Foreign Policy	
7	Non-align movement in India's foreign policy	
8	Causes for accepting non-alignment in India's foreign Policy	
9	Principles of India's Foreign Policy	
10	Objectives of India's Foreign Policy	
11	Continuities and Changes of India's Foreign Policy	
12	Continuities and Changes of India's Foreign Policy	
13	Continuities and Changes of India's Foreign Policy	
14	Indo-US relations	
15	Indo-US relations during the time of Nehru	
16	Indo-US relations during the time of Indira Gandhi	
17	Indo-US relations during the time of Rajiv Gandhi	
18	Indo-US relations in post-Cold	

	war period	
19	Indo-US relations in post Cold war period	
20	Indo- Soviet Relations during Cold war period	
21	Indo- Russian Federation Relations after Cold war period	
22	India's relations with China	
23	India's relations with China	
24	Look East Policy and South East Asia	
25	Look East Policy and ASEAN	
26	Indo-Pak Relations	
27	Causes of conflicts of Indo-Pak relations	
28	Causes of Indo-Pak Conflict	
29	Indo-Bangladesh relations	
30	Causes of Indo-Bangladesh Conflict	
31	Indo-Nepal relations	
32	Decline of relationship between India and Nepal	
33	India and UNO	
34	India and UNO	
35	India and Un Peace keeping Mission	
36	Initiatives of UN in India's Development	
37	India's role in UN Peace Keeping Mission	
38	India and SAARC	
39	Evaluation of SAARC	
40	Economic Diplomacy in India's Foreign Policy	
41	Objectives of Economic Diplomacy	
42	Aspects of India's Economic diplomacy	
43	Globalization: Meaning, definition	
44	Economic consequences of Globalization	
45	Globalization and India's Approach , Effects of Globalization in India	
46	Nuclear Issues and India's approach	
47	India's Nuclear Policy	
48	Global Terrorism: India's approach	

49	India's approach to terrorism	
50	Discussion	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-VI

Name of the paper- PSCM 604 (Indian Administration)

Units Assigned- **–I,II,III,IV & V**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Administration and Environment	
2	Nature of Indian Administration	
3	Features of Indian Administration	
4	Legacies of Indian Administration	
5	Indian Administration and Cultural Environment	
6	Indian Administration and Cultural Environment	
7	Indian Administration and Social Environment	
8	Indian Administration and Political Environment	
9	Indian Administration and Political Environment	
10	Indian Administration and Economic Environment	
11	Indian Administration and Constitutional Environment	
12	The President of India	
13	Role and position of the President of India	
14	Prime Minister of India	

15	Union Council of Ministers	
16	Central Secretariat: Meaning and Nature of Secretariat	
17	Functions and role of Secretariat	
18	Structures of Central Secretariat	
19	Structures of Central Secretariat	
20	Structures of Cabinet Secretariat	
21	Cabinet Secretary: functions	
22	Cabinet Secretary: Role	
23	State Governor: Powers and functions	
24	State Chief Minister: Powers and functions	
25	Chief Minister as real executive	
26	State Secretariat: Structure	
27	Internal Organizations of Secretariat Department	
28	Chief Secretary: Functions	
29	Secretariat and Field Departments	
30	Relation between V and field departments	
31	Evolution of District Administration	
32	Organisation of District Administration	
33	Deputy Commissioner: Duties	
34	Deputy Commissioner: Duties	
35	Position of Deputy Commissioner	
36	District administration and Democratic Decentralization	
37	Relation between Deputy Commissioner and Technical Departments	
38	Role of Deputy Commissioner in District Administration	
39	Role of Deputy Commissioner in District Administration	
40	Sub-Divisional Officer: Duties	
41	Role of Sub-Divisional Officer: in Sub-Divisional Administration	
42	Divisional Commissioner: Functions	
43	Divisional Commissioner: Duties	
44	Public Service: Meaning,	

	Features	
45	Functions of Civil Service	
46	Structure of Central Civil Service	
47	All India Services	
48	Strengthening of All India Services	
49	State Service	
50	Discussion	

COURSE PLAN : APARAJITA GOGOI- DEPARTMENT OF ZOOLOGY : 2017

JANUARYEVEN SEMESTER CLASSES

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
January	1 st	ZOOM 201 Metabolism	ZOOM 401 Mitochondria structure	ZOOM 601 –Parasitology Types of parasites	ZOOG 201- Syllabus given Introductory class	ZOOG 401 Ecosystem - factors	
			ZOOM 401- Mitochondia function	ZooM 601-Vectors			
	2 nd	ZOOM 201 Metabolism - Glycolysis Pyruvic acid oxidation, Krebs cycle	ZOOM 401- Mitochondria function ; Structure of Nucleus	ZOOM 601 –Parasitology Parasitic adaptation, effect on host ZOOM 603- Immunity, Types of cells and organs ZOOM 603-Innate & adaptive immunity	ZOOG 201- Structure and function of prokaryotic & eukaryotic cells	ZOOG-401 Anatomy of Adrenal gland	ZOOG 601 Pond ecosystem Bihu holidays(3)
	3 rd	ZOOM 603 Introduction to Omics Structure & functional of genome		C 14-Unit 1: Evolution of Eukaryotes DSE- IMMUNOLOGY Unit 4: Antigen –antibody interaction	ZOOG 201- Eukaryotic cells	ZOOG-401 Function of adrenal hormones;	[COLLEGE WEEK 17-21 st January 22 nd -23 rd Jan Xatriya Nritya Competition]
	4 th	ZOOM 201 Kreb's cycle; Electron Transport system	ZOOM 401 Nucleus structure and function; Nucleolus structure and function	ZOOM 606- Aquaculture- fishery Ornamental fishes; Marine fishery Inland fisheries	ZOOG 201- Mitochondria structure Mito. Function*	ZOOG 401- Population structure	*extra class

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
February	1 st	ZOOM 201 Unit 3 Electron transport system	ZOOM 403-Unit 2 Fertilization; Mechanism of Fertilization	ZOOM 606- Unit 4 Prawn culture Prawn culture		ZOOG-401 Unit 4 Functions of adrenal hormones, disorders	ZOOG 601- Population characteristics* *xtra class
	2 nd	ZOOM 201 Electron transport system Energetics of ETS	ZOOM 403- Cortical reaction- fertilization membrane	ZOOM 601-Entamoeba histolytica life history; Pathogenicity of E. histolytica	ZOOG 201- Chromosome structure		ZOOG 601- Population Dispersion
	3 rd		ZOOM 403- Significance of Fertilization	ZOOM 601 Trypanosoma gambiensi Life cycle , pathogenesis			1 st sessional 21-24 Feb
	4 th	ZOOM 201 Beta oxidation of fatty acids	ZOOM 403- Fate of germ layers	ZOOM 601 Fasciola hepatica- life cycle; Adaptations Pathogenicity Ethology- Orientation in animals		ZOOG-401 Coagulation of blood; Mechanism	
March	1 st	Chromatography theoretical concept	ZOOM 401-Unit 4 Cell signalling; Types	ZOOM 601- Unit 5 Communication in animal	ZOOG 201- Lampbrush chromosome	ZOOG-401 Mechanism of coagulation of blood	ZOOG 601- Age structure
	2 nd	ZOOM -201 Unit 4-Vitamins, types -function	ZOOM- 401 GPCR	ZOOM 601- Unit 5 Defensive behaviour	ZOOG 201 unit 5 Electron transport syst.		
	3 rd	ZOOM -201 Vit B complex	Concept of Microtomy	ZOOM 601- Unit 5 Offensive behaviour			

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
March	3 rd	ZOOM 201 Vit B complex	ZOOM 401-Unit 5 Histology of bone And Kidney	ZOOM 601- Unit 5 Offensive behaviour	ZOOG 201 ETS		ZOOG 601- Survivorship curve
	4 th		ZOOM 403- Kidney structure; tissues ZOOM 401 – Unit 2 Heterochromatin and euchromatin ; Nucleosome	ZOOM 604 Unit 2- Bioinformatics Omics- Proteomics Transcriptomics Primary / secondary database ZOOM 606- Unit 4 Induced breeding; fish byproduct 603 Unit 4- Antigens – types-properties	ZOOG 201- ETS –ATP formation Unit 2- Nucleus		ZOOG 601- Biotic potential & Env resistance
April	1 st			ZooM 603 Antigen –antibody interaction Immunodiffusion RIA, ELISA; Vaccine & vaccination			
	2 nd						*BiHu holidays * 2 nd sessional exam

COURSE PLAN : **APARAJITA GOGOI**; DEPARTMENT OF ZOOLOGY : 2017 JUNE

ODD SEMESTER CLASSES

MONTH	WEEK	SEM I H	SEM III H	SEM V H	SEM I G	SEM III G	Sem V G
JUNE	3 rd		ZOOM 301- Unit 2- Amphibia Parental care	ZOOM 501 – UNIT 1 Gene and allele concept Mendel Laws	ZOOG 101-	ZOOG 301 Syllabus given- Introductory class	
	4 th		ZOOM 301- Unit 2- Metamorphosis	ZooM 501- Lethal factors; Quantitative inheritance ZOOM 503-Unit 1 Muscle cells ,contraction of muscle		ZOOG 301 Unit 2- Amphibia Parental care	
August	1st		ZOOM 301- Neoteny ZOOM 303- Unit 1- Chromatography	ZOOM 503 – Isometric/ isotonic contraction, tetanus	ZOOG 101 Introductory class	ZOOG-301 Fishes- characters, classification	ZOOG 501 Mendels laws
	2 nd	ZOOM 101 Introduction- syllabus	ZOOM 303 Unit 1 chromatography	ZOOM 507-Unit 4 Hormonal control of reproduction		ZOOG-301 Respiratory organs of fishes; accessory resp. organs	
	3 rd	ZOOM 101- Mollusca		ZOOM 507- Thyroid comparative		ZOOG-301 accessory resp. organs	

August	4 th	ZOOM 101- Mollusca	ZOOM 301- Mammalia	ZOOM 507- Thyroid comparative ZOOM 503- Reflexaction	ZOOG 101- Torsion detorsion	ZOOG 301- Mammalia	ZOOG 501- Mendels laws
September	1st	ZOOM 101- Digestion,respiration excretion in molluscs	ZOOM 301- Mammalia Adaptation	ZOOM 501 Lethality ZOOM 505 –Unit 4 Renewable and non- renewable resources	ZOOG 101- Torsion detorsion	ZOOG 301- Mammalia	ZOOG 501- Gene interaction
	2nd	ZOOM 101- Torsion- detorsion	ZOOM 301- Mammalia ZOOM 303- Unit 1- Sampling	ZOOM 501 Continental drift; Adaptive radiation ZOOM 505 –Unit 4 Bioindicators, ecological backlash, succession, greenhouse effect. Ozone depletion	ZOOG 101 Echinodermata	ZOOG 301- Mammalia	ZOOG 501- Linkage
	3 rd	Sessional 1 st					
	4 th	ZOOM 101- Echinodermata.	ZOOM 303- Unit 1- Sampling Graphical representation	ZOOM 503-Unit 5 Vision –eye str.	ZOOG 101 Echinodermata Water vascular system		ZOOG 501- Linkage
October	1st	ZOOM 101- Echinodermata Water vascular system	ZOOM 301- Mammalia Echolocation Integumentary system of fish	ZOOM 503-Unit 5 Vision –defects	ZOOG 101 Taxonomy, systematics	ZOOG 301- Cleavage patterns	
	2 nd	ZOOM 101- Echinodermata larval forms	ZOOM 301Vertebrate circulatory system	ZOOM 503-Unit 5 Drug addiction Reproductive hormones, Contraception methods	ZOOG 101 Taxonomy, systematics	ZOOG 301- Cleavage patterns	

MONTH	WEEK	SEM I H	SEM III H	SEM V H	SEM I G	SEM III G	Sem V G
October	3 rd	ZOOM 101- Taxonomy Systematic; hierarchy	ZOOM 301- Unit 1- Chromatography ion exchange Chromatography	ZOOM 505 – UNIT 5 Biodiversity threats; insitu –exsitu conservation	ZOOG 101- Taxonony, systematic Species concept	ZOOG 301 Gastrulation	ZOOG 501- Linkage; crossing over
	4 th	ZOOM 101- Systematic; hierarchy, species concept ;speciation			ZOOG 101- speciation	ZOOG 301 Gastrulation Germ layers; fate maps	ZOOG 501- Sex determination Cytoplasmic inheritance

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **2ndSemester (Non-CBCS)**

Paper Code: **201 (Theory)**

Name of the Paper- **Biochemistry**

Units Assigned- **Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Structure of carbohydrates	
2.	UNIT 2: Classification of carbohydrates	
3.	UNIT 2: Amino acids	
4.	UNIT 2: Amino acids	
5.	UNIT 2: Proteins	
6.	UNIT 2: Proteins	
7.	UNIT 2: Proteins	
8.	UNIT 2: Levels of organization of proteins.	
9.	UNIT 2: Levels of organization of proteins.	
10.	UNIT 5: Structure and forms of DNA	
11.	UNIT 5: Structure and forms of RNA	
12.	UNIT 5: DNA as genetic material	
13.	UNIT 5: DNA replication	
14.	UNIT 5: DNA replication	
15.	UNIT 5: DNA replication	

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Honours**
Class/Semester- **2ndSemester (Non-CBCS)**
Paper Code: **202 (Practical)**
Name of the Paper- **Biochemistry**
Units Assigned- **Unit 1, Unit 2, Unit 3**
Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Preparation of molar, normal and buffer solution.	
2.	UNIT 2: Qualitative test for carbohydrate to identify the common monosaccharides	
3.	UNIT 2: Qualitative test for carbohydrate to identify the common monosaccharides	
4.	UNIT 2: Qualitative test for carbohydrate to identify the common disaccharides	
5.	UNIT 2: Qualitative test for carbohydrate to identify the common disaccharides	
6.	UNIT 3: Essay of enzyme urease by titrimetric method	
7.	UNIT 3: Essay of enzyme peroxidase by titrimetric method	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Generic**
Class/Semester- **2ndSemester (Non-CBCS)**
Paper Code: **201 (Theory)**
Name of the Paper- **Cell Biology and Biochemistry**
Units Assigned- **Unit 1, Unit 3, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Structure of Plasma Membrane	
2.	UNIT 1: Structure of Plasma Membrane	
3.	UNIT 1: Function of Plasma Membrane	
4.	UNIT 1: Membrane transport- Osmosis	
5.	UNIT 1: Membrane transport- Diffusion	
6.	UNIT 1: Membrane transport- Active transport	
7.	UNIT 3: Cell Cycle	
8.	UNIT 3: Basic Concept of Cancer	
9.	UNIT 4: Types of Carbohydrates	
10.	UNIT 4: Types of Proteins	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **2ndSemester (Non-CBCS)**

Paper Code: **201 (Practical)**

Name of the Paper- **Cell Biology and Biochemistry**

Units Assigned- **Unit 1, Unit 3, Unit 4, Unit 5**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Study of Mitosis with the help of permanent slides	

2.	UNIT 1: Study of Meiosis with the help of permanent slides	
3.	UNIT 2: Preparation of Normal and Molar Solutions	
4.	UNIT 3: Qualitative test of Carbohydrate	
5.	UNIT 4: Qualitative test of salivary amylase	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **401 (Theory)**

Name of the Paper- **Cell Biology, Histology and Histochemistry**

Units Assigned- **Unit 1, Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Overview of Prokaryotic and Eukaryotic cells	
2.	UNIT 1: Structure of Plasma Membrane	
3.	UNIT 1: Structure of Plasma Membrane	
4.	UNIT 1: Structure of Plasma Membrane	
5.	UNIT 1: Function of Plasma Membrane	
6.	UNIT 1: Extra Cellular Matrix	
7.	UNIT 1: Receptor Mediated Endocytosis	
8.	UNIT 2: DNA Packaging in prokaryotes	
9.	UNIT 2: DNA Packaging in Eukaryotes	

10.	UNIT 2: Models of Chromosomal movements	
11.	UNIT 5: Types of Staining	
12.	UNIT 5: Vital Staining, Classification and Properties of Dyes	
13.	UNIT 5: Metachromatic Dyes and Staining	
14.	UNIT 5: Histological Structure of Stomach	
15.	UNIT 5: Histological Structure of Intestine	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **402 (Practical)**

Name of the Paper- **Cell Biology, Histology and Histochemistry**

Units Assigned- **Unit 1, Unit 2, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Study of Mitosis in Tadpole tail	
2.	UNIT 2: Study of Meiosis in testes of Grasshopper	
3.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
4.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
5.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
6.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
7.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **403 (Theory)**

Name of the Paper- **Developmental Biology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Cleavage pattern	
2.	UNIT 3: Blastulation in Chick Embryo	
3.	UNIT 3: Blastulation in Chick Embryo	
4.	UNIT 3: Gastrulation in Chick Embryo	
5.	UNIT 3: Gastrulation in Chick Embryo	
6.	UNIT 3: Inductive Substances	
7.	UNIT 5: Development of Eyes	
8.	UNIT 5: Development of Eyes	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **404 (Practical)**

Name of the Paper- **Developmental Biology**

Units Assigned- **Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
2.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
3.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
4.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
5.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Generic

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **401 (Theory)**

Name of the Paper- **Animal Physiology and Endocrinology**

Units Assigned- **Unit 2, Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Physiology of Excretion in Mammals	
2.	UNIT 2: Physiology of Excretion in Mammals	
3.	UNIT 3: Neurons	
4.	UNIT 3: Conduction of Nerve Impulse	
5.	UNIT 3: Conduction of Nerve Impulse	
6.	UNIT 3: Conduction of Nerve Impulse	
7.	UNIT 5: General Characters of Hormones	
8.	UNIT 5: Feedback Mechanism	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Generic

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **402 (Practical)**

Name of the Paper- **Animal Physiology and Endocrinology**

Units Assigned- **Unit 1, Unit 2, Unit 5**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Preparation of Haemin Crystal	
2.	UNIT 2: Counting of RBC	
3.	UNIT 2: Counting of WBC	
4.	UNIT 2: Study of histological Slides of Endocrine glands	
5.	UNIT 2: Study of histological Slides of Endocrine glands	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **601 (Theory)**

Name of the Paper- **Parasitology and Ethology**

Units Assigned- **Unit 1, Unit 2, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Life history mode of infection and pathogenicity of <i>Trichomonas vaginalis</i>	
2.	UNIT 1: Life history mode of infection and pathogenicity of	

	<i>Plasmodium</i> spp.	
3.	UNIT 2:life history, parasitic adaptation and pathogenicity of <i>Ancylostoma duodenale</i>	
4.	UNIT 4: Introduction to Animal Behaviour	
5.	UNIT 4: Brief History of Ethology	
6.	UNIT 4: Patterns of Behaviour	
7.	UNIT 4: Patterns of Behaviour	
8.	UNIT 4: Patterns of Behaviour	
9.	UNIT 4: Genetical aspects of behaviour	
10.	UNIT 4: Ecological aspects of Behaviour	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **602 (Practical)**

Name of the Paper- **Parasitology and Ethology**

Units Assigned- **Unit 1,Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of mosquito species causing malaria, encephalitis and dengue fever	
2.	UNIT 3: Study of geotactic, phototactic, chemotactic and sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	
3.	UNIT 3: Study of geotactic, phototactic, chemotactic and	

	sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	
4.	UNIT 3: Study of geotactic, phototactic, chemotactic and sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **603 (Theory)**

Name of the Paper- **Molecular Biology and Immunology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Recombination in prokaryotes	
2.	UNIT 3: Transformation	
3.	UNIT 3: Conjugation	
4.	UNIT 3: Transduction	
5.	UNIT 3: Concept of transposons and plasmids	
6.	UNIT 3: Regulation of gene expression in prokaryotes	
7.	UNIT 3: Operon concept (Lac operon).	
8.	UNIT 5: Major histocompatibility complex- structure	
9.	UNIT 5: Major histocompatibility complex- functions	
10.	UNIT 5: Immune system in health and disease	

11.	UNIT 5: Immune system in health and disease	
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DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **604 (Theory)**

Name of the Paper- **Biotechnology and Bioinformatics**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: DNA sequencing	
2.	UNIT 2: Human genome project	
3.	UNIT 4: Nucleic acid and protein sequence database	
4.	UNIT 4: NCBI	
5.	UNIT 4: Gene bank	
6.	UNIT 4: SWISS- PROT	
7.	UNIT 4: Data mining and data mining tools (ENTREZ).	
8.	UNIT 4: Data mining and data mining tools (ENTREZ).	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **605 (Practical)**

Name of the Paper- **Molecular Biology and Immunology**

Units Assigned- **Unit 3, Unit 7, Unit 8**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Estimation/Detection of RNA	
2.	UNIT 7: Different E resources and Database search	
3.	UNIT 8: Similarity search in sequence such as BLAST	
4.	UNIT 8: Similarity search in sequence such as FASTA	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**
 Course –Honours / Generic – **Honours**
 Class/Semester- **6thSemester (Non-CBCS)**
 Paper Code: **606 (Theory)**
 Name of the Paper- **Economic Zoology**
 Units Assigned- **Unit 2,Unit 5**
 Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
2.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
3.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
4.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
5.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
6.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
7.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
8.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **607 (Practical)**

Name of the Paper- **Economic Zoology**

Units Assigned- **Unit 1, Unit 2, Unit 7, Unit 8**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of silkworms (eri, muga& mulberry), immature and adult stages	
2.	UNIT 2: Submission of life cycles of eri/ muga/ mulberry silkworms	
3.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	
4.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	
5.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **601 (Theory)**

Name of the Paper- **Animal Ecology and Biostatistics**

Units Assigned- **Unit 3**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Environmental pollution and types	
2.	UNIT 3: Sources, causes and control of Air pollution	
3.	UNIT 3: Sources, causes and control of water pollution	
4.	UNIT 3: Sources, causes and control of soil pollution	
5.	UNIT 3: Biogeochemical cycle (carbon)	
6.	UNIT 3: Biogeochemical cycle (Nitrogen)	
7.	UNIT 3: Green House Effect	
8.	UNIT 3: Ozone depletion and its impact	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2017, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **602 (Practical)**

Name of the Paper- **Animal Ecology and Biostatistics**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: To find out abundance and density of soil fauna by quadrat method	
2.	UNIT 1: To find out abundance and density of soil fauna by quadrat method	
3.	UNIT 2: To find out the biotic components of pond ecosystem	
4.	UNIT 2: To find out the biotic components of pond ecosystem	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **101 (Theory)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 2, Unit 3**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Annelida: General characters	
2.	UNIT 2: Annelida: classification upto orders with examples	
3.	UNIT 2: Annelida: Excretion of <i>Pheretima</i>	
4.	UNIT 2: Annelida: Reproduction and importance of <i>Pheretima</i>	

5.	UNIT 2:Annelida: Coelom and metamerism in Annelids.	
6.	Unit-3: Arthropoda: General characters	
7.	Unit-3: Arthropoda: classification upto orders with examples	
8.	Unit-3: Arthropoda: classification upto orders with examples	
9.	Unit-3: Arthropoda: classification upto orders with examples	
10.	Unit-3: Arthropoda: classification upto orders with examples	
11.	Unit-3: Arthropoda: mouth parts of insects	
12.	Unit-3: Arthropoda: larval forms in crustacea	
13.	Unit-3: Arthropoda: excretion in arthropoda	
14.	Unit-3: Arthropoda: vision in arthropoda	
15.	Unit-3: Arthropoda: Affinity of Onychophora.	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **102 (Practical)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 1, Unit 2, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
2.	Unit 2:Identification of Invertebrates with reason (As per syllabus)	
3.	Unit 2:Identification of Invertebrates with reason (As per syllabus)	
4.	Unit 1: Dissection: Earthworm: Urinogenital system	
5.	Unit 3:Preparation of Permanent slides of suitable Invertebrate materials	
6.	Unit 3:Preparation of Permanent slides of suitable Invertebrate materials	
7.	Unit 3:Preparation of Permanent slides of suitable Invertebrate materials	

8.	Unit 3:Preparation of Permanent slides of suitable Invertebrate materials	
9.	Unit 3:Preparation of Permanent slides of suitable Invertebrate materials	
10.	Unit 3:Preparation of Permanent slides of suitable Invertebrate materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **101 (Theory)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	Unit 3: Annelida: Coelom in Annelida	
2.	Unit 3: Annelida: Excretion in Annelida	
3.	Unit 3: Arthropoda: Mouth Parts	
4.	Unit 3: Arthropoda: Legs in Insects	
5.	Unit 3: Arthropoda: Crustacean Larval Forms	
6.	Unit 3: Arthropoda: Social Life in Honey Bee	
7.	Unit 5: Concept of Evolution	
8.	Unit 5: Evolutionary Theories	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **102 (Practical)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 1, Unit 2, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
2.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
3.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
4.	Unit 1: Dissection: Earthworm: Urinogenital system	
5.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
6.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
7.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
8.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
9.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
10.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July– December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **301 (Theory)**

Name of the Paper- **Chordate Diversity and Comparative Anatomy**

Units Assigned- **Unit 4, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: General characters of Aves	
2.	UNIT 4: Classification of Aves upto super orders with examples	
3.	UNIT 4: Mechanisms of bird flight	
4.	UNIT 4: Perching mechanism in birds	
5.	UNIT 4: Flight adaptation in bird	
6.	UNIT 4: Migration in Birds	
7.	UNIT 5: Comparative Anatomy of Brain in Animals	
8.	UNIT 5: Comparative Anatomy of Brain in Animals	
9.	UNIT 5: Comparative Anatomy of Cranial Nerves in Animals	
10.	UNIT 5: Comparative Anatomy of Cranial Nerves in Animals	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **302 (Practical)**

Name of the Paper- **Chordate Diversity and Comparative Anatomy**

Units Assigned- **Unit 1, Unit 2, Unit 3, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
2.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
3.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
4.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
5.	UNIT 2: Dissection: Weberian Ossicles of Carp fish	
6.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
7.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
8.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
9.	UNIT 4: Study of vertebral column of mammals; pectoral and pelvic girdle of reptiles, bird and amphibia	
10.	UNIT 4: Study of vertebral column of mammals; pectoral and pelvic girdle of reptiles, bird and amphibia	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **303 (Theory)**

Name of the Paper- **Bioinstrumentation and Biostatistics**

Units Assigned- **Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: Principles and uses of Kymography	
2.	UNIT 4: microtomy and ultramicrotomy	
3.	UNIT 4: principles and practices of centrifugation	
4.	UNIT 4: principles and practices of autoradiography	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **304 (Practical)**

Name of the Paper- **Bioinstrumentation and Biostatistics**

Units Assigned- **Unit 1**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Demonstration of instruments (As per syllabus)	

2.	UNIT 1: Demonstration of instruments (As per syllabus)	
3.	UNIT 1: Demonstration of instruments (As per syllabus)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **301 (Theory)**

Name of the Paper- **Chordate Diversity and Developmental Biology**

Units Assigned- **Unit 3, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: General characters of Aves	
2.	UNIT 3: Classification of Aves upto super orders with examples	
3.	UNIT 3: Beaks and Claws in Birds	
4.	UNIT 3: Perching mechanism in birds	
5.	UNIT 3: Flight adaptation in bird	
6.	UNIT 3: Migration in Birds	
7.	UNIT 4: Fertilization types	
8.	UNIT 4: Fertilization Mechanisms	

9.	UNIT 4: Parthenogenesis	
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DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **302 (Practical)**

Name of the Paper- **Chordate Diversity and Developmental Biology**

Units Assigned- **Unit 1, Unit 2, Unit 3, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Dissection: Efferent Branchial System of Carp fish	
2.	UNIT 2: Identification of Museum specimens (As per syllabus)	
3.	UNIT 2: Identification of Museum specimens (As per syllabus)	
4.	UNIT 2: Identification of Museum specimens (As per syllabus)	
5.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
6.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
7.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
8.	UNIT 4: Study of Chick embryo development upto 72 hours	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **501 (Theory)**

Name of the Paper- **Genetics and Evolution**

Units Assigned- **Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Linkage	
2.	UNIT 2: Crossing over	
3.	UNIT 2: Basic knowledge of gene mapping	
4.	UNIT 5: Concept of population- gene pool	
5.	UNIT 5: Concept of population- gene frequency (Hardy- Weinberg law)	
6.	UNIT 5: Change in gene frequency (genetic drift)	
7.	UNIT 5: Change in gene frequency (gene flow)	
8.	UNIT 5: Change in gene frequency (genetic load)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **502 (Practical)**

Name of the Paper- **Genetics and Evolution**

Units Assigned- **Unit 1**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Study of Chromosomal slides of suitable materials	
2.	UNIT 2: Study of Chromosomal slides of suitable materials	
3.	UNIT 2: Study of Chromosomal slides of suitable materials	
4.	UNIT 2: Study of Chromosomal slides of suitable materials	
5.	UNIT 2: Study of Chromosomal slides of suitable materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **503 (Theory)**

Name of the Paper- **Animal Physiology**

Units Assigned- **Unit 4, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: Circulation- coronary circulation	
2.	UNIT 4: origin and conduction of cardiac impulse	
3.	UNIT 4: cardiac cycle	
4.	UNIT 4: Cardiac output and its regulation	
5.	UNIT 4: Disorders of cardio-vascular system	
6.	UNIT 4: Haemostasis	
7.	UNIT 4: Respiration- structure and functions of haemoglobin	
8.	UNIT 4: O ₂ and CO ₂ Transport by blood	
9.	UNIT 4: Regulation of respiration	
10.	UNIT 4: Carbon monoxide poisoning	
11.	UNIT 4: Tracheal respiration in insects	
12.	UNIT 5: Drug addiction and its physiological and social implications	
13.	UNIT 5: Drug addiction and its physiological and social implications	
14.	UNIT 5: Drug addiction and its physiological and social implications	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **504 (Practical)**

Name of the Paper- **Animal Physiology**

Units Assigned- **Unit 1, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Determination of RQ of Cockroach	
2.	UNIT 3: Preparation of Haemin crystals	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **505 (Theory)**

Name of the Paper- **Environmental Biology and wildlife Biology**

Units Assigned- **Unit 1, Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Concepts pertaining to ecosystem, species	
2.	UNIT 1: Community, biome and ecotone	
3.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
4.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
5.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	

6.	UNIT 3: Biogeochemical cycles (carbon)	
7.	UNIT 3: Biogeochemical cycles (Nitrogen)	
8.	UNIT 5: IUCN status of species category	
9.	UNIT 5: Important endangered species of N.E. India - rhinoceros	
10.	UNIT 5: Important endangered species of N.E. India - tiger	
11.	UNIT 5: Important endangered species of N.E. India - golden langur	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **506 (Practical)**

Name of the Paper- **Environmental Biology and Wildlife Biology**

Units Assigned- **Unit 2, Unit 6**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Find out the abundance and density of insect pests in some essential food commodities	
2.	UNIT 6: Field study: To visit a National park/ Wildlife Sanctuary to study the habitat/ forest types and prepare a full note on it.	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **507 (Theory)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
2.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
3.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
4.	UNIT 5: Neuroendocrine system in insects	
5.	UNIT 5: Neuroendocrine system in insects	
6.	UNIT 5: Role of Hormones in growth and development of insects	
7.	UNIT 5: Role of Hormones in growth and development of insects	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **508 (Practical)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Histological preparation of thyroid gland	
2.	UNIT 1: Histological preparation of thyroid gland	
3.	UNIT 1: Histological preparation of thyroid gland	
4.	UNIT 1: Histological preparation of thyroid gland	
5.	UNIT 3: Study of permanent slides of endocrine glands	
6.	UNIT 3: Study of permanent slides of endocrine glands	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **501 (Theory)**

Name of the Paper- **Molecular Biology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Nucleic Acids	
2.	UNIT 3: DNA as a Genetic Material	
3.	UNIT 3: Structure and functions of DNA	
4.	UNIT 3: Structure and functions of RNA	
5.	UNIT 5: Genetic engineering	
6.	UNIT 5: Basic Steps in cloning	
7.	UNIT 5: Cloning Vectors	
8.	UNIT 5: Restriction Enzymes	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2017, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **502 (Practical)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
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1.	UNIT 1: Construction of Nucleotides using Ball and Stick Model	
2.	UNIT 2: Preparation of slides for study of Mitosis using suitable material	
3.	UNIT 2: Preparation of slides for study of Mitosis using suitable material	
4.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	
5.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	
6.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	

COURSE PLAN

2018-19

**DEPARTMENT OF ASSAMESE,
DIGBOI COLLEGE**

COURSE PLAN FOR MAJOR COURSE (NON-CBCS)

2018-19

Name of the Teacher:- Purnananda Saikia

Department of Assamese

Digboi College, Digboi

Course: Major

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and relevant books	
2	Ancient Assamese literature: Characteristics.	
3	Charyapads, SriKrishna Kirtan and Sunya Puran	
4	Charyapada: linguistic and literary value	
5	Selected text from Charyapada	
6	The pre-Sankardeva period: Introduction	
7	Hem Saraswati	
8	Haribar Bipra	
9	Rudra Kandali and Kavi Ratna Saraswati	
10	Madhava Kandali and Assamese Ramayan	
11	The Ramayana and Devajit	
12	Characteristics of Pre Sankardeva period	
13	Do	
14	Pre Sankardeva period and Assamese language	
15	Discussion of the tentative questions and answer	
16	Revision	

Course: MIL (Assamese)

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASM - 101

Unit Assignes: Unit-5

Marks Assign: 12

Class	Topic/Unit	Remarks
1	Introduction and related books	
2	Definition of culture	
3	Do	
4	Classification of culture	
5	Various aspects of culture	
6	Society and culture	
7	Revision	
8	Revision	
9	Revision	

Course: Major

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-3

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	The Jonaki: 2 nd golden age of Assamese Literature	
3	B background of Jonaki	
4	Background of Romanticism	

5	Characteristics of Romanticism	
6	Romanticism in Assamese literature	
7	Assamese poetry in the period	
8	Do	
9	Short story in the period	
10	Do	
11	Growth of Assamese Novel	
12	Do	
13	Assamese Drama: Pre Independence Period	
145	Do	
15	Literary Criticism and non-fictional prose	
16	Biography, Autobiography, Child literature	
17	Humour and satire, gender issues and others	
18	Revision	

Course: MIL (Assamese)

Class: BA 2nd Semester

Name of the paper: Practices of Assamese Language

Paper Code: ASM - 201

Unit Assignes: Unit-3

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Technical terms: General discussion	
3	Technical terms in Assamese language	
4	Do	
5	Administrative terms various uses	
6	Administrative terms in Assamese literature	
7	Revision	
8	Revision	

Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-4

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Assamese poetry: Pre-Romantic period	
3	kamalakanta Bhattacharyya: life an creations	
4	Discussion of selected text: Ekura Jui	
5	Romanticism: Definition and characteristics	
6	Romanticism in Assamese poetry	
7	Life and poetic works of Chandra Kumar Agarwala	
8	Selected text: Tejimola	
9	Tejimola as a literary Ballad	
10	Mysticism: Definition and characteristics	
11	Mysticism in Assamse Literature	
12	Paramtrishna by Nalini bala Devi	
13	Do	
14	Patriotism in Assamese literature	
15	Chiro Chenehi Mur Bhasa Janani by Mitraddev Mahanta	
16	New trends in Assamese poetry towards modernism	
17	Kathmistrir Ghor by Dhirendra Nath Dutta	
18	Revision	
19	Revision	

_Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Pre Sankardeva period and Madhava Kandali	
3	The Ramayana: Assamese Version	
4	Sundarakanda	
5	Discussion of the selected text	
6	Madhav dev: life and creative work	
7	Discussion of the selected text Namghosha	
8	Introduction to the Panchali Literature	
9	Pitambar kabi and Usha Parinoy	
10	Disussion of selected text from Usha Parinoy	
11	Do	
12	Introduction to Sufism	
13	Sufism and Assamese literature	
14	Dwija Rama and Sahapari Upakhyan	
15	Selected text from Sahapari Upakhyan	
16	Do	
17	Revision	
18	Revision	
19	Revision	

_Course: Major

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-2

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	

2	Early Assamese Prose: Various Aspects	
3	Characteristics of early Assamse literature	
4	Assamese Buranji literature	
5	Selected text from Tunkhungia Buranji	
6	Do	
7	Assamse Charit Tradition and Evolution	
8	Katha Guru Charit linguistic and historical values	
9	Selected text from Katha Guru Charit	
10	Revision	
11	Revision	

Course: Major - V

Class: BA 4th Semester

Name of the paper: Cultural Studies

Paper Code: ASMM - 501

Unit Assignes: Unit-All

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Definition of culture	
3	Various aspects of culture	
4	Classification of Culture	
5	Culture and society with human values	
6	Various anthropological aspects in Assamese culture	
7	Assimilation in Assamse culture	
8	Faiths and traditional customs of different ethnic groups in Assam	
9	Do	
10	Do	
11	Performing art in Assam	
12	Do	
13	Do	
14	Traditional dresses and ornaments in Assam	

15	Do	
16	Do	
17	Introduction to the painting and Architecture in Assam	
18	Do	
19	Revision	
20	Revision	
21	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Different aspects of Language and literature

Paper Code: ASMM - 601

Unit Assignes: Unit - 4

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Introduction to sociology of literature	
3	Definition of sociology of literature	
4	Human Manners in literature	
5	Human Values in literature	
6	Literature and traditional customs in society	
7	Revision	
8	Revision	
9	Revision	
10	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Introduction to world literature

Paper Code: ASMM - 604

Unit Assignes: Unit-2 & 5

Marks Assign: 15+10=25

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Life and literary works of Kalidas	
3	Do	
4	Abhigyan Sakuntalam: Discussion in details	
5	Do	
6	Selected text. Act IV of the play	
7	Plot structure of the play	
8	Characteristics of the play	
9	Do	
10	Do	
11	Nature and human being in the play	
12	Sakuntala and Indian Philosophy	
13	Life and dramatics works of Shakespeare	
14	Atul Chandra Hazarika as a dramatics	
15	The king lear in Assamese Ashrutirtha	
16	Plot construction of the play	
17	Characteristics of the play	
18	Other aspects	
19	Revision	
20	Revision	
21	Revision	
22	Revision	

Name of the Teacher:- Achyut Saikia

Department of Assamese

Digboi College, Digboi

Course: Major

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the whole course and relevant books and journals	
2	Different periods of early Assamese literature	
3	Sankardeva and his times – social, political and religious aspects.	
4	Sankari Yuga – First golden age of Assamese literature, brief discussion	
5	Discussion of Indian Bhakti Movement	
6	Life and works of Sankardeva	
7	Poetic creation of Sankardeva	
8	Ankiya Nat and other works	
9	Life and literary works of Madhadev	
10	Differences of Ankiya nat and Borgeet of Sankardeva and Madhadev.	
11	Aananta Kandali and Sridhhar Kandali	
12	The Manasa Poets, Mankar, Pitambar, Durgabor and others	
13	Life and literary works of Ram Saraswati	
14	Do	
15	Other Vaishnava poets of the period	

16	Revision	
17	Revision	
18	Revision	

Course: MIL (Assamese)

Class: BA 1st Semester

Name of the paper: History of Assamese Literature and studies on Assamese culture

Paper Code: ASM - 101

Unit Assignes: Unit-2 &3

Marks Assign: 15+12=27

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Indian Bhakti movement and Sankardeva	
3	Sankardeva and Madhadev	
4	Do	
5	Aananta Kandali and other poets	
6	The Panchali literature	
7	Ram Saraswati	
8	Main Characteristics of the period	
9	Do	
10	The Jonaki and its background	
11	Background and characteristics of Romanticism	
12	Romanticism in Assamese	
13	Poetry	
14	Drama	
15	Novel	
16	Short Story	
17	Other literary Genres	
18	Revision	
19	Revision	
20	Revision	

Course: Major

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-1

Marks Assign: 10

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Background of modern Assamse literature from 1826-1889	
3	Modern Assamse literature: pre war period	
4	Modern Assamse literature: post war period	
5	Western influence in modern Assamse literature	
6	revision	
7	Modern Assamse literature: pre war period	
8	Modern Assamse literature: pre war period	
9	Modern Assamse literature: pre war period	
10	Revision	
11	Revision	
12	Revision	

Course: MIL (Assamese)

Class: BA 2nd Semester

Name of the paper: Practices of Assamese Language

Paper Code: ASM - 201

Unit Assignes: Unit-2

Marks Assign: 15

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Definition of translation	
3	Do	
4	Classification of translation	
5	Do	
6	Different field of translation	
7	Do	
8	Translation and modern society	
	Practices Assamse to English	
	Practices English to Assamse	
	Revision	
	Revision	

_Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-1&5

Marks Assign: 16+16=2

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Ancient Assamse poetry	
3	Pre Sankardeva period	
4	Assamese poetry : Sankardeva period	
5	Do	
6	Post Sankardeva period	
7	Assamese poetry: beginning of modern age	
8	The Arunudoy	
9	Pre romantic Assamse poetry	
10	The Jonaki	
11	Romanticism in Assamse poetry	
12	Post war assumers poetry	

13	Selected text by Nabakanta Baruah	
14	Selected text by Nilmani Phukan	
15	Selected text by Harekrishna Deka	
16	Selected text by Karabi Deka Hazarika	
17	Revision	
18	Revision	
19	Revision	

_Course: Major

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-1 & 5

Marks Assign: 16+16=32

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Evolution of assumers prose	
3	Early Assamse prose	
4	Do	
5	Background of modern Assamse prose	
6	The Arunudoy period	
7	The Jonaki period	
8	Pre independence period	
9	Post independence period	
10	Brief discussion of Assamse novel	
11	Atulananda Goswami as a novelist	
12	Namghariya : plot construction	
13	Characterisation of the novel	
14	Do	
15	Other aspects of the novel	
16	Namghariya as a social novel	
17	Revision	
18	Revision	

Course: Major - V

Class: BA 5th Semester

Name of the paper: Comparative Indian Literature

Paper Code: ASMM - 504

Unit Assignes: Unit-All

Marks Assign: 80

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Definition of comparative literature	
3	Scope of comparative literature	
4	Development of the idea of comparative literature	
5	Different schools of comparative literature	
6	Contemporary trends	
7	Thematic study	
8	Geology	
9	Influence studies	
10	historiography	
11	The idea of Indian literature	
12	Then idea of comparative Indian literature	
13	Do	
14	Thematic study of Indian literature	
15	Banshi by Rabindranath and Banhi by Bezbaruah	
16	Rabindranath as a poet	
17	Bezbaruah as a poet	
17	Introduction to the painting and Architecture in Assam	
18	Do	
19	Revision	
20	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Introduction to world literature

Paper Code: ASMM - 604

Unit Assignes: Unit-1, 3 & 4

Marks Assign: 10+15+15=40

Class	Topic/Unit	Remarks
1	Introduction to the Course	
2	The idea of world literature	
3	Do	
4	Do	
5	World literature and translation	
6	Definition and characteristics of short story	
7	Selected text by Maupassant	
8	Do	
9	Selected text by Anton Chekhov	
10	Do	
11	Selected text by O Henry	
12	Do	
13	Selected poem by Thomas hardy	
14	Selected poem by Garcia Lorca	
15	Selected poem by Alexander block	
16	Selected poem by Oswald Durant	
17	Selected poem by County Kinder	
18	Revision	
19	Revision	
20	Revision	

Name of the Teacher:- Simanta Bordoloi

Department of Assamese

Digboi College, Digboi

Course: Major - I

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-1 (Asomiya Sahityar Jug Bahaman)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Origin and Development of Assamese language and Literature	
2	Classification of Assamese literature	
3	Controversy about the classification of Assamese literature	
4	Problems in classification of Assamese literature	
5	Revision	
6	Revision	
7	Revision	

Course: Major - II

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-2 (Adhunik Asomiya Bhasa Sahityar pratishtha)

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Development of Modern Assamese Literature	
2	Background of modern Assamse Literature	
3	Role of Arunudoy in the development of Assamse language as well as literature	
4	Introduction of Missionaries	
5	Language and prose style used by missionaries	
6	An introduction about Assamese writers o Arunudoy	
7	Literary work of Hemchandra Baruah	
8	Literary work of Gunabhiram Baruah	
9	Role of Hemchandra Baruah and Gunabhiram Baruah in the development of Assamese language, literature and society	
10	Briefing	

Course: Major - III

Class: BA 3rd Semester

Name of the paper: Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-3 (Madhav Kandali: Sundarakanda, Madhadev: khed, Usha Parinoy, Chahapori Upakhyan)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Madhav Kandali and his work	
2	Introduction about the trends of Ramayana	
3	Discussion about the text Sundarakanda	
4	Introduction About Madhadev and his works	
5	Introduction about Namghosha	
6	Analysis of Khed	
7	Discussion about Chahapori Upakhyan	
8	Sufism in Assamese literature	
9	Poetic beauty of the selected poetry	
10	Briefing	

Course: Major -I V

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-3 (Anandaram Dhekial Phukanar jiban Charitra,)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Madhav Kandali and his work	
2	Introduction about the trends of Ramayana	
3	Discussion about the text Sundarakanda	
4	Introduction About Madhadev and his works	
5	Introduction about Namghosha	
6	Analysis of Khed	
7	Discussion about Chahapori Upakhyan	
8	Sufism in Assamese literature	
9	Poetic beauty of the selected poetry	
10	Briefing	

_Course: Major - V

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-4 (Spandan, Dupporiya, Phulpahor Shabdo)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Sayad Abdul Malik	
2	Characteristics of short story written by Sayad Abdul Malik	
3	Introduction about Saurabh Kumar Chaliha	

4	Characteristics of short story written by	
5	Introduction about Purabi Bormudoi	
6	Characteristics of short story written by Purabi Bormudoi	
7	Revise	
8	Revise	
9	Revise	
10	Revise	

_Course: Major - VI

Class: BA 4th Semester

Name of the paper: Asomor Bhasa aru Lipi

Paper Code: ASMM - 402

Unit Assignes: Unit-4 (Asomiya Bhasar Lipi aru Asomor Anannya Lipi)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Development of Assamese Language	
2	Development of Assamese script	
3	Introduction about the various script of ancient Assam	
4	Controversy about the Development of Assamese script	
5	Revise	
6	Revise	
7	Revise	

Course: Major - VIII

Class: BA 5th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 502

Unit Assignes: Unit-1 (Assamese Drama and History of Stage)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Development of Assamese Drama in old era	
2	Development of Assamese drama in medieval era	
3	Development of Assamese drama in modern time	
4	Pre war Assamese Drama	
5	Post war Assamese drama	
6	Classification Assamese drama	
7	Types of Assamese Drama	
8	Development of stage in Assam	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - VIII

Class: BA 5th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 502

Unit Assignes: Unit-5 (Eta Cholar Kahini)

Marks Assign: 15

Class	Topic/Unit	Remarks
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1	History of One Act Play	
2	Introduction about Ali Haidar and his works	
3	Marxism in Assamese Drama	
4	Characteristics of One act play	
5	Trends of one act play in Assam	
6	Discussion about the text	
7	Discussion about the text	
8	Discussion about the text	
9	Discussion about the text	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit-2 (Electronic and Print Media, language of advertisement))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Definition of mass media	
2	Types of media	
3	Types of electronics media	
4	Types of print media	
5	Merits and demerits of electronic media	
6	Merits and demerits of print media	
7	Use of language in advertisement	
8	Revision	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit-3 (Editing of Manuscript: Print and Hand written))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Preparation of manuscript	
2	Various process of manuscript editing	
3	Importance of manuscript editing	
4	Various sources of manuscript editing	
5	Problems in manuscript editing	
6	Revision	
7	Revision	
8	Revision	
9	Revision	

Course: Major - XII

Class: BA 6th Semester

Name of the paper: Bharatiya Arya Bhasha Aru Asomiya Bhasha

Paper Code: ASMM - 602

Unit Assignes: Unit-5 (Asomiya Bhashar Bikash)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Origin of Assamese language	
2	Development of Assamese language	
3	Language in ancient Assam	
4	Language in medieval Assam	
5	Language in modern period of Assam	
6	Language in Arunudoy stage	

7	Language in Jonaki stage	
8	Post war Assamese language	
9	Assamse language in recent time	
10	Revision	
11	Revision	
12	Revision	
13	Revision	

DIGBOI COLLEGE, DIGBOI

COURSE PLAN (Jan'2018-June'2018)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –MIL .

Class/Semester - B A 4th Semester (Old) .

Name of the paper – ASM 401 (Selection from Assamese Literature) .

Units Assigned – Unit – 5

Marks Assigned - 15 Classes : 08

Class .	Topic/ Unit .	Remarks	
1	Novel : “Sansipator Puthi” By Trolokya Bhattacharya		
2	History of Assamese Novel		
3	About Trolokya Bhattacharya		
4	Theme of the Novel-1		
5	Theme of the Novel-2		
6	Characters Of The Novel-1		
7	Characters Of The Novel-2		
8	Language of the Novel		
9	Rivision		

DIGBOI COLLEGE, DIGBOI

COURSE PLAN(Jan'2018-June'2018)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.)

Course - Honours /GENERIC – MIL

Class/Semester - B A 2nd Semester (old) .

Name of the paper – ASM 201 (Practices of Assamese Language)

Units Assigned – Unit – 1

Marks Assigned - 20 ; Classes : 18

Class .	Topic/ Unit .	Remarks	
1	What is Communication		
2	Verbal Communication & Non-Verbal Communication		
3	Elements of Non-Verbal Communication		
4	What is a Application		
5	Deference between Application and Will		
6	Remainder letter and its Characteristics		
7	Deference between Application and Remainder		
8	Personal Application		
9	Official Application		
10	Felicitation Letter		
11	Invitation Letter		
12	Memorandum Letter		
13	Writing Skill in a Application -1		
14	Writing Skill in a Application -2		
15	Proceeding Letter		
16	Syntax of Various types of Letter-2		
17	Syntax of Various types of Letter-2		
18	Revision		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN (Jan'2018-June'2018)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 4th Semester (old) .

Name of the paper – ASMM 402 (Language and Script of Assam) .

Units Assigned – Unit – 2

Marks Assigned - 16 ; Classes : 08

Class .	Topic/ Unit .	Remarks	
1	Assamese Language : Its Development		
2	Assamese Language : Its Origin-1		
3	Assamese Language : Its Origin-2		
4	Phonological Characters of Assamese Language		
5	Morphological Characters of Assamese Language		
6	Dialect of Assam		
7	Dialect of Assamese Language		
8	Kamrupi Dialect		
9	Gowalporia Dialect		
10	Darangia Dialect		
11	Revision		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN(Jan'2018-June'2018)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 2nd Semester (Old) .

Name of the paper – ASMM 201 (History of Assamese Literature : From the Arunodoi to Post-War period) .

Units Assigned – Unit – 05 .

Marks Assigned - 25 ; Classes : 15

Class .	Topic/ Unit .	Remarks	
1	Background of Post-War Assamese Literature		
2	What is Modern Assamese Literature		
3	Modernism in Post-War Assamese		
4	Post-War Assamese Poetry -1		
5	Post-War Assamese Poetry -2		
6	Post-War Assamese short-story		
7	The New trends of Assamese short-story		
8	Post-War Assamese Novel -1		
9	Post-War Assamese Novel -2		
10	Modern Assamese Novel and its characters		
11	Post-War Assamese Drama -1		
12	Post-War Assamese Drama -2		
13	Post-War Assamese Criticism		
14	Hiren Gohain & Bhaben Baruah : As a new Critic in Post-War Assamese Literature		
15	Post-War Assamese Travel Literature		
16	Characteristics of Post-War Assamese Travel Literature		
17	Post-War Assamese Science literature		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN(Jan'2018-June'2018)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 6th Semester (Old) .

Name of the paper – ASMM 603 (Linguistic Study of Assamese Language) .

Units Assigned – Unit – All .

Marks Assigned - 20+15+15+15+15 ; Classes : 10+12+10+13+5

Class .	Topic/ Unit .	Remarks	
1	UNIT – 1 : What is Phonetics		
2	Phonetics and Phonology		
3	Types of Phonetics : Articulatory , Acoustic & Auditory Phonetics - 1		
4	Articulatory , Acoustic & Auditory Phonetics-2		
5	Definition of Phonemics		
6	Elements of Phonemics		
7	Organs of Speech		
8	Difference between Phone, Phoneme and Allophone		
9	Syllable		
10	Pitch		
11	Stress		
12	Juncture		
13	Phonological Borrowing -1		
14	Phonological Borrowing -2		
15	UNIT – 2 : Phonological analysis of Assamese Language		
16	Assamese Vowel		
17	Assamese Consonant		
18	Vowel pair(cluster of two)		
19	Consonant pair(cluster of two)		
20	Syllable in Assamese phone		
21	Stress Juncture in Assamese phonology		
22	UNIT- 3 : Morphology : Morphology & Morphemics		
23	Elements of Morphology : Morph		
24	Morpheme & Allomorph		
25	Classification of Morpheme		
26	UNIT- 4 : Assamese Morphology		
27	Structure of Assamese Words		
28	Derivation of Assamese Words		
29	Classification of Assamese Morpheme-1		
30	Classification of Assamese Morpheme-2		
31	Derivation and Inflection		
32	Grammaticalness in Assamese Language		
33	Tense, Mood and Aspect of Assamese Language		
34	Gender of Assamese Language		
35	Case ending of Assamese Language		
35	Structure of Assamese Roots & Tense		
36	UNIT-5 : Syntax of Assamese Language		
37	Various types of Assamese Sentence		
38	Simple, Compound & Complex Sentence-1		
39	Simple, Compound & Complex Sentence-2		
40	Affirmative Sentence		
41	Negative Sentence		
42	Interrogative Sentence		
43	Imperative Sentence		
45	Pitch and Assamese Sentence		
46	Indicative Sentence		
47	Immediate constituent Analysis of Assamese Sentence		
48	Characteristics of Assamese Language		
50	Revision -1		
51	Revision -2		

COURSE PLAN

2018-19

**DEPARTMENT OF BENGALI,
DIGBOI COLLEGE**

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2018-2019
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- I (NCBCS)

Name of the Paper :- BANGLA GADYA SAHITYA

Units Assigned : 1 & 3

Marks Assigned: 25 & 10

Class	Topic/ Unit	No. of class
B.A SEM I (MIL)	Unit :1 : NIRBACHITA KABITA	25
	Unit : 3 : EKEI KI BALE SABHYATA	15

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2018-2019
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- II (NCBCS)

Name of the Paper :- BANGLA SAHITYA

Units Assigned : 2 & 4

Marks Assigned: 25 & 15

Class	Topic/ Unit	No. of class
B.A SEM II (MIL)	Unit :1 : EKSHSO SHERA GALPO	25
	Unit : 2: FERARI FAUZ	15

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2018-2019
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- III (NCBCS) COMMERCE

Name of the Paper :- BANGLA BANIJYIK SAHITYA PARICHAY

Units Assigned : 1,3 & 5

Marks Assigned: 20 , 15 &10

Class	Topic/ Unit	No. of class
B.COM SEM III (MIL)	Unit :1 : EKSHSO SHERA GALPO	15
	Unit :3: COMMERCIAL TERMS	10
	Unit :5: PRABANDHA LIKHAN	10

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2018 - 2019
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- IV (NCBCS)

Name of the Paper :- BANGLA BHASHA O SAHIYO

Units Assigned : 1&3

Marks Assigned: 20 &10

Class	Topic/ Unit	No. of class
B.A. SEM IV (MIL)	Unit :1 : BIBIDHA PRABANDHA	15
	Unit :3: PATRA LIKHAN	10

COURSE PLAN

2018-19

DEPARTMENT OF BOTANY,

DIGBOI COLLEGE

Name: Dr. Dimpy Das

Course Plan; June 2018 to July 2019

Semester: 1st Semester (Major)

Name of Paper: BOTMT 101; Algae, Fungi and Lichen

Units Assigned: 3 (Unit 1, 2, 3)

Marks assigned: 25

Class	Topic/Unit	Remarks
4	Fungi Unit 1: Salient features of fungi, fungal cell structure and fungal nutrition; classification of fungi (Alexopoulos, 1969 and 1983) and their distribution in India.	
6	Unit 2: Comparative account of structure, method of reproduction and mode of spore dispersal of fungi; Economic importance of fungi.	Seminar presentation on "Sexual reproduction in fungi".
15	Unit 3: Comprehensive knowledge of the following groups with special reference to the structure and life histories of the genera mentioned below from an evolutionary point of view. a. Mastigomycotina: Myxomycetes: a general account, Albugo, Pythium. b. Zygomycotina: Rhizopus. c. Ascomycotina: Peziza. d. Basidiomycotina: Puccinia, Polyporus, Cyathus, Agaricus. e. Deuteromycotina: Aspergillus, Alternaria, Penicillium	

Semester: 1st Semester (General)

Name of Paper: BOTGT-101; Lower cryptograms

Units Assigned: 1 (Fungi and plant pathology; Unit 1: a - e)

Marks Assigned: 25

Class	Topics/Unit	Remarks
28	Fungi and Plant Pathology Unit 1: A general knowledge of the different fungal groups, their relationship based on the structure and life histories of the types- a. Phycomycetes: Phytophthora, Synchytrium b. Ascomycotina: Peziza, Penicillium, Xylaria c. Basidiomycotina: Puccinia, Psaliota, Polyporus, Cyathus. Fungi imperfecti. d. General account of bacteria and virus. e. Rust of wheat, Grey blight of tea, Late blight of potato.	

Semester: 3rd Semester (Major)

Name of Paper: BOTMT-301; Pteridophytes, Gymnosperms and Palaeobotany

Units Assigned: 5 (Pteridophytes: Unit-1,2,3 and Palaeobotany: Unit- 1 and 2)

Marks Assigned: 40

Class	Topic/Unit	Remarks
4	Pteridophytes Unit 1: General classification, organization and affinities, distribution in India and economic importance.	
4	Unit 2: Stelar organization in Pteridophytes; evolution of sporophytes and sporophylls in Pteridophytes; Homospory and heterospory and its importance in evolution of seed habit.	
12	Unit 3: Comparative study of morphology and life history of Psilotum, Lycopodium, Selaginella, Equisetum and Marsilea.	
3	Palaeobotany Unit 1: An elementary knowledge of palaeobotany – process and theory of fossilization, geological periods and importance of palaeobotany.	
6	Unit 2: General accounts of anatomy and reproduction of the following types: A. Pteridophytes: Rhynia, Hornea, Psilophyton, Sphenophyllum. B. Gymnosperms: Cycadofilicales (Lyginopteris), Bennettitales (Williamsonia) and Cordaitales (Cordaitea)	

Semester: 3rd Semester (General)

Name of Paper: Morphology, taxonomy, development and reproduction of angiosperms.

Units Assigned: 1 (Unit 3)

Marks Assigned:15

Class	Topic/Unit	Remarks
15	Unit 3: Magnoliaceae, Brassicaceae, Malvaceae, Fabaceae, Rosaceae, Apiaceae, Lamiaceae, Euphorbiaceae, Orchidaceae, Musaceae, Liliaceae, Arecaceae and Poaceae.	

Semester: 5th Semester (Major)

Name of Paper: BOTMT 505; Functional and chemical biology

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
10	Unit 1: Concept of biomolecules, polymeric substances in plants- a brief study of polysaccharides, lipids, proteins, nucleic acids, chlorophylls with special reference to their functions	Seminar presentation on "Polysaccharide and its biological significance".
3	Unit 2: Metabolic concept – anabolism and catabolism	
10	Unit 3: Secondary plant products- Terpenoids, phenols, flavonoids, anthocyanins, alkaloids, non-protein amino acids	

10	Unit 4: General account of – plant hormones and their role (Auxins, gibberellins, cytokinins, florigen, abscisic acid), phytochrome and storage products.	
3	Unit 5: Mechanism of source sink relationship	

Semester: 5th Semester (General)

Name of Paper: BOTGT 501; Cytogenetics, evolution and biostatistics

Units Assigned: 3 (unit 2,3 and 4).

Marks Assigned: 30

Class	Topic/Unit	Remarks
15	Cytogenetics Unit 2: Concept of ploidy and its application, Mendel's laws, linkage, crossing over and chromosome mapping, concept of gene, allele and mutation.	Seminar presentation on "Linkage".
8	Unit 3: Knowledge of non-chromosomal inheritance, concept of genetic engineering and crop improvement.	
4	Unit 4: Concept of protoplast, cell and organ culture, tissue culture techniques and its application and somatic hybridization.	

Semester: 2nd Semester (General)

Name of Paper: BOTGT-201; Bryophytes, Pteridophytes and Gymnosperms

Units Assigned: 1 (Pteridophytes: Unit-1)

Marks assigned: 25

Class	Topic/Unit	Remarks
15	Pteridophytes Unit 1: A general account of the structure and life histories of the following: Lycopodium, Selaginella, Equisetum, Ophioglossum, Polypodium and Maesilea.	Seminar presentation on "Heterospory and seed habit".

Semester: 4th Semester (Major)

Name of Paper: BOTMT- 401; Morphology and Taxonomy of Angiosperms

Units Assigned: Whole Paper

Marks Assigned: 60

Class	Topic/Unit	Remarks
12	Morphology of Angiosperms Unit 1: Detail study of morphological characters: i) Carpel polymorphism ii) Origin of angiosperms iii) Evolution of inflorescence iv) Role of morphology in the classification of the flowering plants.	
8	Taxonomy of Angiosperms Unit 1: History of plant classification, its aims and objectives, outlines of the main classification (systems of classification)- Artificial, Natural, Phylogenetic and Modern with special	

	reference to Lonnaeus, Benth and Hooker, Engler and Prantl, Hutchinson and Takhtajan's classification.	
8	Unit 2: Generic name, specific epithets, citation and authority, binomial nomenclature, taxonomic keys; typification and priority; importance of herbarium specimens and their preparations; role of herbaria and botanical gardens; documentation (floras, monographs, manuals, journals, abstracts, indices and dictionaries).	Seminar presentation on "Herbarium- its preparation and role in taxonomy".
5	Unit 3: Details on cytotaxonomy, Chemotaxonomy, Numerical taxonomy and Biosystematics.	
22	Unit 4: A detailed knowledge of the following families and their phylogenetic affinities and economically important plants: Dicotyledons: Magnoliaceae, Malvaceae, Rubiaceae, Fabaceae, Rosaceae, Solanaceae, Cucurbitaceae, Apiaceae, Asteraceae, Lamiaceae, Theaceae, Apocynaceae and Euphorbiaceae. Monocotyledons: Orchidaceae, Musaceae, Zingiberaceae, Arecaceae, Poaceae, Commelinaceae and Cyperaceae.	

Semester: 4th Semester (General)

Name of Paper: BOTGT- 401; Physiology and Economic Botany

Units Assigned: 1 (Unit 1: a - g)

Marks Assigned: 20

Class	Topic/Unit	Remarks
14	Economic Botany Unit 1: A general knowledge of the following economically important plants with reference to their local names, scientific names and parts used. a. Cereals: Rice, wheat and maize b. Pulses: Pea and Soyabean c. Oil seeds: Mustard, Ground Nut, Coconut and Sunflower. d. Fibre yielding plants: Jute, cotton, ramie. e. Medicinal plants: Rauvolfia, Swertia, Ocimum and Neem. f. Timber yielding plants: Sal, Sissoo, Teak and Holokh g. Non-alcoholic beverages: Tea and Coffee.	

Semester: 6th Semester (Major)

Name of Paper: Biophysics and Bioinformatics

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
3	Biophysics Unit 1: Scope and development of biophysics. pH and buffer solution in details.	
4	Unit 2: Laws of thermodynamics, concept of free energy, redox potential and bioenergetics (only high energy	Seminar presentation on "Laws of

	compound).	thermodynamics and its biological application".
8	Unit 3: X-ray crystallography (XRD), Chromatography, laser and its biological applications. Florescence and its application, basic concept of NMR and ultra sound.	
3	Unit 4: Isotopes, types, their importance in biological studies, measure of radioactivity.	
4	Bioinformatics Unit 1: Fundamentals of bioinformatics: introduction, history and scope of bioinformatics, sources of information, internet, world wide web and web brouers.	
6	Unit 2: Biological database: introduction, basic concepts of primary and secondary databases; nucleic acid and protein sequence database (NCBI, genebank and SWISS-PROT); data mining and data mining tools (ENTREZ).	
8	Unit 3: Database search and sequence alignment, tools of sequence alignment – FASTA and BLAST; methods of sequence alignment.	
5	Unit 4: Phylogenetic analysis: basic concept, steps in evaluation of phylogeny and constructing phylogenetic trees.	

Semester: 6th Semester (General)

Name of Paper: BOTGT 601; Biochemistry, plant ecology and plant geography

Units Assigned: 2 (Unit 1 and 2)

Marks Assigned: 16

Class	Topic/Unit	Remarks
8	Biochemistry Unit 1: Basic principles of biochemistry, acid, base, pH and buffer (inorganic and organic) enzymes, (physiological properties), vitamins and coenzymes and their importance.	
12	Unit 2: General account of carbohydrates, fats, proteins, nucleic acids and their importance.	

DIGBOI COLLEGE, DIGBOI

Course Plan:- 2018-19

Name of the Teacher- Dulu Moni Das

Department: Botany

Course – Major/General:-Major

Paper Code:-101

Class/Semester- 1st semester (M)

Name of the Paper- Algae, Fungi and Lichen (Theory)

Units Assigned- 1, 2, 3(Fungi)

Marks Assigned:-20+5=25

Class	Topic/ Unit	Remarks
1.	General Characters of Algae	Explanation, Oral Assessment
2.	Classification of Algae	Notes
3.	Phylogeny of Algae	Explanation
4.	Distribution of Algae	Explanation
5.	Economic Importance of Algae	Explanation & Notes
6.	Cell Structure of Algae	Explanation, Oral Assessment
7.	Cell Organelles of Algae	Explanation
8.	Range of Thallus structure in Algae	Notes
9.	Reproduction in Algae	Explanation
10.	General account on Chlorophyceae	Explanation
11.	Reproduction & Life History of <i>Chlorella</i> & <i>Volvox</i>	Explanation
12.	Reproduction & Life History of <i>Oedogonium</i> & <i>Coleochaete</i>	Explanation
13.	Reproduction & Life History of <i>Chara</i>	Explanation
14.	General account on Xanthophyceae	Explanation
15.	Reproduction & Life History of <i>Chlorella</i>	Explanation
16.	General account on Bacillariophyceae	Explanation

Course – Major/ General:- Major

Paper Code:-102

Class/Semester- 1st semester (M)

Name of the Paper- Algae, Fungi and Lichen (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
1.	Introduction to Algae	Explanation
2.	Preparation of Slides of Algae	Practical

3.	Preparation of Slides of Algae	Practical
4.	Preparation of Slides of Algae	Practical
5.	Preparation of Slides of Algae	Practical
6.	Preparation of Slides of Algae	Practical

Course – Major/General:- General

Paper Code:-101

Class/Semester- 1st semester (G)

Name of the Paper- Lower Cryptogames(Theory)

Units Assigned- 1 (Mycology & Plant Pathology)

Marks Assigned- 12+3=15

Class	Topic/ Unit	Remarks
1.	General Characters of fungi & affinity with different groups	Explanations
2	General Characters of fungi & affinity with different groups	Explanations, Oral Assessment
3.	Thallus organization & cell wall composition of fungi.	Notes
4.	Classification of Fungi	Explanation
5.	Reproduction in Fungi	Explanation
6.	Economic importance of Fungi	Notes
7.	Salient Features, reproduction and life history of <i>Phytophthora</i>	Explanation
8.	Salient Features, reproduction and life history of <i>Synchytrium</i>	Explanation
9.	General account on Ascomycetes	Explanation, Oral Assessment
10.	Salient Features, reproduction and life history of <i>Peziza</i>	Explanation
11.	Salient Features, reproduction and life history of <i>Penicillium</i>	Explanation
12.	General account on Basidiomycetes	Explanation
13.	General account on Deuteromycetes	Explanations
14.	Symptoms of Plant diseases	Notes, Class test.
15	Control measures of plant diseases	Notes
16	Symptoms, C. O. and control measures of Bacterial diseases	Explanation
17	Symptoms, C. O. and control measures of Fungal diseases	Explanation
18	Symptoms, C. O. and control measures of viral diseases	Explanation

Course – Major/ General:-General

Paper Code:-102

Class/Semester- 1st semester (G)

Name of the Paper- Lower Cryptogames (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
1.	Introduction to Fungi	Explanation
2.	Preparation of Slides of Fungi	Practical

3.	Preparation of Slides of Fungi	Practical
4.	Study about bacterial plant diseases	Practical
5.	Study about Fungal plant diseases	Practical
6.	Study about Fungal plant diseases	Practical
7.	Study about Fungal plant diseases	Practical
8.	Study about Viral plant diseases	Practical

Course – Major/ General:-Major

Paper Code:-201

Class/Semester- 2nd semester (M)

Name of the Paper- Plant Pathology & Bryophyta (Theory)

Units Assigned- 1, 2, 3 & 4.

Marks Assigned- 24+6=30

Class	Topic/ Unit	Remarks
1.	Principals of Plant Pathology	Explanations
2.	Principals of Plant Pathology	Notes
3.	Classification of Plant Diseases	Explanation
4.	Symptoms of Plant diseases	Explanation, Oral Assessment
5.	Host Parasite interaction	Explanation
6.	Host Parasite interaction	Notes
7.	Management of Plant Diseases	Explanation
8.	Management of Plant Diseases	Notes, Oral Assessment
9.	Management of Plant Diseases	Notes
10.	Symptoms, C O and control measures of Late blight of Potato	Explanation
11.	Symptoms, C O and control measures of Ergot of Rye	Explanation
12.	Symptoms, C O and control measures of Loose Smut of Wheat	Explanation
13.	Symptoms, C O and control measures of Rusts of Wheat	Explanation
14.	Symptoms, C O and control measures of Rusts of Wheat	Notes
15.	Symptoms, C O and control measures of Red rot of Sugarcane	Explanation
16.	Symptoms, C O and control measures of Grey blight of tea	Explanation
17.	Symptoms, C O and control measures of Citrus Canker	Explanation
18.	Symptoms, C O and control measures of Tobacco Mosaic diseases	Explanation

Course – Major/ General:-Major

Paper Code:-201

Class/Semester- 2nd semester (M)

Name of the Paper- Plant Pathology (Practical)

Marks Assigned =8

Class	Topic/ Unit	Remarks
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1.	Introduction to Phytopathology	Explanation
2.	Isolation Preparation of Slides of Parasitic Fungi	Practical
3.	Isolation Preparation of Slides of Parasitic Fungi	Practical
4.	Isolation Preparation of Slides of Parasitic Fungi	Practical
5.	Isolation Preparation of Slides of Parasitic Fungi	Practical
6.	Practical on drawing Camera lucida diagram	Practical
7.	Measurement of Spore by ocular micrometer	Practical
8.	Study about bacterial plant diseases	Practical
9.	Study about bacterial viral diseases	Practical

Course – Major/ General:-Major

Paper Code:-302

Class/Semester- 3rd semester (M)

Name of the Paper- Microbiology & Biotechnology (Theory)

Units Assigned- 1, 2, 3, 4, 5

Marks Assigned:- 32+8=40

Class	Topic/ Unit	Remarks
1.	History of Microbiology	Explanations
2.	Life & work of some notable Microbiologists	Notes
3.	Classification of Microorganism	Explanation
4.	Brief Knowledge about Cyanobacteria	Explanation
5.	Brief Knowledge about Virus	Explanation, Oral Assessment
6.	Brief Knowledge about Bacteriophage	Explanation Oral Assessment
7.	Brief Knowledge about Mycoplasma	Explanation Oral Assessment
8.	Principles of cultivation of Microorganisms	Notes
9.	Pure Culture Concept	Notes
10.	General Ecology of Soil Microorganism	Explanation
11.	Mycorrhiza	Explanation
12.	Bacteriorrhiza	Explanation
13.	Microbiology of Food and milk	Explanation & Notes
14.	Microbiology of water	Explanation & Notes
15.	Medical microbiology	Explanation
16.	Microbes related to Plant diseases	Explanation, & Notes

Course – Major/ General:-Major

Paper Code:- 302

Class/Semester- 3rd semester (M)

Name of the Paper- Microbiology (Practical)

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	Instruments used in Microbiology	Demonstration
2.	Culture Media preparation	Practical
3.	Serial dilution technique	Practical
4.	Pure Culture Technique	Practical
5.	Gram Staining method of bacteria	Practical
6.	Study about Curd bacteria	Practical
7.	Study about nodule bacteria	Practical

Course – Major/ General:-General

Paper Code:-301

Class/Semester- 3rd semester (G)

Name of the Paper- Morphology, Taxonomy and Reproduction of Angiosperm (Theory)

Units Assigned- 1 & 2

Marks Assigned- 12+3=15

Class	Topic/ Unit	Remarks
1.	Principals of Classification of Angiosperms	Explanations
2.	Linnaeus System of Classification	Explanations & Notes
3.	Bentham & Hooker's System of Classification	Explanations & Notes
4.	Engler & Prantal's System of Classification	Explanations & Notes
5.	Binomial Nomenclature	Explanation, Oral Assessment
6.	Identification & Classifications rules & norms	Explanation
7.	Morphological detail of Stem & Leaf	Explanation
8.	Morphological detail of Flower	Explanation
9.	Concept on Floral formula	Explanation, Oral Assessment
10.	Concept on Floral diagram	Explanation Oral Assessment

Course – Major/ General:- Major

Paper Code:-403

Class/Semester- 4th semester (M)

Name of the Paper- Cell Biology & Modern Laboratory Technique (Theory)

Units Assigned- 1

Marks Assigned- 16+4=20

Class	Topic/ Unit	Remarks
1.	Concept on Microscopy	Explanations, Oral Assessment
2.	Types of Microscopes, Working principals & Use	Explanations
3.	Separation techniques of Biomolecules	Explanation
4.	Chromatography types,	Explanation
5.	Centrifugation & Gel filtration	Explanation
6.	Spectrophotometry	Explanation
7.	Colorimetry	Explanation
8.	pH meter, BOD incubator, Autoclave, LAF Chamber, Hot Air Oven	Explanation
9.	Knowledge & Application of Computer in Biological science	Notes

Course – Major/ General:-Major

Paper Code:-404

Class/Semester- 4th semester (M)

Name of the Paper- Cell Biology & Modern Laboratory Technique (Practical)

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1.	Description of Instruments used in Biological Science	Demonstration
2.	Separation of Chlorophyll by Paper Chromatography	Practical
3.	Separation of amino acids by Paper Chromatography	Practical

Course – Major/ General:- Major

Paper Code:-401

Class/Semester- 4th semester (G)

Name of the Paper- Plant Physiology & Economic Botany (Theory)

Units Assigned- 1, 2, 3, 4, 5, 6

Marks Assigned-: 32+8=40

Class	Topic/ Unit	Remarks
1.	Water relation to Plant, Diffusion, Osmosis & imbibitions.	Explanations, Oral Assessment
2.	Absorption of Water	Explanation & Notes

3.	Ascent of Sap	Explanation & Notes
4.	Transpiration	Explanation & Notes
5.	Mineral nutrition	Explanation & Notes
6.	Translocation of Solute	Explanation
7.	Photosynthesis	Explanation, Oral Assessment
8.	Photosynthesis	Explanation
9.	Photosynthesis	Notes
10	Respiration in Plants	Explanation
11	Respiration in Plants	Notes
12	Phytohormones	Explanation & Notes
13	Phytohormones	Explanation & Notes
14	Physiology of Flowering	Explanation
15	Physiology of Flowering	Notes
16	Plant movement	Explanation
17	Plant movement	Notes

Paper Code:-402

Class/Semester- 4th semester (G)

Name of the Paper- Plant Physiology & Economic Botany (Theory)

Marks Assigned- 20=4=24

Class	Topic/ Unit	Remarks
1.	Experiment on Imbibitions	Practical
2.	Experiment on Plasmolysis	Practical
3.	Experiment on Transpiration	Practical
4.	Experiment on Transpiration	Practical
5.	Experiment on Photosynthesis	Practical
6.	Experiment on Photosynthesis	Demonstration

Course –Honours / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-506

Name of the Paper- Ecology & phytogeography

Units Assigned- 1, 2, 3, 4, 5

Marks Assigned- 48

Class	Topic/ Unit	Remarks
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s		
1.	Basic concept & introduction to ecology	Explanations
2.	Biotic & abiotic factors & interactions	Explanations
3.	Components of ecosystem	Explanations
4.	Pedology, Physical, chemical & biological structure of soil.	Explanations
5.	Soil profile	Explanations
6.	Role of soil in development of vegetation.	Explanations
7.	Water quality & characters.	Explanations
8.	Hydrological cycle	Explanations
9.	Water in development of vegetation & climate.	Explanations
10.	Light & temperature in development of vegetation	Explanations
11.	Fire in development of vegetation	Explanations
12.	Biotic interaction	Explanations
13.	Biotic interaction	Explanations
14.	Biotic interaction	Explanations
15.	Plant community	Explanations
16.	Synthetic characters of Plant community	Explanations
17.	Analytical characters of Plant community	Explanations
18.	Plant Succession	Explanations
19.	Plant Succession	Explanations
20.	Plant Succession	Explanations
21.	Biogeochemical cycle	Notes
22.	Biogeochemical cycle	Notes
23.	Biogeochemical cycle	Notes
24.	Adaptation in Hydrophytes	Explanations
25.	Adaptation in Xerophytes	Explanations
26.	Adaptation in Epiphytes & Halophytes	Explanations
27.	Ecosystem	Explanations
28.	Structure of Ecosystem	Explanations
29.	Function of Ecosystem	Explanations
30.	Energy flow in Ecosystem	Explanations
31.	Habitat degradation	Explanations
32.	Ecological issues & problems.	Explanations
33.	Global ecological problems.	Explanations
34.	Concept on EIA	Explanations
35.	Conservation Biology, Ex situ & in situ conservation.	Explanations
36.	WWC, IUCN, NBWL, NBA	Explanations
37.	Concept on Biodiversity.	Explanations
38.	Flagship, Keystone & Endemic Species	Explanations
39.	Introduction to biodiversity.	Explanations
40.	Importance & conservation of biodiversity	Explanations
41.	Introduction to Phytogeography, Static & Dynamic Phytogeography	Explanations
42.	Phytogeographical regions of the world	PPT
43.	Phytogeographical regions of India	PPT
44.	Theories to explain distribution of Plants	Notes
45.	Origin of Life	Explanations
46.	Chemical origin of Life	Explanations
47.	Theories of organic Evolution	Explanations
48.	Theories of organic Evolution	Explanations
49.	Theories of organic Evolution	Explanations

Course –Honors / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-507

Name of the Paper- Ecology & phytogeography

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Instruments used in Plant ecology.	
2.	Practical related to plant ecology.	5 practicals
3.	Practical related to ecological adaptation.	4 Specimens
4.	Practical related to phytogeography.	Model submission

Course:-Honors/Generic –Generic

Class/Semester- 5th semester (G)

Paper code:-501

Name of the Paper- Cytogenetics, Evolution & Biostatistics

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Origin of Life	Explanations
2.	Chemical origin of Life	Explanations
3.	Theories of organic Evolution	Explanations
4.	Theories of organic Evolution	Explanations
5	Theories of organic Evolution	Explanations

Course –Honours/ Generic:- Generic

Class/Semester- 5th semester (G)

Paper code:-502

Name of the Paper- Cytogenetics, Evolution & Biostatistics

Class	Topic/ Unit	Remarks
1	Study about plant fossil	Demonstration
2.	Study about plant fossil	Demonstration

Course –Honours / Generic –Major

Class/Semester- 6th semester (M)

Paper code:- 606 Name of the Paper- Agrotechnology & Sustainable utilization of Plants.

Units Assigned- 1, 2, 3, 4, 5, 6.

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Centre of origin, Vavilov's concept.	Explanations
2.	Ethnobotany and its importance in Indian context.	Explanations
3.	Indigenous Knowledge System.	Explanations
4.	Agrotechnology & economic importance of cereals.	Notes
5.	Agrotechnology & economic importance of oil yielding plants.	Notes
6.	Agrotechnology & economic importance of Pulses.	Notes
7.	Agrotechnology & economic importance of beverages.	Notes
8.	Agrotechnology & economic importance of Vegetables.	Notes
9.	Agrotechnology & economic importance of Spices & condiments.	Notes
10.	Agrotechnology & economic importance of Spices & condiments.	Notes
11.	Agrotechnology & economic importance of timber yielding plants.	Notes
12.	Agrotechnology & economic importance of Aromatic & petrocrops.	Notes
13.	Agrotechnology & economic importance of Aromatic & petrocrops	Notes
14.	Domestication of Plants.	Explanations
15.	Germplasm & gene bank	Explanations
16.	Biofertilizer & biopesticides.	Explanations
17.	Organic farming.	Explanations
18.	Use of lower group of Plants.	Explanations
19.	Use of lower group of Plants.	Explanations

Course –Honours / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-607

Name of Paper- Agrotechnology & Sustainable utilization of Plants.

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Determination of pH of soil.	Practical
2.	Determination of WHC of soil.	Practical
3.	Determination of soil moisture.	Practical
4.	Determination of protein, fat & starch content of plant sample.	Practical
5.	Study of botanical character of useful plants.	15 nos.

Course –Honours / Generic –Major

Class/ Semester- 6th semester (M)

Paper code:-601

Name of the Paper- Ecology & phytogeography

Units Assigned- 1, 2, 3, 4, 5, 6

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Basic concept & introduction to ecology	Explanations
2.	Biotic & abiotic factors & interactions	Explanations
3.	Structure of Ecosystem	Explanations
4.	Function of Ecosystem	Explanations
5.	Succession in plants	Explanations
6.	Adaptation in plants	Explanations
7.	Pollution of air, water & soil	Explanations
8.	Green house effect	Explanations

9.	Ozone layer depletion	Explanations
10.	Deforestation, its cause & effects	Explanations
11.	Natural resource management	Explanations
12.	IUCN red list category	Explanations
13.	WWC, IUCN, NBWL, NBA	Explanations
14.	Concept on Biodiversity	Explanations
15.	Conservation Biology, Ex situ & in situ conservation	Explanations

Course –Honours / Generic –General

Class/Semester- 6th semester (M) Paper code:-602 Name of

the Paper- Ecology & phytogeography

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Instruments used in Plant ecology.	Demonstration
2.	Practical related to plant ecology.	2practicals

Course plan Agust to Dec.,2018

Class: 1st Semester

Name of paper: Algae, Fungi and Lichen

Units Assigned:1,2,3

Marks Assigned:20

Class	Unit/Course	Remark
1	Unit-1: General characters,	Total 20 classes
2	classification	
3	and economic importance of algae;	
4	its phylogeny and distribution in India.	
5	Unit-2: Vegetive structure: Cell and thallus structure ,	

6	algal chromatophores and pigments,	
7	range of thallus structure,	
8	reproduction, Vegetative, Asexual,	
9	Sexual and pattern of life cycle.	
10	Unit-3	
11	:A comparative knowledge of the following	
12	classes with special reference to the structure	
13	and life histories of the genera mention bellow.	
14	Myxophyceae: Nostoc	
15	and Anabeana;	
16	Chlorophyceae: Chorella,	
17	Volvox, Oedogonium,	
18	Coleochaete, Chara;	
19	Xanthophyceae: Vaucheria;	
20	Bacillariophyceae: A general account.;	
21	Phaeophyceae: Ectocarpus, and	
22	Fucus ;	
23	Rhodophyceae: Polysiphonia,	
24	Batrachospermum	

Class: 3rd Semester Major

Name of Paper: Microbiology and Biotechnology

Unit assigned: Unit-1&2

Marks assigned:10

Class	Unit/Course	Remark
1	Unit-1 Introduction to Biotechnology	Total 9 classes

2	Scope of Biotechnology	
3	Recent advances in Biotechnology	
4	Application of Biotechnology in agriculture	
5	Application of Biotechnology in Industry	
6	Biofertilizers	
	Unit-2	
7	Genetic Engineering	
8	Scope and applications	
9	Merits and demerits	

Class:3rd Semester General

Name of paper: Morphology, Taxonomy, Development and reproduction of Angiosperms

Unit assigned: 1&2

Marks assigned:

Class	Unit/Course	Remark
	Development and Reproduction	Total 10 classes
	Unit-1	
1	Meristems	
2	Root and Shoot apices	
3	Tissue	
4	Tissue systems	
5	Primary Body	
6	Stelar structure	
	Unit-2	
7	The secondary growth	

8	Cambium and its Derivatives	
9	Anomalous tissues	
10	Periderm	

Class: 5th Semester Major

Name of Paper: Genetics, Plant breeding and Biostatistics

Unit assigned: Genetics Unit-1,2,3,4,5;Plant Breeding: 1,2;Biostatistics1,2,3

Marks assigned: 60

Class	Unit/Course	Remarks
	Genetics:	Total 38 classes
1	Unit-1	
2	Mendel's Laws	
3	Critical appreciations of Mendel's Laws	
4	Gene interactions	
5	Alleles and multiple alleles	
6	Multiple genes	
	Linkage and crossing over	
7	Unit-2	
8	Sex determinations	
9	Sex linkage	
10	Sex limited traits	
11	Cytoplasmic inheritance	
12	Plastid and kappa particle inheritance	
	Unit-3	
13	Chromosomal mutation and gene mutation	
14	Biochemical Mutations	

	Unit-4	
15	Basic concept of gene	
16	Fine structure of gene	
17	Genetic engineering, Gene Cloning	
18	Concept of Trans gene	
	Unit-5	
20	Human genetics	
21	Karyotypes	
22	Genetic disorders	
	Plant Breeding	
	Unit-1	
23	Plant introduction	
24	Selection	
25	Hybridization	
26	Mutation breeding	
	Unit-2	
27	Invitro culture	
28	Techniques	
29	Applications of tissue culture	
	Biostatistics	
	Unit-1	
30	Applications of Biostatistics	
31	Collection, classification of data	
32	Frequency distribution	
	Unit-2	
33	Measure of central tendency	
34	Mean, Median and Mode	

35	Standard error and standard deviation	
	Unit-3	
36	Test of significance	
37	Chi square test	
38	Probability test	

Class: 5th Semester General:

Name of paper: Cytogenetics, evolution and Biostatistics

Unit assigned: Cytogenetics Unit-2 & Biostatistics Unit-1

Marks assigned:

Class	Unit/Course	Remarks
	Cytogenetics Unit-2	Total 15 class
1	Concept of polyploidy	
2	Application of polyploidy	
3	Mendel's Laws	
4	Linkage and Crossing over	
5	Chromosome mapping of genes	
6	Allele	
7	Mutation	
	Biostatistics, Unit-1	
8	Importance of Biostatistics	
9	Mean	
10	Median	
11	Mode	
12	Mean deviation	
13	Standard deviation	

14	Standard error	
15	Test of Significance	

Course plan January to June-2019

Class: 2nd Semester

Name of Paper:

Units Assigned

Marks Assigned:30

Class	Unit/Course	Remarks
1	Unit-1 : General account Bryophytes	Targeted to complete the course 15 classes
2	Classifications	
3	distribution in India	
4	Unit-2 : Evolution of sporophytes in Bryophytes	
5	spore dispersal mechanism ,	
6	Comparative account of the gametophyte	
7,	Unit-3: A comparative knowledge of the structure	
8	and life history of the following types	
9	from the evolutionary point of view and their ecology	

10	and economic importance.	
11	Riccia,	
12	Marchantia,	
13	Anthoceros,	
14	Shagnum,	
15	Polytricum	

4th Sem. Major

Name of paper: Cell Biology and Modern Laboratory technique

Units Assigned: Unit 4,5

Marks assigned: 8

Class	Unit/Course	Marks
1	Unit- 4: Nucleoproteins	10 classes needed to complete the course.
2 &4	nature of genetic material.	
	Unit-5:	
5&6	Cell adhesion,	
7&8	Membrane transport,	
9&10	Signal transduction(G-Protein)	

Class: 4th Sem. General

Name of paper: Physiology and Economic Botany

Unit Assigned: 1

Marks Assigned: 20

Class	Unit/Course	Remarks
1 & 2	Unit-1: A general knowledge of the following economically important plants with reference to their local names and plant parts used.	A total of 22 classes
3,4&5	Cereals: Rice, Wheat and Maize	
6,7	Pulses: Pea and Soyabean	
8,9,10	Oil Seeds: Mustard, Ground Nut, Coconut and Sunflower.	
11,12,13,14	Fibre Yielding Plants: Jute, Cotton, Ramie	
15,16,17,18	Medicinal Plants: Rawolfia, Swertia, Ocimum and Neem.	
19,20	Timber yielding Plants: Sal, Sisso, Teak, Holokh	
21,22	Non alcoholic beverages: Tea and Coffee.	

Class: 6th Sem. Major

Name of paper: Molecular Biology and Immunology

Units assigned: Molecular Biology: Unit: 1,2,3,4,5 and Immunology Unit: 1,2,3

Marks Assigned: 60

Class	Unit/Course	Marks
1	Molecular Biology: Unit-1: Nucleic Acids,	27 Classes needed
2	DNA as Genetic material,	

3	structure and functions of DNA	
4	Structure and functions of RNA.	
5	Watson and Crick Model of DNA,	
6	other forms of DNA(A-Z),	
7	Genome organization in prokaryotes	
8	Genome organization in eukaryotes.	
	Unit -2:	
9	Replication of DNA-Prokaryotes and eukaryotes,	
10	Transcriptions in prokaryotes and eukaryotes.	
	Unit-3:	
11	Features of genetic code,	
12	Wobble hypothesis,	
13	protein biosynthesis in prokaryotes	
14	Protein biosynthesis in eukaryotes .	
	Unit-4:	
15	Recombination in Prokaryotes,	
16	Transformation,	
17	Conjugation and Transduction,	
18	Concept of Transposons and Plasmids.	
	Unit-5:	
19	Regulation of gene expression in prokaryotes-	
20	Operon concept(Lac)	
	Immunology:	
	Unit-1:	
21	Plant health Management	
	Unit-2:	
22	Immunity and resistant in mammals,	

23	principles of antigens and antibodies reaction.	
	Unit-3:	
24	Interaction of plant with bacteria,	
25	Interaction of plants with Virus and Fungi;	
26	breeding for disease resistance,	
27	environment and immunity from infectious diseases in plants.	

Class: 6th Sem. General

Name of paper: Plant Ecology and Plant Geography

Units assigned: Unit- Plant ecology4

Marks Assigned:

Class	Unit/Course	Marks
	Plant Ecology:	Total-9classes
	Ecology: Unit-4:	
1	Pollution; Air,	
2	Pollution ;Water,	
3	Pollution; Soil,	
4	Global Climate change ;	
5	Green House effect, Ozone Depletion,	
6	Acid Rain,	
7	Deforestation and consequences of Deforestation.	

<p>8</p> <p>9</p>	<p>Plant Geography</p> <p>Unit-2: Endemism and endemic flora-</p> <p>A general account of endemic flora.</p>	
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COURSE PLAN

2018-19

DEPARTMENT OF CHEMISTRY

DIGBOI COLLEGE

NAME OF THE TEACHER-MRS. JONALI DUTTA

(June 2018 – Dec 2018)

Name of the Teacher-MRS. JONALI DUTTA

Course –MAJOR

Class/Semester-FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-II &III

Marks Assigned-16

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06 L -4
2	Vapourpressure,surfacetension,	
3	viscosity, parachor-determination and application	
4	Newtonian and nonNewtonian liquid,	
5.	liquid crystals ,discussion	
Unit III – Solids		
1	crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 10 L-5
2	packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introductionto powder and single crystal methods of structureanalysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors,semiconductors and insulators from band theory.	

(June 2018 – Dec 2018)

Name of the Teacher- MRS. JONALI DUTTA

Course – Non MAJOR

Class/Semester- FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-IV & V

Marks Assigned-6 +6

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06
2	Vapour pressure, surface tension, determination	
3	viscosity, parachor-determination and application	
4	Newtonian and nonNewtonian liquid,	
5.	liquid crystals ,discussion	
Unit III – Solids		
1	Crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 06
2	packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introduction to powder and single crystal methods of structure analysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors, semiconductors and insulators from band theory.	

(June 2018 – Dec2018)

NAME OF THE TEACHER:MRS.JONALI DUTTA

CLASS/SEM-FIFTH SEMESTER

PAPER-501 MM (Physical Chemistry)

MARKS ASSIGNED:18

Unit III: System of variable composition		
Class	Topic	Remarks
1	thermodynamics Partial Molar quantities, chemical thermodynamics, chemical	Marks 10
2	Gibbs Duhem equation, Effect of temperature and pressure, Activity	
3	fugacity, Concept of equilibrium state, derivation of expression of equilibrium constant,	
4	temperature pressure and concentration dependence of equilibrium constant-Van't Hoff equation Le-Chatelier principle, effect of temperature, pressure and concentration, examples (qualitative treatment).	
6.	Question -Answer discussion	
Unit: II Solution		Marks: 08
1	Introduction to dilute solutions, vapour pressure, lowering of vapour pressure, Raoult's and Henry's Law	
2	immiscible liquids, Nernst's Distribution law, derivation	
3	Solvent extraction	
4	Colligative properties, definition, examples	
5	Thermodynamic derivation of lowering of	
6	Vapour pressure, chemical potential	
7	Elevation of boiling point	
8	Depression of freezing point	
9	Osmotic pressure	
10	Question answer discussion and revision	

(June 2018 – Dec2018)

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- Fifth

Name of the Paper- 507 (QM and Chemical bonding)

Units Assigned- II& III(2018)

Marks :33

Unit – II :Quantum Chemistry		
Class	TOPIC/UNIT	REMARKS
1	Black body radiation – Planck's hypothesis, photoelectric effect, de Broglie hypothesis	MARKS 15
2	Heisenberg's uncertainty principle. Schrodinger Wave Equation	
3	Operators, Postulates of quantum mechanics Normalization of wave functions- expectation values	
4	Interpretation of the wave function – orthogonal and orthonormal wave functions. Schrodinger equation and its application	
5	particle in a box. One dimension, Three dimension	
6	Energy levels, probability distribution functions. Nodal properties, degeneracy	
7	Qualitative treatment of hydrogen atom, Energy levels and quantum numbers	
8	The radial and angular part of wave functions, two dimensional plots of probability density.	
9	Stern Gerlach experiment, electron spin and spin quantum numbers,	
10	Pauli's exclusion principle – Helium Atom	
11	(i) rigid rotator	
12	ii) harmonic oscillator	
13	Revision	
Unit:III:Chemical Bonding		MARKS:08
1	Valence bond and molecular orbital, comparison With examples	
2	LCAO – MO treatment of H ₂	
3	MO Method of H ₂ molecules ion, Valence bond treatment of H ₂	
4	Localized and non localized molecular orbitals of Homonuclear and heteronuclear diatomic molecules	
5	MO diagram of H ₂ , N ₂ , NO, CO, HF, CN	

(June 2018 – Dec 2018)

Name of the Teacher- MrsJonali Dutta

Course –Non Major

Class/Semester- Fifth Semester

Name of the Paper- 501,PHYSICAL CHEMISTRY

Units Assigned- II& IV

Marks :13

Unit –II Electrochemistry		
class	UNIT/TOPIC	
1	Reversible and irreversible cells, Concept of EMF of a cell.	L-6, Marks - 6
2	Measurement of EMF of a cell. Nernst equation and its importance.	
3	Types of electrodes. Standard electrode potential and salt bridge	
4	pH determination using hydrogen electrode and quinhydrone electrode	
5	Commercial applications of galvanic cell, dry cell, lead storage battery,	
6	fuel cell	
7	NUMERICALS,DISCUSSION	
Unit IV Photochemistry		
Class	UNIT/TOPIC	REMARKS
1	Adsorption of light, Laws of photochemistry	Marks -5
2	Lambert Beer's law,	
3	Quantum yield, Quantum efficiency,	
4	Fluorescence, phosphorescence	
5	Chemiluminescence, phosphosensitized reaction	
	UNIT:ICONDUCTANCE (50pc)	
1	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, water,	MARKS:2
2	Solubility and solubility products of sparingly soluble salts, ionic product of	
3	Hydrolysis constant of a salt. Conductmetric titrations (only acid-base).	

JAN 2019 – MAY 2019

Name of the Teacher- MrsJonali Dutta

Course – Major

Class/Semester- SECOND semester

Name of the Paper- 201 MM, (PHYSICAL CHEMISTRY)

Units Assigned- II

Marks :12

Unit II – Ionic equilibrium		
Class	Unit/topic	Remarks
1	Strong and weak electrolyte with modern classification of electrolytes (true and potential electrolyte	Marks: 12
2	Factors affecting degree of ionization, ionization constant, ionic product of water,	
3	Degree of ionization, ionization of weak acids and bases, pH scale, common ion effect.	
4	Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis	
5	pH for different salts	
6	Buffer solution, derivation of Henderson equation and its applications	
7	Buffer capacity, buffer range, buffer action.	
8	Solubility and solubility product of sparingly soluble salts	
9	Application of solubility product principle	
10	Selection of indicators and their limitations.	
11	Qualitative treatment of acid-base titration curves. Theory of acids	
12	DISCUSSION&REVISION	

(June 2018 – Dec2018)

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- IV Semester

Name of the Paper- 401 MM(Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 15 + 6

Unit I: Unit III- Electrochemical cells		Marks:15
Class	Name of the Topic	Remarks
1	Quantitative aspects of Faraday's laws of electrolysis	potentials
2	Concept of oxidation/reduction of half cells,	Numericals
3	application of electrolysis in metallurgy and industry, electrolytic and galvanic cells,	
4	standard electrode potential, Nernst Equation	types of electrodes-
5	Hydrogen, calomel, quinhydrone and Glass electrodes	
6	E.M.F of a cell and its measurement, free energy, entropy and enthalpy of cell reactions,	
7	pH determination using hydrogen, SbO/Sb ₂ O ₃ electrode, glass, quinhydrone electrodes,	
8	Concentration cell with and without transference-	
9	liquid junction potential	
10	Potentiometric titration	
11	storage cells- Lead storage cell, mechanism of charging and	
12	fuel cells- hydrogen-oxygen cell	
UNIT:II Conductance		Marks: 6
1	application of conductance measurement: i) degree of dissociation of weak electrolytes	
2	ii) ionic product of water iii) solubility and solubility product of	
3	slightly soluble salts iv) Hydrolysis constant of aniline hydrochloride,	
4	Conductometric (Acid Base and precipitation).	

(June 2018 – Dec2018)

Name of the Teacher- Mrs Jonali Dutta

Course – Non major (Non CBCS)

Class/Semester- IV Semester

Name of the Paper- 401 NM (Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 21

Unit –I : Solution		
Class	Topic/unit	Remarks
1	Types of solutions, concentration units	Marks:8
2	Solution of gases in liquids-Henry's law. Solution of liquids in liquids	
3	Ideal solution-Raoult's law- Non ideal solution.	
4	Distillation of solutions, Lever rule, Azeotropes,	
5	Partial miscibility of liquids. Critical solution temperature.	
6	Immiscibility of liquids TheNernst distribution law and its applications	
7	Principle of steam distillation	
8	Solvent extraction	
9	Solutions of solids in liquids the solubility curves,discussion	
Unit – II Ionic Equilibrium		
1	Ionization,Strong and weak electrolytes, degree of ionization,	8Marks: 8
2	Factors affecting degree of ionization constant and ionic product of water.	
3	Ionization of weak acids and weak bases. pH and its determination	
4	pH scale, common ion effect.	
5	Salt hydrolysis – calculation of hydrolysis constant, degree of hydrolysis	
6	pH for differentsalts.	
7	Solubility and solubility product of sparingly soluble salts-	
8	Applications of solubility product	
9	Buffer solutions	
UNIT-Second law of thermodynamics		
1	Second law of thermodynamics, Spontaneous and Non-Spontaneous processes cyclic process	Marks: 5
2	Carnot cycle,	
3	Entropy, Entropy change in reversible and irreversible processes and for ideal gas,	
4	Concept of work function and free energy	
5	Q/ANS	

(June 2018 – Dec2018)

Name of the Teacher-Mrs. Jonali Dutta

Course —MAJOR

Class/Semester-VI Semester

Name of the Paper- 601 (M) (Physical Chemistry)

Units Assigned-I&V

Marks :I&V:20

UNIT :1:Photochemistry		
CLASS	TOPIC/UNIT	Remarks
1	Absorption of light,Photochemicalreaction,Laws of photochemistr	
2	Beer lambert's Law, Einstein Law, Numericals	
3	Quantum Yield,Determination,Reasons for high and low quantum yield	
4	Photodimerisation, Quenching, Combination of hydrogen and chlorine,H ₂ and Br ₂ Dissociation of HI,photosensitizedreaction,spin multiplicity	
5	Fluorescence and phosphorescence	
6	Chemiluminescence,Bioiluminescence	
7	Photoelectric effect,Photovoltaic cell	
8	Lasers,Numericals	
UNIT: V :Statistical Thermodynamics		
1	Statistical methods,Microand macro states,Ensembles	
2	Relation between entropy and thermodynamic probality,Stirling approximation ,	
3	Boltzman distribution law	
4	Partition Function,Internalenergy,Entropy Heat capacity	
5	M.B.Statistics	
6	Bose –Einstein Statistics	
7	Fermi-Dirac Statistics Thermodynamic functions and molar partition function	
8	Translational Partition function function from particle in one dimensional box	
9	Vibrational Partition Rotational Partition function	

Name of the Teacher-Mrs. Jonali Dutta

Course —Major

Class/Semester-VI Semester

Name of the paper:607(M) (Quantum Chemistry)

UNIT:I,II,III,IV:

Marks:26

UNIT:I&II:General Principle and Microwave Spectroscopy		
CLASS	UNIT/TOPIC	REMARKS
Unit IV Electronic spectroscopy		
Class	Electromagnetic radiation,Different types of spectra,and spectroscopy-An introduction	Marks 8+2=10
1	The Beer – Lambert Law, molar absorption	
2	coefficient MO energy level Marks 8	
3	Selection rules for electronic transitions	
4	Franck-Condon principle,	
5	Solvent effect ,bathochromic andhypsochromic shift.	
6	Chromophores, auxochromes	
7	Vibrational structures	
8	Revision	
9	Microwave spectroscopy,rigid diatomic atomic molecule,	
10	transitions between rotational energy levels,rotational constant	
11	Intensities of spectral lines	
12	Calculation of bond length of diatomic molecule	
13	Isotropic substitution	
14	Numericals and discussion	
UNIT:III:Raman Spectroscopy		
1	Raman Effect,Stokes and antistokes lines	Marks-8
2	Classical and quantum mechanical theories	
3	Polarizability tensor	
4	structure elucidation by Ramanspectroscopy (AB, A2B, and AB3)	
5	stretching frequencies of bonds and functional groups	
6	Q/ANS. DISCUSSION	

NAME OF THE TEACHER- NEELAKSHI HAZARIKA

Course Plan Jun-Dec, 2018

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 1st semester, Non-CBCS

Name of the Paper-MM-101, Inorganic Chemistry

Units Assigned- All

Marks assigned- 34

Class	Topic/ Unit	Remarks
1	Section II Inorganic Chemistry	
2	Periodic properties: - Effective nuclear charge (screening constant – Slater's rule only),	
3	Ionic and covalent radii	
4	Ionization potential and periodic variation	
5	Electron affinity and periodic variation	
6	Electro negativity (Pauling-Mulliken's and Allred-Rochow scales).	
7	Bonding and structure: Electrovalent bond, covalent bond	
8	Covalent ionic resonance	
9	Partial ionic character in covalent bonds	
10	lattice energy, bond length	
11	bond angle and bond energy.	
12	Valence Bond Theory for H ₂ molecule	
13	Valence Bond Theory for H ₂ molecular ion	
14	Molecular orbital theory and its application	
15	Drawbacks of Valence Bond Theory	
16	MOT for hydrogen molecule	
17	LCAO and MO diagram of homo diatomic molecules	
18	LCAO and MO diagram of hetero diatomic molecules	
19	VSEPR theory and its applications	
20	VSEPR theory and its applications	

Course Plan Jun-Dec, 2018

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Non Major

Class/Semester- 1st semester, Non-CBCS

Name of the Paper-NM-101, Section Inorganic Chemistry

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	Section A: Inorganic Chemistry-I Unit I: Atomic Structure: Electronic configuration of elements based upon electronic configuration in the periodic table	
2	Effective nuclear charge,	
3	Ionization energy,	
4	Electron affinity,	
5	Electronegativity,	
6	Redox potential.	
7	Unit II: Chemical Bonding and Molecular Structure: Ionic Bonding: Energy consideration in ionic bonding,	
8	Lattice Energy and Solvation Energy	
9	importance of Lattice energy and Solvation energy in the context of Stability and Solubility of ionic compounds.	
10	Polarizing power and polarizability.	
11	Fajan's rule	
12	dipole moment and percentage ionic character.	
13	Hydrogen Bonding.	
14	Covalent Bonding: VB Approach	
15	Concept of hybridization, sp , sp^2 , sp^3 , sp^3d , sp^3d^2 and dsp^2	
16	VSEPR Theory. Resonance and Resonance energy	
17	Study of some inorganic and organic compounds (O_3 , NO_3^- , CO_3^{2-})	
18	Study of some inorganic and organic compounds(SO_4^{2-} , $RCOO^-$, C_6H_6).	
19	Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals,	
20	non-bonding combination of orbitals,	
21	MO treatment of homonuclear diatomic molecules	
22	MO treatment of and heteronuclear diatomic molecules such as CO, NO and NO^+	

Course Plan June- Dec, 2018

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 3rd semester,

Name of the Paper-MM-301, Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	UNIT – I:Coordination compounds: Types of ligands: monodentate, bidentate, ambidentate,	
2	Polydentate and macro cyclic ligand.	
3	Nomenclature of complex compounds, Isomerism in 4- and 6-coordinate compounds	
4	Inner complex and chelates.	
5	Effective atomic number rule	
6	Valence Bond Theory	
7	Application of Valence Bond Theory in tetrahedral complexes	
8	Application of Valence Bond Theory in octahedral complexes	
9	Drawbacks of Valence Bond Theory	
10	Crystal field splitting in Octahedral complexes	
11	Crystal field splitting in tetrahedral complexes	
12	Crystal field splitting in tetragonal and square complexes	
13	MO and introduction to ligand field theories and their applications.	
14	Spectroscopic terms,	
15	RS coupling,	
16	Mulliken's symbol (A, B, E, T)	
17	Spectrochemical and nephelauxetic series	
18	Electronic spectra of simple Td and Oh complexes	
19	Selection rules and Orgel diagram (d1 to d9 system).	
20	Magnetic properties: Paramagnetism, diamagnetism, magnetic properties of octahedral complexes	
21	Antiferromagnetism.	
22	UNIT – II: Inorganic reaction mechanism	
23	Introduction to inorganic reaction mechanism	
24	Inert and labile complexes	
25	Association mechanism	
26	Dissociation and concerted paths mechanism	
27	Acid hydrolysis (with reference to cobalt complexes only).	
28	Base hydrolysis (with reference to cobalt complexes only).	
29	Substitution reaction in octahedral and square planar complexes.	
30	Substitution reaction in square planar complexes.	
31	Trans effect, Irving-William Series	
32	UNIT – III:Chemistry of d- and f- block elements, Electronic structure, oxidation state, ionic radii	
33	Lanthanide and Actinide contraction	
34	Separation of lanthanides	

Course Plan (Session Jun-Dec, 2018)

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Non-Major

Class/Semester- 5th Sem (Non-CBCS)

Name of the Paper- NM 501, Inorganic Chemistry-II + Physical Chemistry-II

Units Assigned- I

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit–I Nuclear Chemistry: Mass defect and binding energy, packing fraction	
2.	Stability of nucleus, neutron-proton ratio	
3.	Artificial radioactivity, nuclear fission	
4.	Nuclear reactors, separation of isotopes	
5.	Detection and measurement of radioactivity by GM counter.	
6.	Application of radio-isotopes in agriculture, medicine and industry.	
7.	Radiocarbon dating.	
8.	Unit-II Preparative Chemistry Preparation, properties and uses of the following compounds : Lithium aluminium hydride	
9.	potassium ferro and ferricyanide	
10.	sodium cobaltinitrite	
11.	Sodium thiosulphate, Nessler's reagent,	
12.	Sodium borohydride, silica gel,	
13.	Pb containing paints	
14.	Zn containing paints	
15.	Unit-III Bioinorganic Chemistry:Role of zinc	
16.	Role of iron	
17.	Role of cobalt	
18.	Role molybdenum	
19.	Sodium, potassium in biological system.	
20.	Role of Mg ⁺⁺ in chlorophyll.	
21.	Role of Ca in blood clotting	
22.	Poisoning due to heavy metal ion -Mercury	
23.	Cadmium poisoning	

Course Plan Session Jun-Dec, 2018

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Sem, Non-CBCS

Name of the Paper-MM 503, Inorganic Chemistry II

Units Assigned- All

Marks Assigned-48

Class	Topic/ Unit	Remarks
1.	UNIT –I: Organometallic compounds: Definition, electron count, 18 electron rule	
2.	Isolobal analogy	
3.	Compounds in catalysis ,Wilkinson's catalyst	
4.	Vaska's compound	
5.	HCo(CO) ₄	
6.	Metal carbonyls: Structure, bonding	
7.	IR spectral studies of terminal and bridged carbonyls.	
8.	Structure and bonding in some Metal –Olefins compound,	
9.	Structure and bonding in metal – ligand σ -bonded compounds	
10.	Structure and bonding in ferrocene	
11.	Oxidative addition	
12.	Reductive elimination reaction.	
13.	Uses of some organometallic	
14.	Definition of cluster, metal – metal bond in cluster,	
15.	Synthesis of metal carbonyl cluster of Cr, Fe and Mo (only low nuclearity clusters up to 4 metal atoms).	
16.	Closed shell electronic requirement for cluster compounds –rules for Polyhedral Skeletal Electron Pair Theory.	
17.	Nitrosyl compounds: Synthesis, properties and structures of nitrosyls of Fe, Co and Ni.	
18.	UNIT – III: Error in quantitative analysis: Accuracy, precession	
19.	Deviation, standard deviation, Numericals	
20.	Classification of errors, minimization of errors,	
21.	Significant figures.	
22.	Indicators: Choice of indicators in neutralization reactions.	
23.	Redox, adsorption and complexometric	
24.	Adsorption indicator	
25.	Complexometric indicator	
26.	UNIT – IV: Organic reagents in inorganic analysis :- Cupferron, dithizone oxine	
27.	benzoin- α - oxime,	
28.	1- nitroso-2- naphthol, diphenyl carbazide,	
29.	Diphenyl carbazone, salicylaldoxime,	
30.	1,10- phenanthroline, magneson,	
31.	thiourea, zinc uranyl acetate,	

Course Plan Session JUN- DEC, 2018

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Semester, NON-CBCS

Name of the Paper- MM 507, Symmetry and Quantum Chemistry

Units Assigned- Unit I

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Unit – I: Symmetry and Group theory: Symmetry elements and symmetry operations	
2.	Definition of group, symmetry group	
3.	point group and space group.	
4.	Perspective sketch and point group of some common molecules, H ₂ , HF,	
5.	CO ₂ , C ₂ H ₂ ,	
6.	C ₂ H ₄ , CHCl ₃ ,	
7.	PCl ₅ , NH ₃	
8.	BF ₃ , [PtCl ₄] ²⁻ , BrF ₅	
9.	symmetry and mathematical tools, matrix algebra,	
10.	reducible and irreducible representation, great orthogonality theorem	
11.	Character table for C _{2v}	
12.	Character table for C _{3v}	
13.	Determination of Γ_i for C _{2v}	
14.	Determination of Γ_i C _{3v} point groups.	

Course Plan Jan-May, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – NonMajor

Class/Semester- 2nd semester, Non-CBCS

Name of the Paper-NM-201, Section Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	Unit-I Coordination Chemistry: Review of Werner's theory. Types of ligands, monodentate, bidentate	
2	ambidentate and polydentate ligands, π Acceptor and macrocyclic ligands.	
3	IUPAC Nomenclature of Co-ordination compounds.	
4	IUPAC Nomenclature of Co-ordination compounds.	
5	Isomerism of 4-and 6- coordinate compounds.	
6	Isomerism of 4-and 6- coordinate compounds.	
7	Introduction to Valence Bond	

8	Application of VBT	
9	Introduction to Crystal Field theory.	
10	CFT in octahedral complexes	
11	CFT in tetrahedral complexes	
12	Application of dimethyl glyoxime, EDTA, 8-hydroxy quinoline,	
13	Use 2,2-bipyridyl, and ethylenediamine in analysis.	
14	Unit-II Chemistry of non-metals Boron: Preparation, structure and bonding of diborane	
15	Silicon: Structure, properties and use of silicon carbide and silicon polymers (linear).	
16	Structure, properties and use of silicon polymers (linear)	
18	Nitrogen: Hydroxylamine, Hydrazine, preparation, properties, uses and electronic structure.	
19	Hydrazoic acid; preparation, properties, uses and electronic structure.	
20	Rare gases- Xenon compounds.	
21	Preparation and properties of xenon compounds	
22	Preparation and properties of xenon compounds	
23	Structure determination of xenon compounds with the help of VSEPR	
24	Phosphorous: Structures of oxides and oxyacids.	
25	Unit-III Inorganic Material Chemistry Zeolites, it's structure and properties	
26	Ceramics and its preparation	
27	Manufacturing of glass and its types	
28	Silicate minerals, it's properties and uses	
29	Cement – composition, raw materials, manufacturing process	
30	Setting of cement	
31	Types of Inorganic metal oxides	
32	Superconductor	
33	Synthesis, Structure and Application of Fullerenes	
34	Unit-IV General principles of metallurgy Physico-Chemical methods involved in metallurgy	
35	Concentration, calcinations, reduction	
36	roasting, zone refining, solvent extraction	
37	hydrometallurgy and electrochemical methods	
38	Metallurgy of gold,	
39	Metallurgy of nickel	
40	Metallurgy of thorium	
41	Metallurgy uranium and manganese	
42	Metallurgy of manganese	

Course Plan Jan-May, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic –Major

Class/Semester- 2nd semester, Non-CBCS

Name of the Paper-MM-201, Section II (Inorganic Chemistry)

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	UNIT – I: Non Transition elements: Electronic structure, general Properties and comparative study of group of non transition elements.	
2	Noble Gas : Compounds of Xenon only	
3	Boron: Wade's rule, Nomenclature of closo, nido and arachno boranes,	
4	Structure of boron hydrides (B_2H_6), metalloborane and metallocarboranes.	
5	Preparation, structure and use of Borazine	
6	Preparation, structure and use of phosphazine	
7	Preparation, structure and use of S_4N_4	
8	Preparation, structure and use of $(SN)_x$	
9	Carbon : Fullerenes (C_{60}) preparation and properties	
10	Silicon: Silicones, classifications and structure of silicates.	
11	Zeolites, use of Zeolites as catalyst and molecular sieve	
12	Aluminosilicates	
13	Nitrogen: Preparation and properties of hydroxylamine	
14	Preparation and properties of Hydrazine	
15	Preparation and properties of hydrazoic acid.	
16	Phosphorus: Phosphines,	
17	oxy acids of phosphorus,	
18	organophosphorus compounds.	
19	UNIT – II : Metals Theory of reduction (Thermodynamic approach), role of carbon and other reducing agents,	
20	Electrolytic reduction, roasting and calcinations.	
21	Method of purification and refining of metals, zone refining	
22	Vacuum arc process, ion exchange,	
23	Solvent extraction and electrolytic method,	
24	Van – Arkel process and hydrometallurgy.	
25	Extraction of and study of some important compounds : Cr, chromyl chloride, lead chromate, potassium dichromate	
26	Extraction of the following metals and study of some of their important compounds : Mn, manganese dioxide, $KMnO_4$	
27	Extraction of and study of some of some important compounds : Mo, Ammonium molybdate	
28	Extraction of and study of some important compounds : Co, sodium cobaltinitrite, cobalt nitrate	
29	Extraction of and study of some important compounds : Ni, Ni-DMG	
30	Extraction of and study of some of compounds : V, vanadium pentoxide	

Course Plan, JAN-MAY, 2019

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic –Major

Class/Semester- 6th SEMESTER, NON-CBCS

Name of the Paper- MM 603, Inorganic Chemistry III

Units Assigned- All

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	UNIT-I: Bio inorganic Chemistry Metal ion in biological system	
2.	Biological role of iron	
3.	Biological role of copper	
4.	Biological role of cobalt	
5.	Biological role of zinc	
6.	Biological role of molybdenum.	
7.	Metalloprotein and metalloenzymes, therapy.	
8.	Physiology of hemoglobin & myoglobin,	
9.	Plastocyanin, it's structure and function	
10.	Vitamin B12, it's structure and function.	
11.	Carbonic anhydrase, it's structure and function	
12.	Nitrogenase it's structure and function,	
13.	Metal ion in medicine -- cisplatin and carboplatin.	
14.	Use of EDTA in chelation	
15.	Role of alkali and alkaline earth metals	
16.	UNIT-II: Introduction to material chemistry	
17.	Idea about supra molecular interaction.	
18.	Solid state reactions	
19.	Nano materials – synthesis and characterization.	
20.	C – C composite	
21.	Polymer and nanocomposite	
22.	Introduction of chemistry of clay (Kaolinite, Montmorillonite and Laponite)	
23.	UNIT – III: Chromatographic Methods Paper chromatography	
24.	Thin layer chromatography	
25.	Column chromatography	
26.	Gas chromatography – separation of compounds, development and Rf values	
27.	HPLC – principle only.	
28.	UNIT IV: Industrial chemistry: Industrial water treatment: Demineralized (DM) water and effluent treatment.	
29.	Various types of cements, their composition,	
30.	Manufacturing of cement	
31.	Setting of cement	

32.	Ceramics	
33.	Paints: Constituents, role of binder and solvent	
34.	lead and zinc containing paints.	
35.	Introduction to Chemical Toxicology: Metal poisoning due to Pb	
36.	Metal poisoning of Cd	
37.	Metal poisoning of Hg	
38.	hazard from radioactive fallout	

Course Plan Jan-May, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 6th semester, Non-CBCS

Name of the Paper-MM 607, Molecular Spectroscopy

Units Assigned- I, III, V

Marks Assigned- 22

Class	Topic/ Unit	Remarks
1.	Unit-I General Principles Interaction of electromagnetic radiation with molecules and various types of spectra, Selection rules.	
2.	Unit-III Infrared spectroscopy Classical equation of vibration, vibrational energies of diatomic molecules	
3.	zero point energy, Concepts of normal vibration	
4.	force constant, effect of isotopic substitution,	
5.	Vibrational frequency, Fundamental frequencies, overtones	
6.	hot bands	
7.	Degree of freedom of polyatomic molecules,	
8.	concept of group frequencies.	
10.	Numericals of IR	
11.	Unit V: Spin resonance spectroscopy Principle of NMR,	
12.	Larmour precession,	
13.	chemical shift and low resolutions spectra	
14.	Numericals of NMR	
15.	Different scales, spin-spin coupling and high resolution spectra	
16.	Interpretation of PMR spectra of ethanol,	
17.	1- and 2-chloropropane, acetaldehyde,	
18.	cyanohydrin and 1,2 & 1,3-dichloropropane.	
19.	Electron spin resonance (ESR) spectroscopy and its principle	
20.	hyperfine structure	
21.	ESR of simple free radicals methyl, Duterated methyl	
22.	ESR of simple free radicals propyl, ethyl	
23.	ESR of copper (II) compounds. L-12, Marks: 10	
24.	Difference between NMR and ESR	
25.	Numericals of ESR	

Name of the Teacher-

Dr NAYAN JYOTI KHOUND

June 2018 to May 2019

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 1st Semester

Name of the Paper- 101 (Physical Chemistry)

Units Assigned- I +II

Marks Assigned- 10 + 6

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	
Unit II: Liquid		Marks Assigned- 06
1	Qualitative treatment of structure of liquids, physical properties of liquids	
2	vapour pressure, surface tension, viscosity,	
3	Newtonian liquid, qualitative discussion of structure of water	
4	parachor-determination and application	
5	liquid crystals,	
6	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
Course – Non Major (Non CBCS)
Class/Semester- 1st Semester
Name of the Paper- 101 (Physical Chemistry)
Units Assigned- I
Marks Assigned- 10

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
Course – Major (Non CBCS)
Class/Semester- 2nd Semester
Name of the Paper- 201 (Physical Chemistry)
Units Assigned- I
Marks Assigned- 14

Unit I: Chemical Thermodynamics –I		Marks Assigned- 14
Class	Topic	Remarks
1.	Extensive and intensive properties of a system,	
2.	thermodynamic processes: cyclic, reversible, irreversible processes,	
3.	Thermodynamic function, complete differential, Zeroth law of thermodynamics.	
4.	First law of thermodynamics-internal energy, enthalpy, molar heat capacities,	
5.	relation between C_p and C_v , work of expansion in reversible and irreversible process, adiabatic	
6.	Joule Thomson effect, calculation of Joule Thomson co-efficient for ideal and Vander Waal's gas.	
7.	Thermo chemistry- Hess's law,	
8.	Kirchhoff's law relation of reaction enthalpy with internal energy,	
9.	Bond energy and Bond dissociation energy	
10.	Bond energy Calculation from thermo chemical data.	
11.	Numericals Discussion	
12	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course – Major (Non CBCS)
 Class/Semester- 3rd Semester
 Name of the Paper- 301 (Organic Chemistry)
 Units Assigned- I
 Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms	
3.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution vs elimination.	
5.	Haloform reaction	
6.	Aryl halides: Preparation from diazonium salts	
7.	Nucleophilic Aromatic Substitution SNAr intermediates.	
8.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
9.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
10.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
11.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
12.	Organometallic Compounds of Mg Use in synthesis of organic compounds.	
13.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
14.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course – Non Major (Non CBCS)
 Class/Semester- 3rd Semester
 Name of the Paper- 301 (Organic Chemistry)
 Units Assigned- I
 Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation	
2.	Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
3.	Nucleophilic substitution reactions: SN1 Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution reactions: SN2 Mechanisms with stereochemical aspects	
5.	Nucleophilic substitution reactions: SNi Mechanisms with stereochemical aspects	
6.	Nucleophilic substitution vs elimination	
7.	Haloform reaction	
8.	Aryl halides: Preparation from diazonium salts	
9.	Nucleophilic Aromatic Substitution SNAr intermediates.	
10.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
11.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
12.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
13.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
14.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
15.	Previous year Question paper discussion	
16.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course –Major (Non CBCS)
 Class/Semester- 4th Semester
 Name of the Paper- 401 (Physical Chemistry)
 Units Assigned- I + II
 Marks Assigned- 20 + 6

Unit II: Conductance		Marks Assigned- 20
Class	Topic	Remarks
1.	Arrhenius theory of electrolytic dissociation	
2.	conductivity, equivalent and molar conductivity	
3.	conductivity, equivalent and molar conductivity and their variation with dilution strong electrolytes	
4.	conductivity, equivalent and molar conductivity and their variation with dilution for weak electrolytes	
5.	molar conductivity at infinite dilution	
6.	kohlrausch law of independent migration of ions	
7.	Debye-Huckel – Onsagar equation,	
8.	Wien effect, Debye –Falkenhagen effect,Walden’s rules.	
9.	Ionic velocities,	
10.	mobilities and their determinations	
11.	Transference numbers and their relation to ionic mobilities,	
12.	determination of transference numbers using Hittorf	
13.	determination of transference numbers using moving boundary methods	
14.	determination of transference numbers using Hittorf and moving boundary methods, ,	
15.	anomalous transference number	
16.	application of conductance measurement: i) degree of dissociation of weak electrolytes,	
17.	ii) ionic product of water	
18.	iii)solubility and solubility product of sparingly soluble salts	
19.	iv) Hydrolysis constant of aniline hydrochloride	
20.	v) Conductometric titration (Acid Base and precipitation)	
21.	Previous year Question paper discussion	
Unit I : Chemical Thermodynamics		Marks Assigned- 06
1	Second law of thermodynamics,	
2	Carnot’s theorem	
3	Carnot cycle, efficiency of heat engines,	
4	thermodynamic scale of temperature	
5	Nernst heat theorem, consequence of the theorem,	
6	third law of thermodynamics,	
7	Determination of absolute entropies of pure substance	
8	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 4th Semester

Name of the Paper- 401 (Physical Chemistry)

Units Assigned- III + IV(a)

Marks Assigned- 10 + 12

Unit II: Chemical Kinetics		Marks Assigned- 10
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
10.	Collision theory of bimolecular reactions, its limitation,	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	
Unit IV(a) : Chemical Thermodynamics		Marks Assigned- 12
1	Thermal equilibrium and zeroth law of thermodynamics- concept of temperature	
2	Mechanical work, SI sign convention. 1st law of thermodynamics, internal energy, enthalpy, reversible and irreversible processes	
3	calculation of W, Q, ΔU , ΔH for expansion of ideal gas, isothermal work and enthalpy	
4	relation between enthalpy change, and entropy change,	
5	molar heat capacities, relation between C_p and C_v ,	
6	adiabatic processes- relation between P, V and T	
7	Joule-Thomson effect	
8	liquefaction of gases, conversion of heat into work, efficiency of heat engine	
9	Enthalpy of reaction,	
10	Types of Enthalpy of reaction,	
11	Thermodynamical equation	
12	variation of enthalpy of reaction with temperature-Kirchhoff's equation	
13	enthalpy of different processes	
14	Hess law, calculations based on Hess law.	
15	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I +IV + V

Marks Assigned- 15 + 07 + 08

Unit I: Chemical Kinetics		Marks Assigned- 15
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Evaluation of rate constant by integrated equation method & graphical method, Guggenheim method (1st order reaction),	
10.	Rate laws and mechanism, steady state approximation.	
11.	Rate equation of first order, opposite, parallel, consecutive reaction,	
12.	Rate equation of chain reactions, chain branching, explosion limit, hydrogen – bromine thermal reaction,	
13.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
14.	Collision theory of bimolecular reactions, its limitation,	
15.	Activated complex theory, Eyring equation, Lindeman's theory of unimolecular gas phase reaction.	
16.	Question paper discussion	
Unit IV: Surface Chemistry		Marks Assigned- 07
1	Adsorption and types of adsorption	
2	Physical and chemical adsorption of gases on solid surface	
3	Adsorption isotherms & types of adsorption isotherm	
4	Freundlich equation, Langmuir adsorption equation.	
5	Gibbs adsorption equation	
6	Determination of surface area of an adsorbent	
7	application of adsorption in chemical analysis and in industry,	
Unit V: Colloidal State		Marks Assigned- 08
1	Colloid and types of colloids	
2	Physical and electrical properties of colloids	
3	Electro kinetic phenomenon- electrophoresis, electro-osmosis,	
4	Electrical double layer and zeta potential, theory of stabilities of colloids,	
5	Protective action of Lyophilic sol-gold number,	
6	Determination of Avogadro's number	
7	Coagulation of colloids, Schultz – Hardy rule, association of colloids, emulsions	
8	Micelles and their structure, critical micelles concentration,	
9	Donnan membrane equilibria	
10	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I + III + IV

Marks Assigned- 05 + 05 + 04

Unit I: Conductance		Marks Assigned- 05
Class	Topic	Remarks
1.	Conductivity, equivalent and molar conductivity	
2.	Their variation with dilution for weak and strong electrolytes.	
3.	Kohlrausch law of independent migration of ions.	
4.	Transference number and its experimental determination using Hittorf and Moving boundary methods.	
5.	Ionic mobility.	
6.	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts,	
7.	Applications of conductance measurements: determination of degree of ionic product of water, hydrolysis constant of a salt.	
8.	Conductometric titrations of acid - base	
Unit III: Adsorption & Catalysts		Marks Assigned- 05
1	Adsorption & types of adsorption.	
2	Differences between chemisorptions and Physical adsorption	
3	Freundlich adsorption isotherm and Langmuir adsorption isotherm, application of adsorption.	
4	Catalysis & Types of catalysis	
5	Homogeneous heterogeneous catalysis, acid-base catalysis, catalytic promoter, poisoning, negative catalysis ,	
6	enzyme catalysis characteristics of enzyme catalysis ,Theories of catalysis.	
7	Question discussion	
Unit IV: Phase rule		Marks Assigned- 04
1	Statement of phase rule, definition of phase, components and degrees of freedom with examples	
2	Application of phase rule	
3	Phase diagram of water and sulphur system.	
4	Phase diagram of Pb –Ag system.	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 6th Semester

Name of the Paper- 601 (Physical Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 08 + 08 + 12

Unit II: Macromolecules		Marks Assigned- 08
Class	Topic	Remarks
1.	Polymer and their classification	
2.	Step reaction polymerization & Addition polymerization,	
3.	Mechanism and kinetics of free radical polymerization,	
4.	Mechanism and kinetics anionic polymerization	
5.	Mechanism and kinetics of cationic polymerization	
6.	Weight and Number average molecular weight,	
7.	Viscometric and Osmometric methods of molecular weight determination,	
8.	Degree of polymerization & Carother equation,.	
9.	Zeigler Natta catalysts, Co-polymerisation	
10.	Question paper discussion	
Unit III: Catalysis		Marks Assigned- 08
1	Catalysis and its types	
2	Criteria of catalysis,	
3	Homogeneous and heterogeneous catalysis,.	
4	Acid – Base catalysis	
5	Effect of temperature on surface reactions	
6	Effect of particle size and efficiency of nano particles as catalysts,	
7	Autocatalysis & catalytic poison,	
8	Enzyme catalysis-mechanism	
9	Michaelis-Menten equation	
10	Question discussion	
Unit IV: Phase Equilibria		Marks Assigned- 12
1	Definition of phase components, degree of freedom	
2	Thermodynamic derivation of phase rule,	
3	application of phase rule to one component-water and sulphur,	
4	Phase diagram of simple eutic Pb-Ag, & KI-H ₂ O system	
5	Phase diagram of two component systems with congruent melting point (Zn-Mg) system	
6	Phase diagram of two component systems incongruent melting point (Na ₂ SO ₄ -H ₂ O) system	
7	Interpretation of vapour pressure composition and temperature-composition phase diagram	
8	Distillation of liquid mixtures and azeotropic mixture.	
9	Clapeyron equation, Clausius - Clapeyron equation, their derivation and application	
10	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 6th Semester

Name of the Paper- 601 (Organic Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 05 + 06

Unit II: Organic Chemistry of Life		Marks Assigned- 05
Class	Topic	Remarks
1.	classification, preparation and properties of Amino acids	
2.	Glycine, Alanine and Phenylalanine	
3.	(Strecker synthesis and Gabriel phthalimide method).	
4.	Elementary ideas of peptides and proteins.	
5.	Elementary ideas of nucleoside, nucleotide,	
6.	Elementary ideas of nucleic acid (DNA, RNA	
7.	nucleic acid (DNA, RNA	
8.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
9.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
10.	Reactions of amino acids	
Unit III: Polymers		Marks Assigned- 06
1	Polymer and their classification	
2	Step reaction polymerization & Addition polymerization,	
3	Weight and Number average molecular weight,	
4	Viscometric and Osmometric methods of molecular weight determination,	
5	Question Paper discussion	

NAME OF THE TEACHER: DR. BISHWAJIT SAIKIA

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **1stSemester**

Name of the Paper: **MM-101 (Section -III Organic Chemistry)**

Units Assigned: **I + II**

Marks Assigned: **15 + 12**

Class	Topic	Remarks
Unit I: Basics of Organic Chemistry		
1.	Organic Compounds: Natural sources, classification and Nomenclature	
2.	Hybridization: Shape of molecules, Influence of hybridization on bond properties	
3.	Electronic displacements: Inductive, Electromeric, Resonance, Mesomeric effects and Hyperconjugation and their applications. Dipole moment.	
4.	Organic acids and bases: Their relative strength, hard and soft acids and bases.	
5.	(Homolytic and Heterolytic fission, Electrophiles and Nucleophiles: Nucleophilicity and basicity.	
6.	Reactive intermediates: Carbocations, carbanions, free radicals, arbenes, nitrenes, benzyne, Types, Shape and their relative Stability.	
7.	Energy profile diagrams of one step, two steps and three steps reactions, Rate limiting steps. Activation Energy. Kinetically and thermodynamically controlled reactions.	
Unit II: Stereochemistry		
1.	Elements of symmetry and their application in simple organic molecules.	
2.	Definition and classification of stereoisomerism	
3.	Representation of organic molecules in three & two dimension: Fischer Projection, Newman projection, Saw horse and flying wedge projection formula and their interconversions.	
4.	Optical isomerism: Concepts of asymmetry, dissymmetry, optical activity, Specific rotation, Chirality, enantiomers, Diastereomers, racemic mixture, racemization and Resolution,	
5.	Erythro forms, Meso structures & Epimers. Relative and absolute configuration: D/L and R/S designations. Walden inversion and asymmetric synthesis.	
6.	Geometrical Isomerism: Restricted rotation about C=C bonds, physical and chemical properties of diastereoisomers, determination of configuration of geometrical isomers: cis-trans isomerism, syn-anti and E/Z notation with CIP rules.	
7.	Geometrical isomerism in oximes and alicyclic compounds.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **1stSemester**

Name of the Paper: **NM-101 (Section C: Organic Chemistry)**

Units Assigned: **VI + VII + VIII**

Marks Assigned: **10 + 12 + 5**

Class	Topic	Remarks
Unit VI: Introduction to Organic Chemistry		
1.	Importance of Organic Chemistry & organic systems to human beings & society. Electronic displacements: Inductive effect, Electrometric effect, Resonance and hyperconjugation.	
2.	Mechanism of organic reactions: Cleavage of Bonds- Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules- Nucleophiles and electrophiles.	
3.	Reactive Intermediates- Carbocations, carbanions, free radicals, carbenes & nitrenes.	
4.	Strength of organic acids and bases: comparative study with emphasis on factors affecting pka values.	
Unit VII: Stereochemistry		
1.	Conformations w.r.t. ethane, butane and cyclohexane (axial and equatorial bonds). Interconversion of wedge formula, Newman, Sawhorse and Fischer projection representation.	
2.	Concept of symmetry: Elements of symmetry (Centre of inversion, axis of rotation, plane of reflection and improper axis of rotation) applied to organic molecules.	
3.	Optical isomerism: Concept of chirality (with two stereogenic centres) diastereomers, threo and erythro, meso compounds, enantiomerism, CIP Rules, R/S Nomenclature (up-to two chiral carbon atoms) Resolution of enantiomers and Racemisation.	
4.	Geometrical isomerism: □-diastereoisomerism, Determination of configuration of geometric isomers. E&Z system of Nomenclature.	
Unit VIII: Aliphatic Hydrocarbons		
1.	Alkanes (upto 5 carbons) Preparation:- Catalytic hydrogenation, Wurtz reaction, Kolbe's Synthesis, from Grignard reagent.	
2.	Corey-House Synthesis. Reactions: Free radical Substitution: Halogenations	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **2ndSemester**

Name of the Paper: **MM-201 (Section–III Organic Chemistry)**

Units Assigned: **I + II + III**

Marks Assigned: **8 + 6 + 8**

Class	Topic	Remarks
Unit I: Carbon- Carbon sigma bonds		
1.	Chemistry of Alkanes: Formation of alkanes with special emphasis on Corey House Synthesis	
2.	Wurtz reaction, Wurtz-Fittig reaction. Reactions of alkanes: Free Radical substitution:- Halogenations-relative reactivities and selectivity.	
3.	Formation of alkenes and alkynes by Elimination: Mechanism of E1., E2, E1cB reactions. Saytzeff and Hoffmann elimination	
4.	Special emphasis on preparation of alkenes by syn- elimination:- pyrolysis of esters, Chugaev, Wittig, Heck reaction.	
5.	Reaction of alkenes: Addition Reaction- Electrophilic and free radical additions, their mechanisms. (Markonikoff/ Anti Markonikoff addition)	
6.	Regioselectivity (directional selectivity), and stereoselective of addition reactions. Mechanism of oxymercuration–demercuration, Hydroboration-Oxidation, Ozonolysis, reduction (catalytic and chemical).	
7	Syn and Anti hydroxylation (oxidation), simple effect of stereo selectivity and stereo specificity.	
8	Reactions of Alkynes: Acidity, Electrophilic and Nucleophilic additions, Hydration to form carbonyl compounds. Alkylation of terminal alkynes.	
Unit II: Cycloalkanes and conformational analysis		
1.	Synthesis and reactions of three, four, five and six membered cycloalkanes, Their relativestability, Baeyer strain theory. Sache-Mohr theory.	
2.	Conformational analysis of Alkanes: (ethane & butane) Relative stability, Energy diagram.	
3.	Cyclohexane: Chair, Boat and Twist boat forms, Relative stability with energy diagram, axial and equatorial bonds including perspective representation and Newman projections.Conformation& conformational analysis of monosubstituted cyclohexane derivative.	
Unit III: Aromatic Hydrocarbons		
1.	Aromaticity: Huckel’s rule, aromatic characters of arenes, benzenoid, non-benzenoid- aromatic compounds and heterocyclic and polynuclear hydrocarbons with suitable examples.Antiaromaticity and nonaromaticity	
2.	Electrophilic Aromatic Substitution: Halogenation, nitration,sulphonation and Friedel-craft’s alkylation / acylation with their mechanism. Activation /deactivation of aromatic ring and directing effects of groups. Partial rate factor (O/P ratio)	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **3rdSemester**

Name of the Paper: **MM-303 (Organic Chemistry-I)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Chemistry of Halogenated Hydrocarbons		
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid).	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects and effect of solvent. Nucleophilic substitution vs elimination. Haloform reaction.	
3.	Aryl halides: Preparation from diazonium salts. Nucleophilic aromatic Substitution SNAr, Benzyne intermediates.	
4.	Relative reactivity of alkyl, allyl /benzyl, vinyl and aryl halides towards nucleophilic substitution reactions. Organometallic Compounds of Mg and Li - Use in synthesis of organic compounds.	
Unit II: Chemistry of C-O Bond		
1.	Alcohols: Preparation, properties and relative reactivity of 1°, 2°, 3° alcohols. Bouveault Blanc Reduction and Baeyer-Villiger Oxidation Preparation and properties of Glycol: Oxidation by OsO4, alkaline, KMnO4, periodic acid and lead tetracetate. Pinacol Pinacolone rearrangement with mechanism	
2.	Trihydric alcohol: Glycerol: preparation & properties. Phenols: preparation and properties: acidity- comparison with alcohol. Substitution reaction, Reimer-Tiemann and Kolbe-Schmidt reaction, Fries rearrangement with mechanism.	
3.	Other aromatic Hydroxy compounds: Cresol, nitrophenols, picric acid, benzyl alcohol, dihydric phenols. Ethers and Epoxides: Preparation and reactions with acids.	
Unit III: Carbonyl Compounds: Aldehydes and ketones (aliphatic and aromatic)		
1.	Structure, Preparation and Reactions, Relative reactivity of aldehydes, ketones. Nucleophilic addition reactions.	
2.	Mechanism of Aldol, Benzoin, Stobbe, Darzens glycidic ester condensation, Perkin, Cannizzaro reaction. Beckmann and Benzil-Benzilic acid rearrangement, substitution, oxidation and reduction (Clemmensen, Wolf-Kishner and M P V reduction) Addition reactions of unsaturated carbonyl Compound: Michael addition.	
3.	Unsaturated aldehydes (Acrolein, Crotonaldehyde, Cinnamaldehyde) Unsaturated ketone (MVK).	
Unit III: Carboxylic acid and their derivatives		
1.	Preparation and properties and reactions of, monocarboxylic acids: effect of substituent on acidity, HVZ reaction and Schmidt reaction. Typical reactions and uses of dicarboxylic acids, Hydroxy acids, Unsaturated acids: Succinic, phthalic, lactic, malic, tartaric, citric, maleic and fumaric acids.	
2.	Preparation and reactions of acid chlorides, anhydrides, esters, amides: Mechanism of acidic and alkaline hydrolysis of esters.	
3.	Claisen Ester Condensation, Dieckmann and Reformatsky Reaction, Hofmann bromamide degradation, Curtius rearrangement.	
Unit III:		
1	Sulphur containing compounds: Preparation and reactions of Thiols, Thioethers and sulphonic acids.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **3rdSemester**

Name of the Paper: **NM-301 (Organic Chemistry-I)**

Units Assigned: **I + II + III**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Aliphatic Hydrocarbons:Alkenes& Alkynes		
1.	Alkenes (upto 5 carbons) Preparation- Elimination reaction- Mechanism of E1, E2, E1cB.	
2.	Dehydration of alcohols and dehydrohalogenation of alkyl halides– Saytzeff's & Hoffmann's rule.	
3.	Reactions: cis-addition (alk. KMnO ₄) and trans addition (bromine). Addition of HX (Markownikoff's and anti-Markownikoff's addition). Hydration, Hydroxylation by Osmium tetroxide, Hydroxylation via epoxydation, Ozonolysis. Oxymercuration-demercuration, hydroboration-oxidation.	
4.	Alkynes (up-to 5 carbons) Preparation: Acetylene from CaC ₂ and conversion into higher alkynes: by dehydrohalogenation of tetra halides, dehydrohalogenation of vicinal-dihalides. Reactions- Formation of metal acetylides, addition of bromine and alkaline KMnO ₄ , ozonolysis and oxidation with hot alk. KMnO ₄ .	
Unit II: Aromatic Hydrocarbons		
1.	Preparation (only benzene) from phenol by decarboxylation, from acetylene, from benzenesulphonic acid.	
2.	Reactions-Electrophitic substitution in benzene- nitration, halogenations, sulphonation, Fridel-Craft alkylation and acylation with mechanism.	
Unit III: Alkyl and Aryl halides		
1.	Alkyl halides- Nucleophilic Substitution Reactions (SN ₂ , SN ₁ , & SN _i)Preparation: from alkenes and alcohols	
2.	Reactions;: Hydrolysis, nitrite and nitro formation, nitrile and isonitrile formation.Williamson's Synthesis: elimination vs Substitution	
3.	Aryl halides Preparation (chloro, bromo, iodo benzene only): From phenol, Sandmeyer &Gattermann reaction.	
4	Reactions (chlorobenzene): Aromatic nucleophilic substitution (replacement by –OH) and effect of nitro substituent.Reactivity and relative strength of carbon-halogen bond in alkyl, allyl, benzyl and vinyl and Aryl halide.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **4thSemester**

Name of the Paper: **MM-403 (Organic Chemistry-II)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **6 + 10 + 8 + 6 + 10 + 8**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Keto-enol tautomerism, Preparation and properties of Acetoacetic ester and diethyl malonate.	
2.	Knoevenagel Condensation	
Unit II: Nitrogen containing functional groups		
1.	Effect of substituent and solvent on basicity. Preparation and properties: Gabriel Phthalimide synthesis and Hoffmann bromamide degradation, carbylamines reaction, Mannich Reaction, Hoffmann's Exhaustive methylation, Hoffmann-Elimination Reaction.	
2.	Distinction between 1°, 2° and 3° amines with Hinsberg reagent and nitrous acid. Nitro and nitroso compounds, Nitriles and isonitriles, cyanates and isocyanates: Preparation and important reactions.	
3.	Diazomethane and diazoacetic ester with synthetic application. Diazonium salts: Preparation and their synthetic applications.	
Unit III: Amino acids and proteins		
1.	Amino Acids and their classification, synthesis and Ionic properties, Reactions, Zwitter ions, pKa values, isoelectric point & electrophoresis. Study of peptides: Determination of their primary structure: end group analysis, Principles of peptide synthesis.	
2.	Proteins: Their classification and biological importance. Elementary idea on Primary, Secondary, Tertiary and Quaternary structure of proteins, α -helix and β -pleated sheet structure, tertiary structure of proteins.	
Unit IV: Polynuclear Aromatic Hydrocarbons		
1.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbons: naphthalene, anthracene and phenanthrene.	
2.	Important derivatives of Naphthalene and Anthracene.	
Unit V: Heterocyclic Compounds		
1.	Classification, Nomenclature and structure. Aromaticity in 5-membered and 6-membered rings containing one heteroatom.	
2.	Synthesis, reactions, properties of furan, pyrrole (Paal-Knorr synthesis), thiophene, pyridine (Hantzsch synthesis), quinoline (Skraup synthesis, Knorr quinoline synthesis, Pfitzinger reaction) and isoquinoline (Bischler-Napieralski reaction).	
Unit VI: Heterocyclic Compounds		
1.	Natural occurrence, General structural features, Isolation and their physiological action.	
2.	Hoffmann's Exhaustive Methylation with special reference to coniine, nicotine.	
3.	Emde's modification. Medicinal importance of Nicotine, Hygrine, Quinine, Morphine, Cocaine and Reserpine.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **5thSemester**

Name of the Paper: **MM-505 (Organic Chemistry-III)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **8 + 12 + 10 + 10 + 8**

Class	Topic	Remarks
Unit I: Pericyclic reactions		
1.	Definition. The conservation of orbital symmetry, Woodward-Hofmann Rules, HOMO-LUMO approach.	
2.	Cyclo addition reactions: (2+2) and (2+4) cycloadditions. Diels Alder Reaction, 1,3- dipolar cycloaddition, Sigma tropic rearrangements- Cope and Claisen rearrangement, electrocyclic reactions.	
Unit II: Bio-molecules		
1.	Carbohydrates- Occurrence, classification and biological importance, General properties of glucose and fructose (open and cyclic structure).	
2.	Monosaccharides: Constitution and absolute configuration of glucose and fructose, Epimerization, Mutarotation	
3.	Determination of ring size of glucose. Haworth projections and conformational structures. Ascending and descending in monosaccharides, Interconversions of Aldoses and Ketoses.	
Unit III: Nucleic acids & Enzymes		
1.	Components of Nucleic acids, Nucleosides and Nucleotides. Structure Synthesis and Reactions of Adenine, Guanine, Cytosine, Uracil & Thymine. Polynucleotides: Structure of DNA (Watson – Crick Model) and RNA, Genetic code. Biological roles of DNA and RNA, Replication. Transcription and Translation (elementary idea only)	
2.	Enzymes and their functions as catalyst – Classification- Active site, Specificity, Mechanism of Enzyme action, Co-enzyme, Application of Enzymes.	
Unit IV: Pharmaceutical compounds: Structure and Importance		
1.	Introduction to natural and synthetic medicinal compounds: Azadirachtin (neem), Curcumin(haldi), Vitamin C- their medicinal values, Drug action. Classification, structure, preparation and therapeutic uses of Antipyretics: Paracetamol.	
2.	Analgesic: Aspirin, Ibuprofens (with green synthesis)	
3	Antimalerials: Chloroquine. Antacids: Ranitidine, Antibacterial: povidone –Iodine solutions, Sulphanilamide and other sulphadrugs. An elementary treatment of Antibiotics and detailed study of chloramphenicol.	
Unit V: Terpenes		
1.	Occurrence, classification Isoprene Rule. Elucidations of structure and synthesis of Citral, Neral and α -Terpineol).	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **6thSemester**

Name of the Paper: **MM-605 (Organic Chemistry IV)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **10 + 10 + 4 + 8 + 10 + 6**

Class	Topic	Remarks
Unit I: Disconnection approach in organic synthesis		
1.	Elementary idea about disconnection, functional group interchange (FGI), functional group addition (FGA).	
2.	Synthon and synthetic equivalent, simple examples of reaction leading to C-C bond formation (Corey-House, Wittig & aldol condensation)	
3	Retrosynthesis of monofunctionalised compounds.	
Unit II: Spectroscopy		
1.	UV-visible Spectroscopy: Application of Woodward rules for calculation of λ_{\max} for the following system: α,β -unsaturated aldehydes, ketones.	
2.	IR Spectroscopy: Application in functional group analysis.	
3.	NMR Spectroscopy: Anisotropic Effects in Alkenes, Alkynes, carbonyl compounds and benzene. Study of simple NMR spectra. Applications of IR, NMR and UV in Structural Identification of Simple Organic Molecules.	
Unit III: Lipids		
1.	Classification of Oils and Fats and their vegetable origin, structure of common fatty acid present. Structure, properties and biological importance of triglycerides and phosphoglycerides.	
2.	Change of flavor of oils, Reversion and Rancidity, Saponification value and Iodine number.	
Unit IV: Dyes		
1.	Classification, elementary idea of color and constitution, Chemistry of Dying. Synthesis and application of- Azo dyes-Methyl Orange and Congo red Triphenyl Methane Dyes-Malachite Green.	
2.	Rosaniline and Crystal Violet. Phthalein Dyes- Phnolphthalein and Fluorescein. Vat Dyes: Alizarin and Indigotin.	
Unit V: Polymers		
1.	Types of polymers- Isotactic, syndiotactic and atactic polymers.	
2.	Preparation and applications of plastics- Thermo-setting (Urea-formaldehyde, Phenol-formaldehyde, polyurethanes and thermo softening (PVC, Polythene) polymer additives.	
3	Synthetic fibers: Rayon, Nylon-6, terylene, Fabrics- natural and synthetic (acrylic, polyamido, polyester).	
4	Rubbers-natural and synthetic: Buna-S, chloroprene and neoprene, vulcanization.	
Unit VI: Green Chemistry		
1	Introduction to the principles of green chemistry – Twelve Principles.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **6thSemester**

Name of the Paper: **NM-601 (Organic Chemistry-II)**

Units Assigned: **I + II + III**

Marks Assigned: **4 + 5 + 7**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Synthesis of ethylacetoacetate (Claisen ester condensation), Diethylmalonate .Synthetic uses of ethylacetoacetate and diethylmalonate. Keto – enol Tautomerism.	
Unit II: Compounds containing more than one functional group		
1.	Hydroxy acid - Lactic and Tartaric acidsDicarboxylic acids- (Oxalic, Malonic, Succinic and Pthalic acid) and Citric acid.	
2.	Acrolein, Crotonaldehyde, Cinnamaldehyde,Acrylic acid, Crotonic acid, Maleic acid and Fumaric acid	
Unit III: Preparation, properties and reaction of the following Organic Compounds		
1.	Aromatic Sulphonic acids- Benzene sulphonic acid, nitro sulphonic acid, amino sulphonic acid, sulphuryl chloride, saccharin, chloramines-T.	
2.	Aromatic nitro compounds- Nitrobenzene, Dinitrobenzene, Nitro toluene, TNT, Reduction of nitro compounds in different conditions.	
3	Heterocyclic compounds- preparation and properties of five and six membered heterocyclic compounds: pyrrole, thiophene, furan, pyridine.	
4	Polynuclear Hydrocarbon : preparation and properties of apNthalene and anthracene	

COURSE PLAN

(YEAR 2018-19)



DEPARTMENT OF COMMERCE
DIGBOI COLLEGE, DIGBOI

Stream: Commerce (Marketing)
Name of the Faculty: Dr. Deborshee Gogoi

Course –General

Class/Semester- B. Com 1stSemester

Name of the Paper- **Business Law**

Units Assigned- Unit 3 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Negotiable Instrument Act 1881	Unit 3
2.	Meaning & Characteristics	
3.	Detailed discussion on Promissory Note	
4.	Detailed discussion on Bills of Exchange	
5.	Detailed discussion on Cheque, types of crossing, effects of crossing	
6.	Promissory Notes vs. Bills of Exchange vs. Cheque	
7.	Presumptions associated with Negotiable instrument	
8.	Group Discussions	
9.	Tutorial	
1.	Industrial Disputes Act, 1948	Unit 4
2.	Meaning- industry, Industrial Disputes, Workmen, Employer, wages	
3.	Types Disputes, reasons for industrial disputes	
4.	Lockout, valid lockout, prohibition of lockout, penalty	
5.	Strikes, valid strikes, types, prohibition of strikes	
6.	Layoff and retrenchment	
7.	Compensation	

Course – Honours

Class/Semester- B. Com 2nd Semester

Name of the Paper- **Corporate Law**

Units Assigned- Unit 3

Marks Assigned- 18= 18

Class	Topic/ Unit	Remarks
1.	Board of Directors, Directors	Unit 2
2.	women directors, independent director, small shareholder's director	
3.	Appointment of directors	
4.	Disqualification of Directors	
5.	Legal provisions associated with Director's Identification Number	
6.	Power and duties of a Director	
7.	Removal of Director	
8.	Managing Director, definition, appointment of MD, duties of MD	
9.	Meeting: Meetings of shareholders and board of directors	
10.	types of meetings, convening and conduct of meetings, requisites of a valid meeting,	
11.	postal ballot, meeting through video conferencing, e- voting	

Course – Pass Course

Class/Semester- B. Com 3rd Semester

Name of the Paper- **Human Resource Management**

Units Assigned- Unit 2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	HRP- Introduction, Quantitative & Qualitative dimensions	Unit 2
2.	Job analysis – job description and job specification, need, features	
3.	Recruitment – Concept	
4.	Recruitment- Need and Importance	
5.	Sources of Recruitment- Internal and External	
6.	Selection – Concept and process	
7.	Methods of selection	
8.	test and interview	
9.	placement and induction	

Course – Honours

Class/Semester- B. Com 3rd Semester

Name of the Paper- **Principles of Marketing**

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Introduction: Nature and scope of marketing	Unit 1
2.	Marketing Concepts	
3.	Marketing vs Selling	
4.	Marketing Environment	
5.	Marketing Research	
6.	Importance of Marketing	
7.	Online Marketing	
8.	Case studies	
9.	Product- Introduction and Characteristics	Unit 3
10.	Types of Products- Consumer, shopping and speciality	
11.	Product Mix	
12.	Packaging, Branding and labeling	
13.	New Product Development	
14.	Marketing strategies with regard to NPD	
15.	Price- Importance	
16.	Factors influencing pricing decisions	
17.	Objectives of Pricing	
18.	Methods of Pricing	

Course – General

Class/Semester- B. Com 4th Semester

Name of the Paper- **Indian Banking System (IBS)**

Units Assigned- Unit 1 and 4

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Banking- Meaning & Definition, Role of banking in Indian economy	Unit 1
2.	Development of Banking sectors in India	
3.	India's Foreign Trade in global context.	
4.	Infrastructure Support for Export Promotion: Export Promotion Councils; Commodity boards/ product export development authorities;	Unit 4
5.	Specific service institutions;	
6.	State trading organizations;	
7.	Export and Trading Houses.;	
8.	Export Processing Zones/Special Economic Zone (EPZ/SEZ);	
9.	Export Oriented units (EOUs).	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Consumer Behaviour**

Units Assigned- Unit 3

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Socio-Cultural Factors of Consumer Behaviour	Unit 3
2.	Socio-Cultural Factors of Consumer Behaviour	
3.	Buyers' Black Box	
4.	Role of Culture in Consumer Behaviour	
5.	Role of Sub-Culture in Consumer Behaviour	
6.	Role of Social Class in Consumer Behaviour	
7.	Reference groups and their role in consumer behaviour	
8.	Family and its role in consumer behaviour	
9.	Role of rules and status in consumer behaviour	
10.	Revision and doubt clearing	
11.	Discussion of important questions and answers	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Service Marketing**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Nature & Types of services	Unit 1
2.	Difference between Services and goods marketing	
3.	Service Marketing Triangle	
4.	Service Marketing- Origin & Growth	
5.	Classification of Services	
6.	Macro & Micro Environments for Service Marketing	

Course – Honours

Class/Semester- B. Com 4th Semester

Name of the Paper- **Company Law**

Units Assigned- Unit 3 & 4

Marks Assigned- 20+20= 40

Class	Topic/ Unit	Remarks
1.	Company Meetings:Types	Unit 3
2.	Requisites of a valid meeting	
3.	AGM, Legal provisions associated with holding of AGM, business transacted	
4.	EGM, Legal provisions associated with holding of EGM, business transacted	
5.	Statutory Meeting	
6.	Board Meeting, legal provisions associated with holding of Board meeting	
7.	Company Management – Board of Directors	Unit 4
8.	Directors- Appointment, qualification, disqualification, removal, duties	
9.	Managing Directors- Appointment, qualification, disqualification, removal	
10.	Winding up- modes of winding up	
11.	Effects of winding up	
12.	Powers and duties of liquidators	

Course – Non-Honours

Class/Semester- B. Com 5th Semester

Name of the Paper- **Principles of Marketing**

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Introduction: Nature and scope of marketing	Unit 1
2.	Marketing Concepts	
3.	Marketing vs Selling	
4.	Marketing Environment	
5.	Marketing Research	
6.	Importance of Marketing	
7.	Online Marketing	
8.	Case studies	
9.	Product- Introduction and Characteristics	Unit 3
10.	Types of Products- Consumer, shopping and speciality	
11.	Product Mix	
12.	Packaging, Branding and labeling	
13.	New Product Development	
14.	Marketing strategies with regard to NPD	
15.	Price- Importance	
16.	Factors influencing pricing decisions	
17.	Objectives of Pricing	
18.	Methods of Pricing	

Course –Honours

Class/Semester- B. Com 5thSemester

Name of the Paper- **Retail Management**

Units Assigned- Unit 1 and Unit 2

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Retailing Concept	Unit 1
2.	Indian Retailing Overview	
3.	Nature and Scope of Retailing	
4.	Significance of Retailing	
5.	Reasons for growth of retailing	
6.	Emerging trends in retailing	
7.	Emerging trends in retailing	
8.	Concept and overview of e-tailing	
9.	Logistic issues	Unit 3
10.	Inventory Management	
11.	Warehousing	
12.	Transportation	
13.	Store Location	
14.	Revision and doubt clearing	

Course – SEC

Class/Semester- B. Com 4thSemester

Name of the Paper- **Retail Management**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Store based retailing: Meaning, Characteristics, Merits, Demerits	Unit 3
2.	Non-Store based retailing: Meaning, Characteristics, Merits, Demerits	
3.	Vertical Marketing System	
4.	Vertical Marketing System	
5.	Retailing Life Cycle	
6.	Retailing Life Cycle	

Course –NON-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Rural Marketing**

Units Assigned- Unit 1, 2, 3 and 4

Marks Assigned- 20+20+20+20=80

Class	Topic/ Unit	Remarks
1.	Indian Rural Market Overview	Unit 1
2.	Rural Marketing Meaning and Significance	
3.	Nature and Scope of Rural Marketing	
4.	Evolution of Rural Marketing	
5.	Dynamics in rural marketing	
6.	Dynamics in rural marketing	
7.	Revision and doubt clearing	
8.	Group Discussion	
9.	Class Assignment	
10.	Class Assignment	
11.	Rural Marketing Environment	Unit 2
12.	Rural Marketing Environment	
13.	Rural Marketing Environment	
14.	Influence of geographical factors on marketing operations	
15.	Influence of geographical factors on marketing operations	
16.	Influence of economic factors on marketing operations	
17.	Influence of economic factors on marketing operations	
18.	Influence of socio-cultural factors on marketing operations	
19.	Influence of socio-cultural factors on marketing operations	
20.	Influence of other factors on marketing operations	
21.	Market Segmentation	Unit 3
22.	Rural Market Segmentation	
23.	Pre-requisites of effective segmentation	

24.	Pre-requisites of effective segmentation	
25.	Approaches to rural segmentation	
26.	Approaches to rural segmentation	
27.	Influence of market segmentation in rural marketing	
28.	Influence of market segmentation in rural marketing	
29.	Case studies	
30.	Doubt clearing and revision	
31.	Rural Marketing Strategies	Unit 4
32.	Product Planning for rural marketing	
33.	Product features for rural marketing	
34.	Distribution channels	
35.	Pricing issues in rural marketing	
36.	Logistics issues in rural marketing	
37.	Doubt clearing and revision	

Course –Non-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- **Advertising Management**

Units Assigned- Unit 1 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Advertising Planning	Unit 1
2.	Decision Making in Advertising	
3.	Development of advertising programme	
4.	Market Segmentation	
5.	Selection of Advertising Media	
6.	Types of advertising media	
7.	Relative advantages of advertising media	
8.	Relative disadvantages of advertising media	

9.	Doubt Clearing and Revision	
10.	Doubt Clearing and Revision	
11.	Advertising Agency	Unit 4
12.	Role of advertising agency	
13.	Services provided by advertising agency	
14.	Types of advertising agency	
15.	Selection of advertising agency	
16.	Relationship with clients	
17.	Doubt clearing and revision	
18.	Ad-made show	
19.	Ad-made show	
20.	Ad-made show	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Basics of Academic Project Preparation**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Introduction to Research:	Unit 1
2.	Types of research projects	
3.	Fact, concept and theories;	
4.	Planning the research project-essential ingredients of planning;	
5.	Developing research questions.	
6.	Research Design-Components.	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Small Business Management**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Small Business – Micro and small enterprise – concept, definition, characteristics and rationale.	Unit 1
2.	Relationship between large and small enterprise.	
3.	Different types of micro and small enterprise and their distinctive characteristics.	
4.	Role of small business – a brief global perspective with special reference to Indian economy.	
5.	Features of Micro, small and medium enterprise Act 2006, governing the promotion and management of Micro and small enterprise in India.	
6.	Industrial policies of the Central and state Govt. governing the promotion and management of Micro and small enterprise in N. E. India with special reference to Assam	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **International Business**

Units Assigned- Unit 1 and 4

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	India's Foreign Trade- An Introduction	Unit 1
2.	Trends and Developments; Commodity composition and direction;	
3.	India's Foreign Trade in global context.	
4.	Infrastructure Support for Export Promotion: Export Promotion Councils; Commodity boards/ product export development authorities;	Unit 4
5.	Specific service institutions;	
6.	State trading organizations;	
7.	Export and Trading Houses.;	
8.	Export Processing Zones/Special Economic Zone (EPZ/SEZ);	
9.	Export Oriented units (EOUs).	

Stream: Commerce (Accounting & Finance)
Name of the Faculty: Pradip Chandra Das

Course-No: 203

Class/ 2th Semester (H)

Name of the Paper: Corporate Accounting.

Units Assigned: II & III

Mark Assigned=40

Class	Topic/Units	Remarks
1.	Define current Assets,	
2	What is mean by Non-current Assets?	
3	What is meant by Current Liabilities?	
4	State the accounting treatment of preliminary expenses.	
5	Treatment of proposed dividend in Company final Account.	
6	Corporate dividend Tax, Interim Dividend	
7	State the statutory provisions relating to operations and presentation of Balance sheet of a listed Company under Company under Companies Act, 2013.	
8	State the statutory provisions relating to preparation and presentation of statement of profit and Loss of a listed Companies Act, 2013	
9	Meaning of Amalgamation, Absorption and Reconstruction	
10	Objectives of Amalgamation	
11	Types of Amalgamation.	
12	Concepts and accounting treatment as per Accounting Standard:14 (ICAI)	
13	Accounting entries of Transferor/vendor Company	
14	Accounting entries of Transferee/ purchasing Company	
15	Calculation of Purchase considerations.	

16	Intrinsic value Method, Net worth (or Net assets) method	
17	Net payment method & share Exchange Method	
18	Practical question solved (Transferee Company)	
19	Practical question solved (Transferor Company)	
20	Meaning of Internal Reconstruction	
21	Internal Reconstruction of Company (Scope)	
22	Accounting treatment of internal reconstruction	
23	Alteration of share capital	
24	Increase/decrease share capital,	
25	Procedure of capital Reduction.	
26	Reduction of share capital under section 100 to 105.	

Course-No: 404

Class/4th Semester (H)

Name of the Paper: Security Analysis & Portfolio Management.

Units Assigned: I

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Definition of investment and an overview of the investment process	
2	various investment opportunities/alternatives investment.	
3	Differentiating between investors, gamblers, and speculators	
4	Variation of fixed , variable and convertible securities	
5	Measurement of Risk factor	
6	Assessment of risk and evaluation of return i.e. risk and return factor.	
7	various funding sources used by the investment	
8	Explain a variety of methods to demonstrate the process of funding measurement through time.	

9	Measurement of the time factor and determination of the capital interest rate	
10	Systematic and unsystematic Risk.	
11	Fundamental Analysis.	
12	Technical Analysis	
13	Market efficiency in various forms.	
14	Practically invested by the investor in financial instruments like the stock market and the Tata Digital fund. Life SBI. Birla sun life and Bajaj Alliance etc.	

Course-No.401

Class/ 4th Semester (H)

Name of the Paper: Cost Accounting.

Units Assigned: III

Marks Assigned: 20

Class	Topic	Remarks
1	Meaning Overhead cost. Fixed overhead cost , Semi-fixed overhead cost and variable overhead cost.	
2	Definition of overhead cost, objects and Importance of overhead cost.	
3	Classification of overhead cost	
4	The various bases for apportionment of overheads to cost centres.	
5	Overhead absorption:	
6	Various methods of absorption of the factory Overheads Techniques to control administrative overhead	
7	Selling and distribution overheads	
8	Examples of over absorption & under absorption	
9	Reasons of under or over absorption heads.	
10	Practical problem with solution of production Unit Method	
12	Practical problem with solution of Hourly Rate Methods	
13	Practical of Machine hour rate method solved.	

Course-No: 403

Class/4th Semester (H)

Name of the Paper: Auditing

Units Assigned: II

Marks Assigned: 20

Class	Topic/Units	Remarks
1	What is Audit procedure?	
2	Meaning of Routine Cheeking. Object of routine checking.	
3	Function of routine checking.	
4	Advantages and disadvantages of routine checking.	
5	.Scope of routine checking	
6	Test checking is necessary for auditor	
7	Importance of test checking,	
8	Auditing Techniques (Vouching, verification, valuation, confirmation and analysing)	
9	Object of vouching	
10	Verification and valuation of Assets.	
11	Verification of liabilities	
12	Types of evidence for audit procedure.	

Course No: 603

Class/6th Semester (H)

Name of the Paper: Indian Financial System

Units Assigned: II

Class	Topic/Units	Remarks
1	What do you mean by Banking Institution?	
2	What is Banking institution? , define CoOmmmercial Bank.	
3	Present structure of commercial Bank (Scheduled of commercial Bank.)	
4	Role or Function of commercial bank.	
5	Sources and application of funds.	
6	Meaning of Rural banking. Objectives of Rural Banking	
7	Importance of rural banking.	
8	NABARD an Indian agricultural bank.	
9	NABARD's function in the agricultural industry.	
10	RBI is chief or Central bank. Object of central bank.	
11	Need of a Central Bank or Reserve Bank of India	
12	Functions of RBI	
13	Monetary policy of Reserve bank of India.	
14	Object of Reserve bank of India.	

Course-No: 602

Class/6th Semester (H)

Name of the Paper: Financial Statement Analysis

Units Assigned: 20

Class	Topic/Units	Remarks
1	Concept of Corporate Social Responsibility.	
2	Famous Quotes about Responsibility	
3	Object of Corporate Social Responsibility.	
4	Four dimension of Corporate Social Responsibility	
5	Political & Religious Beliefs on CSR.	
6	Benefits of CSR	
7	Business impact on CSR	
8	Driving forces behind CSR	
9	TYPES OF CSR	
10	Triple bottom line of CSR.	
11	Reporting of Corporate Social Responsibility.	
12	Impact on society of Corporate Social Responsibility	
13	Reporting of Corporate Governance	
14	Quality of Good Governance	
15	Object of Good Governance.	
16	Status of corporate Reporting in India.	
17	Object of Corporate Social Responsibility.	
18	Reporting of Corporate Social Responsibility.	
19	Impact on society of Corporate Social Responsibility	

Course-No 601

Class/ 6th Semester

Name of the Paper: Income Tax

Units Assigned: I, II, III, IV & V

Marks Assigned: 80

Class	Topic/Units	Remarks
1	Basic concepts of Income Tax,	
2	History of Income Tax	
3	Meaning of Income tax, objectives of Income Tax	
4	Scope of Income Tax, Advantages of Income Tax	
5	Heads of income Tax under section 14	
6	Agricultural income section 2(1A)	
7	Liable to pay tax, Persons u7nder income Tax Act	
8	Assessee in person, Deemed Assessee , Assessee in default,	
9	Assessment Year, Previous year	
10	Total income, Gross total income	
11	Meaning of residential status and Tax liability	
12	Classification according to the residential status ; Resident and non-resident	
13	Determination of Residential status of an Assessee.	
14	Different taxable entities from the point of view of residence	
15	Determination of Basic condition and additional condition	
16	Meaning of person of Indian origin	
17	Resident and ordinarily resident.	
18	Residential status of Hindu Undivided Family.	
19	Determination of Tax Liabilities on the basis of residence.	
20	Meaning of tax liability of different types of Incomes.	
21	Exempted Income under section-10	
22	Tax Holiay for industrial Units in Trade Zones,	
23	Tax holiday for newly established units in Special Economic Zones,	
24	Tax holiday for 100% export oriented undertakings	
25	Meaning of salary, Tax free salary, surrenders salary.	

26	Computation of income from salaries, component of salaries	
27	Profits in lieu of salary	
28	Gratuity: gratuity received from Govt./Local Authorities.	
29	Gratuity received under payment of gratuity Act.	
30	Different types of salary, Advance, arrear leave salary etc.	
31	Calculation of pension, annuity, leave encashment	
32	Allowances to employees i.e. Fully exempted allowance, partly exempted allowance and fully taxable allowance.	
33	Meaning of perquisites, perquisites in respect of motor cars	
34	Perquisites taxable for all employees.	
35	Rent free house: furnished and unfurnished accommodation.	
36	Provident funds facilities for employees	
37	Deduction from salary. Deduction u/s 80c	
38	Meaning of house property. Essential conditions	
39	Income not taxable UNDER THE HEAD Income from House property.	
40	Meaning of Annual value, Gross annual value.	
41	Determination of the gross annual value of a let out property.	
42	Deduction from annual value.	
43	Computation of Income from House Property for different categories of properties	
44	Recovery of unrealised rent. Inadmissible deductions	
45	Treatment of income from Co-own property.	
46	Deemed ownership, Exempted Property income	

Course-No 103

Class/ 1st Semester (General & speciality)

Name of the Paper: Financial Accounting.

Units Assigned: IV & Tally

Marks=20

Class	Topic/Units	Remarks
1	Introduction to Branch	
2	Objective of Brach Accounting	
3	Types of Branches	
4	Concept of dependent branches,	
5	Accounting aspects.	
6	Goods-in-transit, Cash-in Transit/Remittance in transit, inter branch transfer, Normal loss, Abnormal Loss.	
7	Journal Entries in the Books of Head Office Under Debtors or Synthetic system	
8	Missing figure relating to petty cash/branch stock.	
9	Stock & Debtors system.	
10	Branch final Account System	
11	Whole sale basis system.	
12	Independent branches	
13	Concept Accounting treatment	
14	Important adjustment entries	
15	Preparation of consolidated profit and loss account and balance sheet.	
16	Objectives of sending Goods to branches at invoice price/ selling price	
17	Problem solving from question paper	
18	Final examination question paper 2011, 2012, 2013	
19	Final examination question paper: 2014, 2015, 2016	

Course-No: 301

Class/3rd Semester (H)

Name of the Paper: Advance Financial Accounting

Units Assigned: II

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Meaning of insurance, objectives of insurance	
2	Definition of insurance, element of insurance contract	
3	Meaning of various insurance terms	
4	Insurance regulatory and Development Authority	
5	Types of insurance: life insurance, General insurance.	
6	Books maintained under life Insurance business.	
7	Ascertainment of profit in life insurance business.	
8	Preparation of Revenue Account(Policyholders Account: Non-technical)	
9	Explanation of items in the Revenue Account that's Claims, Surrender value.	
10	Bonus in reduction of premium	
11	Premium, Consideration for annuities granted.	
12	Re-insurance /Commission on Re-insurance Accepted/Ceded	
13	Preparation of Profit and loss Account (Shareholders Account: non technical)	
14	Preparation of Balance sheet of life insurance company.	

Course-No:302

Class/3rd Semester (H)

Name of the Paper: Financial Management

Units Assigned: II, III

Marks Assigned: 20

Class	Topic/Units	Remarks
1	Meaning of investment decision techniques.	
2	Capital budgeting is a predetermine cost.	
3	Method of capital budgeting i.e. traditional & Modern	
4	Cost of capital and its measurement	
5	Meaning of leverage	
6	Types of leverage	
7	Determination of Financial leverage	
8	Combined leverage and optimal leverage	
9	Capital structure	
10	Practical problem with solution (Pay back period method)	
11	Net present value method (Solved Practical problem)	
12	Meaning of working capital, definition of working capital	
13	Objectives of working capital	
14	Concept , need and influencing factors of working capital	
15	Estimation of working capital	
16	Sources of Working Capital.	
17	Types of working capital	
18	Advantages and disadvantages of working capital	

Course-No 504

Class/5th Semester (H)

Name of the Paper: Direct Tax-I.

Units Assigned: I, II, III , IV & V

Marks Assigned:

Class	Topic/Units	Remarks
1	Concepts of income tax	
2	An overview of income tax law in india	
3	Basic concepts: Income, Agricultural income,	
4	Person and Assessee	
5	Assessment year, Previous year, Gross total income.	
6	Total income, Maximum marginal rate of tax.	
7	Revised Gross total income and total income PAN(Permanent Account Number)	
8	Residential status: Assessment year, Nationality, Physical Presence.	
9	Testing the fulfilment of Basic conditions and additional conditions.	
10	Scope of total income	
11	Income exempted under section 10	
12	Income from salary: Meaning of Salary, Gross Salary.	
13	Basic Salary, Gross Salary and Net Salary.	
14	Profits in Lieu of Salary, Gratuity.	
15	Pension, Annuity	
16	Leave Encashment Sec 10 (10AA)	
17	Allowances to employees: Fully Exempted Allowances, Partly Exempted Allowances Fully Taxable Allowances.	
18	HRA: Allowances.	
19	Perquisites: Example of perquisites.	
20	Perquisites Exempted from Tax.	
21	Perquisites Taxable for All Employees.	
22	Rent free House: Furnished and Unfurnished Accommodation.	
23	Entertainment Allowances.	

24	Valuation of perquisites in respect of Motor Car.	
25	Deduction on account of Professional Tax Paid.	
26	Standard deduction Section -16(ia).	
27	Income From house property.	
28	Introduction to House Property, Essential Conditions of House Property.	
29	Types of Income from house property not chargeable to Tax.	
30	Meaning of Annual Value.	
31	Gross Annual Value	
32	Determination net Annual Value.	
33	Treatment of Unrealised rent.	
34	Interest on loan taken or money borrowed for the property.	
35	Interest for preconstruction periods.	
36	For House property Self occupied for Residential Purposes	
37	Direct tax authorities	
38	Duties and responsibilities of Director	
39	Powers of Directors, Income tax officer, inspector.	
40	Functions of various authorities	
41	Appellate tribunals	

Stream: Commerce (Accounting & Finance)
Name of the Faculty: Dr. Sampreeti Boruah

Class/Semester-B.com 1st semester

Name of the Paper-Financial Accounting

Units Assigned- I& IV

Marks Assigned- 40

Class	Topics	Remarks
1.	Issue of syllabus and Meaning and scope of accounting	
2.	Basic accounting concept and conventions	
3.	Accounting standard-concepts	
4.	Users of financial accounting information and their needs. Qualitative characteristics of accounting information, functions	
5.	Advantages and limitations of accounting. Branches of accounting. Bases of accounting; cash basis and accrual basis.	
6.	Financial accounting standards: IFRS, IndAS	
7.	Accounting standard	
8	Accounting Process and Revision	
9.	Royalty meaning, minimum rent, short working, excess	
10.	Recoupment of short working	
11	Practical problems of royalty accounts	
12	Practical problems of royalty accounts	
13	Practical problems of royalty accounts	
14	Practical problems of royalty accounts	
15	Sub lease- meaning, practical problem	
16	Practical problems of royalty accounts sub lease	
17	Practical problems of royalty accounts	
18	Revision & previous year question paper solving	
19	previous year question paper solving	
20	Class test	

Name of the Paper- Corporate Accounting
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 2nd Semester
 Units Assigned- I
 MarksAssigned- 20

Class	Topics	Remarks
1.	Introduction to course, accounting for share capital	
2.	Company meaning definition, share, debenture	
3.	Share, share capital–types, Issue of share	
4.	Accounting for issue of share, journal entries	
5.	Problems related with issue of share, pro rata allotment	
6.	Share forfeiture, and reissue of share	
7	Practicing problems of Share forfeiture, and reissue of share	
8	Practicing problems of Share forfeiture, and reissue of share	
9.	Book building, process, bonus share-meaning, benefits, right share	
10.	Practical of bonus share	
11.	Buy back of share,	
12.	Practical of buy back of shares	
13.	Practicing problems	
14.	Practicing problems	
15.	Debenture–meaning, type, accounting entries	
16.	Practicing problems of issue and redemption of debenture	
17	Redemption of debentures sinking fund method	
18	Practicing problems	
19	Practicing problems	
20	Practicing problems of previous year papers	
21	Revision.	

Name of the Paper-Advance Financial Accounting

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 3rdSemester

Units Assigned- I & IV

MarksAssigned- 40

Class	Topics	Remarks
1.	Definition and meaning of banking, terms related to banking	
2.	Books to be maintained; classification of Advances, provisioning of advances	
3.	Slip system of banking, advantages and disadvantages, e-banking	
4.	Problems of provisioning	
5.	Discount on bills discounted, rebate on bill discounted	
6.	Preparation of profit and loss account of banking	
7.	Problems of profit and loss account of banking	
8.	Problems of profit and loss account of banking	
9.	Preparation of balance sheet of banking.	
10.	Problems of profit and loss account of banking.	
11.	Problems of profit and loss account and balance sheet of banking	
12.	Problems of profit and loss account of banking	
13.	Revision and test	
14.	Test	
15.	Investment accounting-meaning, advantages and disadvantages, features	
16.	Cum interest and ex interest–meaning and problem	
17.	Cum dividend and ex dividend–meaning and problem	
18.	Problems of investment accounting	
19.	Problems of investment accounting	
20.	Problems of investment accounting	
21.	Problems of investment accounting	

Name of the Paper- Financial Management
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 3rd Semester
 Units Assigned- II & IV
 Marks Assigned- 40

Class	Topics	Remarks
1.	Financial Management-overview	
2.	Dividend policy-Residual Approach,	
3.	Modigliani & miller theory	
4.	Practical problems related with MM model	
5.	Walter Model and Practical	
6.	Gordon's Model	
7.	Factors affecting dividend decision	
8.	Types of dividend and forms	
9.	Optimal payout ratio	
10.	Revision of models and class test	
11.	Retained Earnings-meaning, advantages & disadvantages	
12.	Working capital- meaning, importance	
13.	Concept of working capital- balance sheet concept	
14.	Operating cycle concept- practical	
15.	Need of working capital, types	
16.	Factors influencing working capital	
17.	Sources of working capital	
18.	Estimation of working capital	
19.	Practical problems	
20.	Practical problems	
21.	Practical problems	
22.	Practical problems	
23.	Revision and discussion.	
24.	Student presentation	
25.	Class test	

Name of the Paper- Cost Accounting
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 4th Semester
 Units Assigned- I & III
 MarksAssigned-40

Class	Topics	Remarks
1.	Cost accounting- meaning, definition, nature, scope	
2.	Cost, costing advantages, disadvantages, differences	
3.	Cost concepts, cost classification,	
4.	Cost concepts, cost classification	
5.	Costing system, installation	
6.	Method of costing, techniques, cost standard	
7.	Preparation of cost sheet	
8.	Preparation of cost sheet	
9.	Preparation of cost sheet	
10.	Revision and Test	
11.	Overhead–meaning, definition, importance	
12.	Classification of overhead cost	
13.	Codification of overheads, allocation and apportionment of overhead	
14.	Reapportionment of overhead	
15.	Problems of apportionment and reapportionment	
16.	Problems of apportionment and reapportionment	
17.	Absorption of overhead	
18.	Absorption of overhead-problems	
19.	Activity based costing	
20.	Problems of absorption of overhead	
21.	Revision, Practicing previous year question paper	
22.	Class test	

Name of the Paper - SAPM

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 4th Semester

Units Assigned- II, III & IV

MarksAssigned- 60

Class	Topics	Remarks
1.	Overview of the syllabus, meaning of security analysis, portfolio management, investment, risk, return	
2.	Portfolio management, types, traditional portfolio management	
3.	Modern portfolio management, Markowitz model	
4.	Diversification, methods, needs	
5.	Markowitz efficient frontier	
6.	Sharpe's single index model, combination of different securities	
7.	Practical problems of combining two securities	
8.	Practical problems of combining three securities	
9.	Markowitz model revision and criticism	
10.	Revision and class test	
11.	Capital asset pricing model- assumption, practical	
12.	Characteristics line- security marker line, capital market line	
13.	Arbitrage pricing model- assumptions, practical	
14.	Factor model- one factor, multiple factor	
15.	Revision	
16.	Portfolio performance evaluation- methods, style comparison, benchmark	
17.	Performance evaluation models- practical	
18.	Performance evaluation models- practical	
19.	Component of performance evaluation	
20.	Revision of models	
21.	Viva- voce	
22.	Students presentation	
23.	Class test	

Name of the Paper- Management Accounting

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 5th Semester

Units Assigned- I, II, III & IV

MarksAssigned-80

Class	Topics	Remarks
1.	Management Accounting-meaning, definition, nature, scope	
2.	Objectives or role of management Accounting	
3.	Functions of Management Accounting,	
4.	Tools and techniques of management accounting	
5.	Distinction among financial, cost and management accounting	
6.	Role of management accountant and installation of management accounting system	
7.	Revision and group discussion	
8.	Class test	
9.	Absorption costing-meaning, advantages and disadvantages	
10.	Marginal costing–meaning, needs, advantages & disadvantages, difference between absorption and marginal costing.	
11.	Ascertainment of profit under marginal system	
12.	Breakevenanalysis,cost-volumeprofitanalysis,contribution,marginofsafety	
13.	Problems of marginal costing	
14.	Problems of marginal costing	
15.	Problems of marginal costing	
16.	Previous year question paper	
17.	Application of marginal costing-fixation of selling price, make or buy decision	
18.	Change of product mix,	
19.	Doubt clearing sessions	
20.	Budgeting- meaning, budgetary control, objectives	
21.	Types of budget, fixed budget – practical	
22.	Flexible budget- practical	
23.	Practical problem	
24.	Functional budget – practical	
25.	Practical problem	
26.	Practical problem	
27.	Practical problem	
28.	Zero base budgeting	
29.	Responsibility accounting	

30	Performance budgeting	
31	Revision and test	
32	cash flow statement – meaning, objectives,	
33	Fund from various activities, Performa	
34	Practical problems	
35	Practical problems	
36	Practical problems	
37	Practical problems	
38	Fund flow statement – meaning, objectives, difference between cash flow and fund flow	
39	Sources and application of fund, Performa	
40	Practical problems	
41	Practical problems	
42	Practical problems	
43	Practical problems	
44	Viva and presentation	
45	Revision and test	

Name of the Paper- Direct Tax 2

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 6th Semester

Units Assigned- I, II, III, & IV

Marks Assigned- 80

Class	Topics	Remarks
1.	Tax introduction, heads/source of income, gross total income	
2.	Income from business or profession –Introduction, definition Basis of charge sec.28	
3.	Allowable expenses From sec.30 to 35. Including block of assets	
4.	Allowable expenses from 36 to 37. Provisions relating to depreciation, additional Depreciation	
5.	Deductions under sec.40	
6.	Special provision for computing income on estimated basis under sections.44 AD and 45AE	
7.	Computation of income from business.	
8.	Problem related to Profits and Gains to Business Income	
9.	Problem related to Profits and Gains to Business Income	
10.	Problem related to Profits and Gains from Professional income of Medical Practitioner.	
11.	Problem related to Profits and Gains from Professional income of lawyer	
12.	Problem related to Profits and Gains from Professional income	

	of Chartered Accountant.	
13	Previous year question paper solved	
14	Practical problems	
15.	Revision and test	
16.	Capital gain-definition, basis of charge, capital assets	
17.	Period of holding, transfer, transaction not regarded as transfer sec.46 & 47	
18.	Computation of capital gain both long term and short term, indexed cost of acquisition And improvement	
19.	Problems of capital gain, capital gain exempt from tax	
20.	Exemptions in respect of certain capital gain u/s 10 & 54	
21.	Problems related to Capital Gain.	
22.	Income from other sources-definition, specific incomes and other income.	
23	Problems related within come from other source and discussion.	
24	Carry forward and set off of losses definitions and provisions of inter-source set off	
25	Provision for Inter-head set off and problems.	
26	Practical problem	
27	Practical problem	
28	Unabsorbed depreciation	
29	Unabsorbed depreciation	
30	Tax planning, tax avoidance, tax evasion	
31	Difference between Tax planning, tax avoidance, tax evasion	
32	Tax planning for salaries assesses	
33	Tax planning for corporate assesses	
34	Revision and doubt clearing	
35	Previous year question paper discussion	
36	ITR filing	
37	Evaluation	

Name of the Paper- Financial Statement Analysis

Course – B.com (Accounting & Finance Specialty)

Class/Semester-B.com 6th Semester

Units Assigned-I & III

Marks Assigned- 40

Class	Topics	Remarks
1.	Financial statement- meaning, types, users, advantages.	
2.	Financial statement analysis- meaning, significance, limitation	
3.	Methods of financial statement analysis	
4.	Comparative statement- profit & loss- practical	
5.	Comparative balance sheet- meaning- practical	
6.	Practical problem	
7.	Common size profit and loss account	
8.	Common size balance sheet	
9.	Practical problem	
10.	Practical problem	
11.	Practical problem	
12.	Trend analysis	
13.	Value added statement	
14.	Economic value-added statement	
15.	Revision	
16.	Financial reporting- meaning, importance	
17.	Purpose of financial reporting	
18.	Corporate social responsibility- meaning, applicability, provisions	
19.	CSR disclosures and provision	
20.	CSR activities, Funding and use of unspent money	
21.	Corporate governance- meaning, importance	
22.	Corporate governance in India	
23.	Corporate governance models	
24.	Previous year question paper discussion	
25.	Student presentation	
26.	Student presentation	

Name of the Paper- Indian Financial System
 Course – B.com (Accounting & Finance Specialty)
 Class/Semester-B.com 6th Semester
 Units Assigned- III & IV
 Marks Assigned- 40

Class	Topics	Remarks
1.	Financial system- meaning, Indian financial system	
2.	Component of Indian financial system	
3.	Financial market- meaning, types	
4.	Money market- meaning, features, Indian money market,	
5.	Instruments of money market	
6.	Capital market- meaning, features,	
7.	Functions of capital market	
8.	Types of capital market- new issue market	
9.	Secondary market- stock exchange, functions	
10.	Role of stock exchange	
11.	Merchant banking- meaning, functions,	
12.	Underwriters	
13.	Marketable and nonmarketable securities	
14.	Revision and discussion	
15.	Security Exchange Board of India- meaning, organization, objectives	
16.	Functions of SEBI	
17.	Mutual fund- meaning, nature	
18.	Types of mutual fund schemes	
19.	Role of mutual fund in India	
20.	Revision	
21.	Seminar presentation	
22.	Seminar presentation	
23.	Viva- voce	
24.	Class test and discussion	

Course Plan
2018 (JULY - DEC)
 1st Semester
 Economics Major
 Paper: ECO1:01: Microeconomics – I

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Approaches to Economics	M M Gogoi
12	Unit 2: Theory of Consumer Behaviour	M M Gogoi
12	Unit III: Analysis of Consumer's Demand	M M Gogoi
10	Unit IV: Theory of Production	Subhashish Gogoi
12	Unit V: Theory of Cost	Subhashish Gogoi

2018 (JAN - JUNE)
 2nd Semester
 Economics Major
 PAPER 2.01 (MACROECONOMICS)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: National Income Accounting	M M Gogoi
10	Unit 2: Theories of Aggregate Income and Employment	M M Gogoi
11	Unit III: Theories of Consumption Function and Investment Spending	Simishmita Borah
10	Unit IV: Rate of interest and IS-LM Analysis	Simishmita Borah
10	Unit V: Exploring the Macroeconomics of an Open Economy	Simishmita Borah

2018 (JULY - DEC)3rd Semester

Economics Major

PAPER 3.01(MICROECONOMICS-II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Pricing in Product markets	Dr. M.Sharma
8	Unit 2: Pricing with Market Power	Dr. M.Sharma
10	Unit III: Monopolistic Competition and Introduction to Oligopoly	Dr. M.Sharma
12	Unit IV: Theory of Factor Pricing	Subhashish Gogoi
11	Unit V: General Equilibrium and Economic Efficiency	Subhashish Gogoi

2018 (JULY - DEC)3rd Semester

Economics Major

PAPER 3.02 (STATISTICAL METHODS IN ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Measures of Central Tendency and Dispersion	Subhashish Gogoi
8	Unit 2: Elementary Probability Theory	Subhashish Gogoi
10	Unit III: Sampling	MM Gogoi
12	Unit IV: Correlation and simple regression	MM Gogoi
8	Unit V: Index Numbers	MM Gogoi

2018 (JAN - JUNE)4th Semester

Economics Major

PAPER 4.01 (MATHEMATICS FOR ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Sets and Set Operations	Simishmita Borah
11	Unit 2: Elements of Matrix Algebra and Input- Output Analysis	Simishmita Borah
8	Unit III: Differential Calculus and its Economic Applications	Simishmita Borah
10	Unit IV: Integral Calculus and its Economic Applications	Subhashish Gogoi
9	Unit V: Differential and Difference Equations	Subhashish Gogoi

2018 (JAN - JUNE)4th Semester

Economics Major

PAPER 4.02 (PUBLIC ECONOMICS – THEORETICAL ISSUES)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Role and significance of Public Finance	Dr. M Sharma
10	Unit 2: Public Revenue: Sources of Public Revenue,	Dr. M Sharma
8	Unit III: Public Expenditure	Dr. M Sharma
8	Unit IV: Public Debt: Role and Purpose	Subhashish Gogoi
5	Unit V: Public Enterprises	Subhashish Gogoi

2018 (JULY - DEC)5th Semester

Economics Major

PAPER 5.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – I)

No of Class	Unit No and Title	Name of the teachers
5	Unit 1: Development: Meaning and Measurement	Dr. M Sharma
11	Unit 2: Obstacles to Development	Dr. M Sharma
7	Unit III: Poverty, Inequality and Unemployment	Dr. M Sharma
10	Unit IV: Theories of Economic Growth	Dr. M Sharma
9	Unit V: Development Theories: Theories of Persistence of Underdevelopment	Dr. M Sharma

2018 (JULY- DEC)5th Semester

Economics Major

PAPER 5.02 (PUBLIC ECONOMICS: POLICY ISSUES)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Structure, Pattern and Policies of Taxation in Developing Economies	Dr. M Sharma
9	Unit 2: Trend and Pattern of Public expenditure in India	Dr. M Sharma
7	Unit III: Budget System and Policy	Dr. M Sharma
5	Unit IV: Fiscal Policy: Its role and objectives	Diksha Mahanta
8	Unit V: Fiscal Federalism: Principles of Allocation of Resources	Diksha Mahanta

2018 (JULY - DEC)5th Semester

Economics Major

PAPER 5.03 (HISTORY OF ECONOMIC THOUGHT)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Pre-Classical and Classical Economic Thought	Dikhsha Mahanta
8	Unit 2: Reaction against Classicism	Dikhsha Mahanta
9	Unit III: The Reconstruction of Economic Science	Dikhsha Mahanta
10	Unit IV: Keynesian Economic Thought	Dikhsha Mahanta
11	Unit V: Indian Economic Thought	Dikhsha Mahanta

2018 (JULY - DEC)5th Semester

Economics Major

PAPER 5.04 (MONETARY THEORIES AND FINANCIAL MARKETS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Theories of demand for and supply of money	M M Gogoi
8	Unit 2: Inflation and Deflation	M M Gogoi
9	Unit III: Business Cycle: Meaning, types and phases	M M Gogoi
7	Unit IV: Banking: Scheduled commercial banks	M M Gogoi
6	Unit V: Financial Markets	M M Gogoi

2018 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Planning: Concept and Justification	Shubhashish Gogoi
10	Unit 2: Role of Agriculture in Economic Development	Shubhashish Gogoi
8	Unit III: Role of Industries in the Development Process	Shubhashish Gogoi
11	Unit IV: India in the Global Economy:	Simishmita Borah
7	Unit V: Economic Problems of North-East India	Simishmita Borah

2018 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.02 (ENVIRONMENTAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Basic Concepts: Ecology, Environment and Economy	Simishmita Borah
12	Unit 2: Market Failure: Concept and Common Sources of Market Failure	Simishmita Borah
11	Unit III: Solution to the Environmental problems	MM Gogoi
10	Unit IV: Sustainable development	MM Gogoi
8	Unit V: Global and Local Environmental Concerns	MM Gogoi

2018 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.03 (INTERNATIONAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: International Economics and Trade Theories	Simismita Brah
8	Unit 2: Terms of Trade and Gains From Trade	Simismita Brah
9	Unit III: International Trade Policy:	MM Gogoi
10	Unit IV: Foreign Exchange Markets and Exchange Rates	MM Gogoi
7	Unit V: Evolution of International Monetary System:	MM Gogoi

2018 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.04 (ECONOMIC ISSUES OF ASSAM)

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Economic Characteristics of Assam	MM Gogoi
10	Unit 2: Agriculture: Trends and Pattern of Production	MM Gogoi
9	Unit III: Industry: Problems and prospects of Industrial development of Assam	MM Gogoi
7	Unit IV: Infrastructure: Economic Infrastructure of the State	MM Gogoi
10	Unit V: Economic Problems of Assam	MM Gogoi

Course Plan
2018 (JULY - DEC)

1st Semester

Economics Non-Major

PAPER 1.01 (MICROECONOMIC THEORY)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction to Microeconomics	M M Gogoi
12	Unit 2: Consumer"s behaviour	M M Gogoi
12	Unit III: Producer"s Behaviour	M M Gogoi
9	Unit IV: The Theory of Firm	Dr. M Sharma
9	Unit V: Theories of Distribution	Dr. M Sharma

2018 (JAN - JUNE)

2nd Semester

Economics Non-Major

PAPER 2.01 (MACROECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction to Macroeconomics and National Income Accounting	M M Gogoi
11	Unit 2: Theory of Money: Demand for and supply of money	M M Gogoi
10	Unit III: Theories of Employment and Income	Dr. Mamoni Sharma
8	Unit IV: Banking: Types and role of bank	Dr. Mamoni Sharma
10	Unit V: International Trade and Balance of Payment Analysis	Dr. Mamoni Sharma

2018 (JULY - DEC)
3rd Semester
Economics Non-Major
 PAPER 3.01 (Public Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Nature and scope of Public Finance	M M Gogoi
8	Unit 2: Public Revenue- Sources, Tax and Non-Tax Revenue	M M Gogoi
12	Unit III: Public Expenditure and Public Debt	Dikhya Mahanta
10	Unit IV: Budget System and Fiscal Policy	Subhashish Gogoi
12	Unit V: Indian Public Finance	Subhashish Gogoi

2018 (JAN - JUNE)
4th Semester
Economics Non-Major
 PAPER 4.01 (Issues of Indian Economy)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Major features of Indian economy with special reference to Assam	Dr. Mamoni Sharma
7	Unit 2: Basic issues in agriculture at national level and in Assam	Subhashish Gogoi
12	Unit III: Industry and tertiary sectors in India	Subhashish Gogoi
7	Unit IV: Industry, trade and commerce in Assam	Subhashish Gogoi
8	Unit V: Economic Planning and Economic Reforms	Dr. Mamoni Sharma

2018 (JULY - DEC)**5th Semester****Economics Non-Major**

PAPER 5.01 (Elementary Statistics for economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction: Definition of statistics, uses and abuses of statistics	Dikhya Mahanta
10	Unit 2: Measurement of central tendency	Dikhya Mahanta
10	Unit III: Measures of dispersion	Dikhya Mahanta
8	Unit IV: Index numbers	MM Gogoi
6	Unit V: Interpolation	MM Gogoi

2018 (JAN - JUNE)**6th Semester****Economics Non-Major**

PAPER 6.01 (Development Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Growth and Development: Growth	Subhashish Gogoi
7	Unit 2: Theories of Economic Development and Economic Growth	Subhashish Gogoi
8	Unit III: Human Resource Development and Manpower Planning	Subhashish Gogoi
10	Unit IV: Sectoral Analysis of Development:	MM Gogoi
6	Unit V: Economic Development and Planning:	MM Gogoi

**COURSE PLAN
2018-2019**

**DEPARTMENT OF EDUCATION
DIGBOI COLLEGE**

2018-19

Course plan -

Course –major

Class/Semester-V

Name of the paper-educational technology -503

Units Assigned–**All**

Marks Assigned- 80

Serial number of classes	Topic/ Unit	Remarks
1	Educational technology Concept of educational technology	
2	nature of educational technology	
3	development of educational technology ,	
4	development of educational technology in India	
5	technology :hardware	
6	soft and	
7	systems approach	
8	Concept of instructional technology	
9	Difference between educational technology and instructional technology	
10	discussion	
Unit -II	Role of Mass media in EDUCATION	
2	Radio	
3	Educational significance	
4	Television	
5	Educational significance	
6	Edusat	
7	Educational significance	
8	, internet	
9	Educational significance	
10	. printed material	
11	Educational significance	
Unit III	Role of Communication technology in classroom	
1	concept of communication	
2	nature of communication	
3	components of communication	
4	Verbal communication	
5	significance of verbal communication	
6	Non –Verbal Verbal communication	
7	significance of verbal	

	communication	
8	Factors affecting communication	
9	Infrastructure	
10	Administrative setup	
11	significance of communication in learning	
12	Classroom atmosphere	
13	Ways of effective communication in classroom	
14	qualities of a good classroom communication	
Unit-IV	Teaching objectives	
1	Types of objectives	
2	characteristics	
3	Writing objectives in behavioral terms	
4	Blooms taxonomy of educational objectives and uses	
5	Cognitive	
6	Effective	
7	Psychomotor	
8	Discussion	
Unit-V	Innovation in educational technology	
1	Teaching Model, concept meaning	
2	Characteristics of Teaching Model	
3	assumptions	
4	Families	
5	Glassers classroom teaching model	
6	Personalized system of instruction	
10	programmed learning (meaning	
11	characteristics	
12	Types of programmed learning	
13	Liner programmed learning	
14	Branching programmed learning	
15	team teaching	
16	Brain storming	
17	Seminar and symposium	
18	Discussion	

Class/Semester-V

Name of the paper-**Teaching Practice 504**

Units Assigned- **–II preparing lesson plan and practice teaching**

Marks Assigned- 28

Serial number of classes	Topic/ Unit	Remarks
1	Meaning and Nature of lesson plan	
2	Types of lesson	
3	Knowledge lesson plan	
5	Appreciation lesson plan	
6	Skill lesson plan	
7	Demonstration of lesson plan	
8	Demonstration of lesson plan	
9	Practice teaching on Knowledge lesson in classroom	
10	Practice teaching on Knowledge lesson in classroom	
11	Practice teaching on appreciation lesson in classroom	
12	Practice teaching on appreciation lesson in classroom	
13	Practice teaching on skill lesson in classroom	
14	Practice teaching on skill lesson in classroom	

Course –Honors'

Class/Semester-vi -601

Name of the paper- laboratory practical

Units Assigned- **–II Memory**

Marks Assigned- 12

Serial number of classes	Topic/ Unit	Remarks
1	Meaning and Nature of Memory	
2	Types of Memory (long term and short term)	
3	Factors affecting memory	
5	Memory span	
6	Historical background of testing memory	
7	Testing of memory	
8	Memory span for digit	
9	Memory span for letters	
10	Memory span for words	
11	Memory span for Non-sense syllables	
12	Recall and recognition	
13	practice	
14	Practice	

Class/Semester-VI -602

Name of the paper –**Field report**

Units Assigned- –**All**

Marks Assigned-50

Serial number of classes	Topic/ Unit	Remarks
1	Field report ,meaning and activities to be done	
2	Report writing – selection of area and topic	
3	objective	
5	Methodology	
6	Tools and techniques for collecting data	
7	Data analysis and interpretation	
8	Conclusion...	
9	Practice and check	
10	Practice and check	

Class/Semester V I

Name of the paper –**Education in world perspective-603**

Units Assigned- –**All**

Marks Assigned-80

Serial number of classes	Topic/ Unit	Remarks
1	Concept of and definition comparative education	
2	Nature and scope of comparative education	
3	Historical back ground	
4	Factors influencing national system of education	
5	Geographical	
6	historical	
7	political	
8	Economical	
9	social	
10	philosophical	
11	Linguistic and racial	
12	Secular and religious	
Unit II	Methods of comparative education	
1	Descriptive	
2	Statistical	
3	Historical	
4	Psychological	
5	Scientific	
2	Quantitative approach	
3		

Unit iii	A comparative study of USA, UK,INDIA JAPAN -regarding	
5	Pre- primary ,Primary secondary education	
	Structure	
1	Administration	
2	Finance	
3	Curriculum	
Unit-IV	A comparative study of USA, UK,INDIA JAPAN -regarding	
1	Development of education with respect to organization curriculum and evaluation in context of Technical and	
2	Curriculum of higher education in JAPAN, USA, UK, and INDIA	
3	Evaluation of higher education	
4	Emerging trends in higher education	
5		
6	organisation of vocational education in JAPAN, USA, UK, and INDIA	
7	Ecurriculum of vocational education	
8	Emerging trends in vocational education	
9		
10	A comparative study of USA, UK,INDIA JAPAN -regarding	
11	Organization of teacher education	
12	Curriculum of teacher education in JAPAN, USA, UK, and INDIA	
13	Evaluation of Teacher education education	
14	Emerging trends inTeacher education	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 4th

Name of the Paper- ELTM401- **DIGITAL ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1	Decimal-Binary conversion	
2	Octal and Hexadecimal number system and their conversion to Decimal	
3	BCD number, compliment Technique, Floating point number	
4	Boolean postulates from basic gates, properties of Boolean algebra,	
5	De morgaris theorems	
6	simplification of compound expressions, sum of product and products of sum form	
7	Minimisation by the use of Karnaugh's map for 2, 3, 4, 5 and 6 variables.	
8	Need of Coding, Weighted codes (BCD), Excess - 3 code	
9	Gray code and conversion. Alpha numeric code- ASCII and EBCDIC	
10	Decimal to binary encoder, octal to binary encoder.	
11	Basic Logic operation, AND, OR, NOT, NAND, NOR, XOR, gates	

12	Universal gates, Truth tables, Bipolar logic families, DTL families	
13	RTL families, TTL families, Schottky TTL	
14	Emitter coupled logic (ECL), NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
15	Emitter coupled logic (ECL), NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
16	NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
17	Combinational and sequential circuits	
18	flip-flops, NAND flip-flop	
19	NAND flip-flop, SR flip-flop	
20	NAND flip-flop, SR flip-flop	
21	Clocked SR flip-flop	
22	D-latch, JK flip-flop	
23	Master-slave flip-flop.	
24	Asynchronous counter	
25	Asynchronous decade counter	
26	Synchronous counters	
27	Up/down counters	
28	Self stopping counter	
29	Sequential counter design procedure and applications	
30	Sequential counter design procedure and applications	
31	Serial in shift registers	

32	Serial in shift registers	
33	Parallel-in shift register	
34	Universal shift register	
35	3-bits CMOS shift register	
36	Half adder	
37	Full adder	
38	parallel binary adder	
39	Half subtractor. Full subtractor	
40	Parallel subtractor, subtraction using full adder	
41	Introduction, RAM, ROM, PROM	
42	Introduction, RAM, ROM, PROM	
43	EPROM, EAPROM,	
44	Secondary memory,floppy, Hard disk, Magnetic storage.	
45	Secondary memory, floppy, Hard disk, Magnetic storage.	
46	Digital to analog converter,	
47	Weighted Register DAC	
48	R-2R ladder DAC	
49	Analog to digital converter, Successive approximation ADC,	
50	Parallel ADC, Dual slope ADC	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM603- **POWER ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Concepts of power diodes and power transistors	
2	Concept of thyristor technology, ratings, symbol, characteristics, turn on methods and turn off methods of thyristors	
3	Concept of thyristor technology, ratings, symbol, characteristics, turn on methods and turn off methods of thyristors	
4	diacs,	
5	SCS, SVS,	
6	SVS, SBS,	
7	LASCR	
8	triacs	
9	MOSFETS	
10	MOSFETS	
11	Internal power dissipation	
12	Internal power dissipation and need for heat sinks for these devices.	
13	Basic structure, principle of operation and VI characteristics of UJT	

14	Explanation of working of UJT as relaxation oscillator and its use in thyristor	
15	Explanation of working of UJT as relaxation oscillator and its use in thyristor	
16	Working principle of converters single phase half wave and full wave	
17	Working principle of converters three phase half wave and full wave	
18	Working principle of converters three phase half wave and full wave	
19	Half controlled, full controlled principle of operation of basic inverter circuit	
20	Half controlled, full controlled principle of operation of basic inverter circuit	
21	Half controlled, full controlled principle of operation of basic inverter circuit	
22	Chopper circuit	
23	Chopper circuit	
24	Principle of working of AC Phase control circuit	
25	Principle of working of AC Phase control circuit	
26	Three terminal voltage regulator ICs (positive, negative and variable applications)	
27	Block diagram of a regulated power supply	
28	Concepts of cv, cc and foldback limiting	
29	Concepts of cv, cc and foldback limiting	
30	Short circuit and overload protection	
31	Major specifications of a regulated power supply and their significance (line and load regulation, output ripple and transients)	

32	Major specifications of a regulated power supply and their significance (line and load regulation, output ripple and transients)	
33	Basic working principles of a switched mode power supply	
34	Concept of floating and grounded power supplied and their interconnections to obtain multiple output supplied.	
35	Concept of floating and grounded power supplied and their interconnections to obtain multiple output supplied.	
36	Brief idea of CVT, UPS and dual tracking power supply.	
37	Brief idea of CVT, UPS and dual tracking power supply.	
38	Principle of operation and working of following switching circuits	
39	Automatic battery charger, Voltage regulator	
40	Emergency light, Time delay relay circuit	
41	Fan speed control, Temperature control	
42	Speed control of DC and small DC motors	
43	SMPS, UPS	
44	Static sensitive electronics Components, EC, (National Electrical Code)	
45	Tagging of wiring or equipment	
46	Equipment hazardous when turned off,	
47	Ground faults, Isolation transformers	
48	Ground blocks and rods, Electrical or chemical fire extinguishers,	
49	Ground blocks and rods, Electrical or chemical fire extinguishers,	
50	Metal chains—ornamentation hazards, Electrical shock, Leaded solder	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 2nd Sem

Name of the Paper- ELTG201- **Network Analysis**

Units Assigned- 2

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1	Poles and Zero's in the complex plane Complex frequency and the s-plane	
2	Poles and Zero's in the complex plane Complex frequency and the s-plane	
3	properties of poles and zeros in the complex plane	
4	properties of poles and zeros in the complex plane	
5	Network functions for one port and two port networks	
6	Network functions for one port and two port networks	
7	poles and zeros of network functions	
8	poles and zeros of network functions	
9	restrictions on locations of poles and zeros	
10	restrictions on locations of poles and zeros	
11	Time domain response from pole and zero plot	
12	Time domain response from pole and zero plot	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 4th Sem

Name of the Paper- ELTG401- **Digital Electronics**

Units Assigned- 3

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1	Combinational and sequential circuits	
2	flip-flops, NAND flip-flop	
3	SR flip-flop. Clocked SR flip-flop, D-latch	
4	JK flip-flop. Master-slave flip-flop	
5	Edge-triggered devices, Application of flip-flops	
6	Monostable and Astable multivibrators.	
7	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 6th Sem

Name of the Paper- ELTG601- **Electromagnetic and wave propagation**

Units Assigned- 1,2

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
2	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
3	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
4	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
5	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
6	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
7	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
8	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
9	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	

10	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
11	Coulomb's law, Gauss's law, applications	
12	concept of electric potential, work & energy in electrostatics	
13	electrostatics field in matter	
14	concept of electric displacement, Lorentz force	
15	bio-savart's law, Ampere's law	
16	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
17	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
18	Faraday's law of electromagnetic induction.	
19	Revision	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 6th Sem

Name of the Paper- RMEG601- **Repairing of Television and Computers**

Units Assigned- 3, 4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
1	Colour TV receivers- Primary colours	
2	mixing of colours, saturation, luminance, luminance signal colour different signals.	
3	Colour picture tube- Different types of tubes	
4	PIL, Trinitron, purity and convergence, degaussing	
5	PIL, Trinitron, purity and convergence, degaussing	
6	PIL, Trinitron, purity and convergence, degaussing	
7	Chroma section of Colour TV, colour signal matrix, RGB matrix.	
8	Chroma section of Colour TV, colour signal matrix, RGB matrix.	
9	Fault finding and rectification of colour TV receivers trouble shooting.	
10	Fault finding and rectification of colour TV receivers trouble shooting.	
11	The Main working functions of LCD TV.	

12	Concepts of Dish TV, Magic box	
13	Computer Software: Different type of computer software,	
14	formatting and installation of software	
15	Computer hardware identification: RAM, CPU,	
16	ROM, hard disc,	
17	SMPS and ICs.	
18	Computer Monitor's working function, Testing procedures.	
19	Computer Monitor's working function, Testing procedures.	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 1st

Name of the Paper- ELTM101- **ELECTRONICS MATERIALS & COMPONENTS**

Units Assigned- Unit- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Classical free electron theory	
2	Electrical and thermal conductivity of metals	
3	Relaxation time and mean free path	
4	Qualitative discussion of the bloch function	

5	Qualitative discussion of the Bloch function, Kronig – Penny model	
6	Kronig – Penny model, E – K diagram	
7	Reduced zone representation, Brillouin zone	
8	Concept of effective mass and holes	
9	Brief idea of dielectric materials	
10	Spontaneous polarization	
11	Conductivity of metals	
12	Ohm's law	
13	Relaxation time & Collision time & Mean free path	
14	Electron scattering and resistivity of metals	
15	Heat developed in current carrying conductor	
16	Superconductivity (introduction), Hall effect	
17	Introduction to magnetic material	
18	Origin of dipole moment, Classification of Magnetic Material	
19	Origin of Magnetic moment	
20	Origin of dia, para, ferro and anti ferro magnetism and their comparison	
21	Origin of dia, para, ferro and anti ferro magnetism and their comparison	
22	Ferromagnetic materials	
23	Ferromagnetic materials and Saturation Magnetisation	
24	Saturation Magnetisation, Curie Temperature	
25	Curie Temperature	
26	Conductor, Insulator, Properties of insulator	

27	Insulation resistance, dielectric strength	
28	Dielectric constant, Polarization	
29	Polarization mechanism and total polarization	
30	Ferroelectric Materials	
31	Spontaneous Polarization	
32	Curie – Weiss Law, Classification	
33	Curie – Weiss Law, Classification	
34	Piezoelectricity	
35	Piezoelectricity	
36	Dielectrics in Alternating fields	
37	Dielectrics in Alternating fields	
38	Temperature and Frequency dependence of dielectric constant	
39	Temperature and Frequency dependence of dielectric constant	
40	Revision	
41	Electrical and electronics components, Classification and properties	
42	Resistance, Low resistance, effect of temperature on resistance	
43	Power rating, fixed and variable resistor, colour code, tolerance,	
44	Combination of resistors, varactor and thermistor	
45	Concept of capacitor and capacitance, parallel plate capacitor	
46	Energy store in capacitor, Paper capacitor, electrolytic capacitor, Tantalum and ceramics capacitors	
47	Air capacitor (gang and field type), voltage rating in circuit(CR, LC, LCR), combination of capacitor	
48	Inductance, inductive reactance, self & mutual reactance,	

49	Solenoids, iron core and ferrite core inductors, coefficients of inductors, quality factor	
50	Resonance circuits, couple circuits, variable inductor, combination of inductor	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM501- **ANALOG COMMUNICATION**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Signals and their classification	

2	Fourier analysis of Signals, Fourier Series representation of Signals(Continuous-Time periodic signals)	
3	Fourier Series representation of Signals(Continuous-Time periodic signals)	
4	Convergence of the Fourier series, Properties of continuous-Time Fourier series	
5	Properties of continuous-Time Fourier series	
6	Fourier Transform representation of signals(Aperiodic signals)	
7	Periodic signals, Properties of Continuous-time Fourier transform,)	
8	Periodic signals, Properties of Continuous-time Fourier transform,), Time domain and frequency domain. Sampling theorem.	
9	Time domain and frequency domain. Sampling theorem, Different types of noise	
10	Time domain and frequency domain. Sampling theorem, Different types of noise	
11	TTL and CMOS families and their comparison.	
12	Thermal, Shot Flicker noise, signal to noise ratio	
13	Noise factor, noise temperature, Friss formula	
14	Need of modulation, Amplitude modulation, Expression for AM	
15	Expression for AM and spectrum, modulation index and percentage modulation	
16	Generation of AM, non-linear devices	
17	Basic principle of DSB, SSB, VSB (Vestigial Side Band modulation)	
18	Frequency and Phase modulation	
19	Modulation index and frequency spectrum	

20	Equivalence between FM and PM, Generation of FM (direct and indirect methods).	
21	Linear diode detector	
22	Detection characteristics of diode and its uses	
23	Diode for automatic volume control, square law diode detection	
24	Frequency demodulation, discriminator	
25	Comparison between AM, FM and PM.	
26	Communication channels for AM and FM broadcast	
27	Communication channels for AM and FM broadcast	
28	AM transmitter: Low level and high level modulation, FM transmitter	
29	FM transmitter, Receiver parameters: sensitivity, selectivity and fidelity	
30	FM transmitter, Receiver parameters: sensitivity, selectivity and fidelity	
31	Super Heterodyne Receiver,	
32	Double Conversion Receiver	
33	AM receivers, FM receivers.	
34	Frequency Division Multiplexing.	
35	Radio reception at different frequencies,	
36	Reflected wave, ground wave	
37	Line of sight and through satellite aeri-als-radiation resistance	
38	Power radiated effect of earth.	
39	Picture elements, principle of image transmission	
40	TV camera tubes image orthicon & vidicon	

41	Electron beam scanning, synchronization-horizontal & vertical synchronization pulses	
42	Blanking horizontal & vertical	
43	Telephony, Telegraphy	
44	Radar, block diagram of pulsed & CW radar transmitter & receiver	
45	Radar range equation, power & frequency consideration	
46	e-mail , fax, internet	
47	Mobile communication, basic principle of satellite communication	
48	IMPATT, TRAPAIT diode	
49	BARTTT diodes, basic idea of gun & PIN diodes	
50	Basic idea of travelling wave tubes(TWT)	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 1st

Name of the Paper- ELTG101- **PHYSICS AND SEMICONDUCTOR**

Units Assigned- 2,6

Marks Assigned- 20

Class	Topic/ Unit	Remarks
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1	Inadequacies of classical mechanics, wave particle duality,	
2	Davisson and gramer's experiments, Group and Phase velocities	
3	de-Broglie waves, wave packet.	
4	Revision	
5	Fundamentals of quantum mechanics,	
6	Heisenberg uncertainty principle, concept of wave function, Postulates of quantum mechanics,	
7	Schrodinger equations and application to potential problems (in one dimensional box).	
8	Schrodinger equations and application to potential problems (in one dimensional box).	
9	Tunnel diode, Breakdown diodes,	
10	Transistor types, forward and reverse biased diode,	
11	common base, common emitter and common collector configurations,	
12	common base, common emitter and common collector configurations,	
13	equivalent circuits,	
14	characteristic curves of transistor,	
15	current amplification factors,	
16	working principles of FET,	
17	MQSFET	
18	MQSFET	
19	UJT.	
20	UJT.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned- 1,4

Marks Assigned- 13

Class	Topic/ Unit	Remarks
1	Power supply: The ideal rectifier,	

2	Half-wave rectifier, Full-wave rectifier	
3	Bridge rectifier, voltage doubler, capacitive filter,	
4	L-section filter, pi-section filter,	
5	controlled rectifiers, Electronic regulated power supply	
6	Feedback amplifiers - The feedback concept, feedback network, advantage of negative feedback's	
7	characteristics of negative feedback amplifiers, effect of negative feedback on input and output impedances and on bandwidth	
8	high input impedance transistor circuits,	
9	emitter follower and biasing,	
10	cascade configuration,	
11	Design of RC - coupled cascaded audio amplifiers,	
12	Basic design considerations for preamplifiers.	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 5th

Name of the Paper- ELTG501- **Electronics communication**

Units Assigned- 4

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1	Parameters of radio receiver, regenerative receivers,	

2	tuned radio receiver, super heterodyne receiver,	
3	FM receiver, Telephone receiver Picture elements,	
4	principle of image transmission, TV camera tubes-Image orthicon and Videocon,	
5	Image orthicon and Videocon,	
6	Electron beam scanning synchronization	
7	separation of horizontal and vertical pulses,	
8	TV Bandwidth and channels	
9	TV transmitter, and receiver,	
10	Colour TV,	
11	Colour TV transmitter and receiver	
12	Picture tube.	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –RMEG

Class/Semester- 5th

Name of the Paper- RMEG501- **BASICS OF ELECTRONICS & ELECTRONIC DEVICES**

Units Assigned- 1,2,4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
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1	Electrical and electronics materials and components,	
2	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
3	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
4	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
5	Definition of circuits, series circuits, parallel circuits	
6	Series and parallel circuits	
7	Combination of circuit, Ohm's Law.	
8	Transformers and Power supply: Different type of transformers, Basic rectifier circuits	
9	Half wave, full wave and bridge rectifiers	
10	Half wave, full wave and bridge rectifiers	
11	filter circuits, their uses and applications	
12	Zener diode as regulators	
13	Description of different type of power supply, power supply used in TV and computers,	
14	switch mode power supply (SMPS), Principle of SMPS, types, block diagram of SMPS	
15	switch mode power supply (SMPS), Principle of SMPS, types, block diagram of SMPS	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 2nd

Name of the Paper- ELTM201- **SEMICONDUCTOR & DEVICES**

Units Assigned- Unit- ALL

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1	Energy band in solids (metal, semiconductor and insulators)	
2	Conductors and insulators,	
3	Charge carriers in intrinsic semiconductors	
4	Charge carriers in extrinsic semiconductors	
5	Donor and acceptor impurities	
6	P-type semiconductors	
7	N- type semiconductors	
8	Majority and minority charge carriers	
9	Fermi level in semiconductors	
10	Fermi level in semiconductors	
11	Mobility current density	
12	Conductivity	
13	Revision	
14	PN junction	
15	Space charge region in a semiconductor junction	
16	Potential and field in P-N junction	
17	forward bias	

18	reverse bias	
19	Q-point and load line of a diode	
20	Q-point and load line of a diode	
21	Reverse breakdown avalanche	
22	Zener diode, breakdown voltage	
23	Special diodes-varactor diode	
24	Tunnel diode, Schottky diode	
25	Schottky diode, LED.	
26	PNP and NPN transistor	
27	Transistor biasing ,	
28	Transistor circuit configuration(CB, CE, CC)	
29	Transistor circuit configuration(CB, CE, CC)	
30	Transistor circuit configuration(CB, CE, CC)	
31	Relation between α and β	
32	Leakage current, thermal runaway	
33	Static characteristics (CB & CE).Emitter follower	
34	Field effect transistor, JFET	
35	MOSFET, types of MOSFET	
36	UJT (Construction, working and I-V characteristics of UJT)	
37	Basic construction and Characteristics of Thyristor, Semiconductor Controlled Device(SCR)	
38	Basic construction and Characteristics of Thyristor, Semiconductor Controlled Device(SCR)	
39	Introduction to integrated circuit technology	
40	Monolithic IC technology of substrate preparation,	

41	Monolithic components in Ics (resistor, capacitor)	
42	Inductance simulation in Ics, integrated circuit processing,	
43	Oxidation, diffusion, photo-lithography, epitaxy	
44	Fabrication of semiconductor diode	
45	Fabrication of transistor	
46	MOS transistor fabrication, Moore's Law,	
47	Medium Scale Integration (MSI), Large Scale Integration (LSI)	
48	Very Large Scale Integration (VLSI), Ultra Large Scale Integration (ULSI)	
49	Giant Scale Integration (GSI)	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM601- **ELECTROMAGNETIC, WAVE PROPAGATION & ANTENNA**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Equation of continuity, displacement current	
2	Maxwell equation, scalar and vector potential	
3	Gauss transformations, Poynting theorem,	
4	Conservation of energy and momentum for electromagnetic fields	
5	Maxwell's wave equation, the plane wave	
6	Polarization of electromagnetic waves, linear and circular polarization,	
7	Reflection, refraction and dispersion,	
8	Polarization by reflection and total internal reflection.	
9	Electromagnetic waves in the non-conducting media	
10	Reflection & transmission at oblique incidence, Snell's law, Fresnel's equation	
11	Brewster's angle, electromagnetic waves in conducting media	
12	Skin depth, reflection & transmission at a conducting surface	
13	Basic concept of transmission line, low & high frequency transmission line	
14	Distributed parameters, types of transmission line	
15	Voltage & current relation on radio frequency transmission line	

16	Characteristics impedance, transmission line as circuit element	
17	Voltage & current relation with distance from load end or receiving end	
18	Line terminator, propagation constant	
19	Conditions for distortion less transmission with minimum attenuation	
20	Loss free line, short circuit & open circuit lines	
21	Standing wave ratio, phase factor	
22	Reflection & transmission co-efficient	
23	Transmission Line matching	
24	Maximum power transfer	
25	Smith chart and its application	
26	Introduction to wave guide, rectangular wave guide, solution of wave equation	
27	TE and TM modes	
28	TE and TM modes	
29	Total internal reflection, calculation of wave impedance	
30	Cut-off frequency, phase constant and wavelength	
31	Brief idea about cylindrical wave guide and micro strips	
32	Electromagnetic spectrum	
33	Propagation of radio wave, ground waves	
34	Space waves, reflection of space waves from different layer of ionosphere	
35	Characteristics of various propagation media with referee to LF	
36	Characteristics of various propagation media with referee to HF, VHF	

37	Characteristics of various propagation media with reference to microwave signals.	
38	Basic antenna principles, Wire and Aperture Antennas	
39	The Retarded Potential, Hertzian Dipole	
40	Power radiated, Radiation Resistance,	
41	Antenna Characteristics, Antenna Patterns, Radiation Intensity	
42	Directive Gain, coordinate system, radiation fields	
43	Polarization, isotropic radiator, power gain of microwave antennas	
44	Antenna, folded dipole	
45	Rhombic & yagi antenna & their radiation pattern	
46	Vertical antenna, microwave antennas	
47	Microwave antennas, antenna equivalent	
48	Half-wave Dipole Antenna, Quarter-Wave Monopole Antenna,	
49	Small Loop Antenna, Aperture Antenna	
50	Antenna Arrays, Microstrip Antennas	

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 2nd Sem

Name of the Paper- ELTG201- **Network Analysis**

Units Assigned- 1,3

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Superposition theorem, Milman theorem	
2	Thevenin's theorem, Norton's theorem	
3	Maximum power transfer theorem, Reciprocity theorem	
4	Thevenin's theorem and Norton's theorem	
5	Thevenin's theorem and Norton's theorem in frequency domain	
6	Substitution theorem, Compensation theorem.	
7	Substitution theorem, Compensation theorem.	
8	Two port Networks Short circuit admittance parameters, open circuit impedance parameters	
9	relation between Z- and Y-parameters	
10	Transmission parameters (A, B, C, D,), A B C D parameters in terms of Z- and Y parameters	
11	hybrid parameters, g- parameters	
12	input, impedance in terms of Z, Y-, ABCD- parameters and output impedance in terms of Z, Y, ABCD- parameters	
13	T-section representation, Π -section representation	
14	Image impedances, Symmetrical Networks, Ladder Networks.	
15	Image impedances, Symmetrical Networks, Ladder Networks.	

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 4th Sem

Name of the Paper- ELTG401- **Digital Electronics**

Units Assigned- 1,2,5

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Decimal-Binary conversion, Octal and Hexadecimal number system and their conversion to Decimal, BCD number	
2	compliment Technique, Floating point number	
3	Boolean postulates from basic gates, properties of Boolean algebra	
4	De morgan's theorems, simplification of compound expressions	
5	simplification of compound expressions	
6	sum of product and products of sum form.	
7	sum of product and products of sum form.	
8	Basic Logic operation, AND, OR, NOT, NAND, NOR, XOR, gates.	
9	Universal gales, Truth tables	
10	Bipolar logic families, DTL families, RTL families,	
11	TTL families, Schottky TTL,	
12	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
13	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
14	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
15	Voltage transfer function. Fan-out, Noise-immunity and propagation delay of logic families.	

16	Half adder, full adder, parallel binary adder	
17	Half subtractor. Full subtractor, parallel subtractor	
18	subtraction using full adder, 4-bit adder/subtractor.	
19	Binary multipliers, speed up addition.	
20	Magnitude comparator	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 3rd

Name of the Paper- ELTM301- **ANALOG ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Ideal diode, dc load line analysis, Quiescent (Q) point	
2	Positive, negative and biased clipper circuits	
3	Clamping circuits	
4	Half wave rectifier, calculation of efficiency and ripple factor.	
5	Centre tapped Full wave rectifiers, calculation of efficiency and ripple factor.	
6	Bridge full wave rectifiers, calculation of efficiency and ripple factor.	

7	Block diagram of a power supply, qualitative description of shunt capacitor filter	
8	Zener diode as voltage regulator, temperature coefficient of Zener diode.	
9	Classification of transistor amplifiers, small signal amplifiers	
10	Concept of amplification, current gain, voltage gain	
11	Power gain, input and output resistance, Q-point, load line	
12	Class A, B and C and class AB amplifiers	
13	Class A, B and C and class AB amplifiers	
14	Analysis of transistor amplifiers	
15	Transistor biasing, stabilization	
16	Two – point representation of transistor	
17	AC equivalent circuit using h-parameters	
18	Determination of hparameters	
19	RC coupled amplifiers, impedance coupled	
20	Transistor coupled amplifiers	
21	Noise in amplifiers	
22	Feedback amplifiers	
23	General theory of feedback, positive & negative feedback	
24	Advantages of negative feedback,	
25	Types of negative feedback in transistor amplifier	
26	Current series, voltage series	
27	Current shunt, emitter follower	
28	Biasing, cascaded configuration	

29	Revision	
30	Ideal OPAMP characteristics, Practical OPAMS-off-set current	
31	Practical OPAMS-off-set current & voltage, CMRR	
32	Basic OPAMP application, inverting & non-inverting amplifiers	
33	Input off-set voltages, input bias current	
34	DC amplifier, summing	
35	Differentiation & integration using OPAMPS	
36	Active filters, low-pass,	
37	High – pass & band-pass	
38	Positive feedback in oscillator	
39	General & continuous oscillation	
40	Barkha-usen criterion, types of RC	
41	LC and crystal oscillators	
42	Wein Bridge Oscillator	
43	Phase shift, Hartley oscillator	
44	collpit, Chapp oscillator	
45	VHF & relaxation oscillator, frequency stability, Q- value	
46	VHF & relaxation oscillator, frequency stability, Q- value	
47	Bistable multivibrator, nenostabie multivibrator	
48	Astable multivibrator, high speed multivibrator	
49	Tunnel diodes, emitter coupled multivibrator	
50	Emitter coupled multivibrator {Schmitt trigger)	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep Khound

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM502- **DIGITAL COMMUNICATION**

Units Assigned- UNIT: All

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Sampling theorem, Errors in Sampling	
2	Pulse Amplitude Modulation (PAM)	
3	Pulse Amplitude Modulation (PAM)	
4	Time Division Multiplexing (TDM)	
5	Time Division Multiplexing (TDM)	

6	Pulse Width Modulation (PWM)	
7	Pulse Width Modulation (PWM)	
8	Pulse Position Modulation (PPM)	
9	Pulse Position Modulation (PPM)	
10	Generation and detection of PAM, PWM, PPM	
11	Generation and detection of PAM, PWM, PPM	
12	Generation and detection of PAM, PWM, PPM	
13	Need for digital transmission, Quantizing	
14	Uniform and Non uniform Quantization	
15	Quantization Noise, Compounding	
16	Coding, Digital Formats	
17	Decoding, Regeneration	
18	Transmission noise and Bit Error Rate	
19	Differential Pulse Code Modulation	
20	Differential Pulse Code Modulation	
21	Delta Modulation	
22	Delta Modulation, Quantization noise	
23	Adaptive Delta Modulation	
24	Adaptive Delta Modulation	
25	Time Division Multiplexing (TDM)	
26	Digital transmission	
27	Reception Techniques	
28	Information capacity, Bit Rate	
29	Band Rate and M-ary coding	

30	Amplitude Shift Keying (ASK)	
31	Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK)	
32	Frequency Shift Keying (FSK), Phase Shift Keying (PSK)	
33	Phase Shift Keying (PSK), Binary Phase Shift Keying (BPSK)	
34	Binary Phase Shift Keying (BPSK), Quadrature Phase Shift Keying (QPSK)	
35	Quadrature Phase Shift Keying (QPSK)	
36	Revision	
37	Revision	
38	Concept of Frequency Division Multiple Access (FDMA),	
39	Concept of Frequency Division Multiple Access (FDMA),	
40	Code Division Multiple Access (CDMA).	
41	Code Division Multiple Access (CDMA).	
42	Base band transmission	
43	Base band transmission	
44	Modem principle and architecture	
45	Modem principle and architecture	
46	Mobile Communication	
47	Mobile Communication	
48	Satellite Communication	
49	Optical Communication	
50	Optical Communication.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 1st

Name of the Paper- ELTG101- **PHYSICS AND SEMICONDUCTOR**

Units Assigned-1,4

Marks Assigned- 17

Class	Topic/ Unit	Remarks
1	Coulomb's law, Gauss's law, applications	
2	concept of electric potential, work & energy in electrostatics	
3	electrostatics field in matter	
4	concept of electric displacement, Lorentz force	
5	bio-savart's law, Ampere's law	
6	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
7	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	

8	Faraday's law of electromagnetic induction.	
9	Kirchoff's current &. voltage laws.	
10	Suspension Galvanometer, torque and deflection of the galvanometer, moving coil galvanometer.	
11	Ammeters, voltmeters (AC & DC), ohmmeters.	
12	Thermionic emission, Richardson's equation, Photoelectric emission, secondary emission	
13	high field emission, Space charge, Child-Langmuir law	
14	high field emission, Space charge, Child-Langmuir law	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned- 2,3

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	The ideal rectifier, Half-wave rectifier	
2	Full-wave rectifier, Bridge rectifier	
3	voltage doubler, capacitive filter, L-section filter, pi-section filter	
4	controlled rectifiers, Electronic regulated power supply.	
5	Analysis of transistor amplifiers, Transistor biasing, stabilization	
6	Analysis of transistor amplifiers, Transistor biasing, stabilization	

7	Two-port representation of a transistor, AC equivalent circuit using h-parameters, Determination - of h parameters	
8	Analysis of transistor amplifier using h parameters.	
9	Classification of amplifiers; Distortion in amplifier, amplitude, frequency and phase distortion,	
10	Impedance matching, frequency range of amplifiers	
11	Transistor as an amplifier in CE configuration, load line analysis, operating point, voltage gain	
12	Transistor as an amplifier in CE configuration, load line analysis, operating point, voltage gain	
13	dc and ac equivalent circuits.	
14	R-C coupled amplifiers, Impedance coupled amplifiers, Transformer coupled amplifier	
15	Band pass amplifiers, Video amplifiers, direct coupled amplifiers, Noise in amplifiers	
16	low noise amplifiers. Power amplifiers, efficiency of amplifiers,	
17	class A amplifiers, push-pull class A operation, parallel class A operation, class B audio frequency amplifiers,	
18	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	
19	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	
20	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 5th

Name of the Paper- ELTG501- **Electronics communication**

Units Assigned- 1,2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1	Amplitude modulation, frequency spectrum and power content	
2	generation of AM, SSB and vestigial sideband	
3	Angle modulation, frequency modulation, phase modulation,	
4	FM generation, the transistor reactance modulator	
5	varactor diode FM modulator	
6	pulse modulation	
7	pulse code modulation	
8	Linear diode detector, detection characteristics of diode and its uses	

9	effect of introducing C and R in a diode	
10	diode for automatic volume control	
11	square law diode detection	
12	Frequency demodulation, discriminator, limiter, detector	
13	Frequency demodulation, discriminator, limiter, detector	
14	SSB detection	
15	PCM encoders and decoders	
16	multiplexing	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 3rd

Name of the Paper- ELTM302- **INSTRUMENTATION, OPTOELECTRONICS & NANOELECTRONICS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Electronic instruments & their characteristics, a generalized instrumentation scheme	
2	Classification of instrumentation error and their statistical behavior	
3	Construction and working principle, equivalent ckt, of a transformer	

4	Types of transformers, efficiency	
5	Audio transformer, auto voltage transformer	
6	Impedance matching, coil winding of ordinary transformer	
7	Measurement of current, voltage power at audio & radio frequencies, Advantages of electronic voltmeters	
8	Vacuum tube voltmeter(diode type only), Measurement of resistance and current with VTVM	
9	Digital voltmeter, Q-meter, wave analyzer	
10	Spectrum analyzer, power factor meter, ohmmeter and multimeter analog & digital.	
11	Basic CRO operation, deflection of charged particles in electronic & magnetic field	
12	Block diagram of CRO, vertical deflection system	
13	CRT : construction & principle of focusing and deflection of electron beam, CRT screens	
14	Delay line, Lissajous figures, synchronization, CRO probes	
15	Trigger circuits, application of CRO in measuring voltage	
16	Application of CRO in measuring frequency & phase, type of CRO, spectrum analyzer.	
17	Definitions, types active & passive, analog & digital, Thermocouple & piezoelectric transducers	
18	Thermistors, LDVT, basic idea of displacement & temperature transducer	
19	Photo sensitive devices, magnetic measurements	
20	Insulation systems, magnetic type recorders	
21	Spontaneous emission, absorption and stimulated emission	
22	Population inversion, Einstein A & B co-efficient	

23	Properties of laser, gain coefficient	
24	Pumping processes, optical resonator	
25	Types of resonator. Laser diode and its applications	
26	LED, photo diode,	
27	Photo multiplier tube semiconductor optoelectronic materials	
28	Phototransistor, optocoupler	
29	Optocoupler, photo-detectors	
30	LCD and CCD.	
31	Optical fiber, principle of fabrication, types of optical fiber	
32	Characteristic parameters, modes, single mode, multi-mode fiber	
33	Transmission through fiber	
34	Advantage of optical communication	
35	Conceptual set up of an optical communication System	
36	Fibre optical wave guide, step index fiber	
37	Concept of graded index, dielectric waveguide	
38	Total internal reflection, fibre splicing	
39	Fibre splicing, low dispersion fibres	
40	Losses in fibres, fiber jointing.	
41	Introduction to nano, Definition of nano particles	
42	Quantum well	
43	Quantum wire,	
44	Characteristics of nano particles	
45	Plastic electronics	

46	Processes for nano electronics	
47	Processes for nano electronics	
48	Nano electronics devices	
49	PCM(Phase change memory)	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM503(A)- **INTRODUCTION TO COMPUTER PROGRAMMING AND**

NUMERICAL ANALYSIS

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Introduction to computer System	
2.	Block diagram of computer (CPU,MAIN Memory, I/O devices)	

3.	Block diagram of computer (CPU,MAIN Memory, I/O devices	
4.	Concept of machine language	
5.	Concept of machine language	
6.	High level languages	
7.	High level languages	
8.	Compiler,	
9.	Interpreter	
10.	Assembler	
11.	Linker, loader	
12.	Revision	
13.	Introduction to Software	
14.	Need of software, system software	
15.	Types of software, system software, application software	
16.	Programming language	
17.	Machine languages, high level languages	
18.	High level languages	
19.	High level languages	
20.	Introduction to Operating system	
21	Introduction to Operating system and its function	
22	Disk operating system,	
23	Windows OS, Linux OS	
24	Unix OS	
25	Revision	

26	Algorithm, flowchart	
27	Control loops, pseudo code	
28	Modular design of a program	
29	Program development cycle and environment	
30	Level of programming language	
31	Introduction to C, standard data types,	
32	Constant and variables, expressions	
33	Assignment, control statement	
34	Functions and procedures, Parameter passing	
35	Recursion, Sub-range and enumerated data types	
36	Arrays, string, structures, files pointers	
37	Linked, list as example of using pointers	
38	Concept of structured programming-stepwise refinement	
39	Introduction to MATLAB & SIMULINK, Introduction to numerical Methods	
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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 1st

Name of the Paper- ELTG101- **BASIC PHYSICS & SEMICONDUCTOR**

Units Assigned – 3, 5

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Electron spin, Spin and Orbital angular momentum	
2.	Quantization and Larmor's theorem	
3.	Atoms in external magnetic fields:- Zeeman effect (Normal and Anomalous)	
4.	Atoms in external magnetic fields:- Zeeman effect (Normal and Anomalous)	

5.	Pauli's exclusion principle. Atomic Shell Model	
6.	Periodic table. Spin orbit coupling. Fine structure	
7.	Total angular momentum, Vector Model	
8.	L-S and J-J couplings (for 2 valence electrons only)	
9.	Charge carrier in intrinsic and extrinsic semiconductor	
10.	Charge carrier in intrinsic and extrinsic semiconductor	
11.	p-type and n-type semiconductor	
12.	majority and minority carrier Fermi Level in semiconductor	
13	Mobility current density	
14	conductivity	
15	properties of p-n junction	
16	I-V characteristics of p-n junction	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned – 5, 6

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Properties of feedback circuits	
2.	Feedback requirements for oscillator	
3.	Generation of continuous oscillation	
4.	Tuned collector oscillator	
5.	Hartley oscillator	

6.	Colpitts oscillator, phase-shift oscillator	
7.	Wien-Bridge oscillator, crystal oscillator	
8.	VHF oscillators, relaxation oscillators	
9.	Fabrication of monolithic integrated circuits	
10.	Integrated circuit component	
11.	Operational amplifier	
12.	Operational amplifier	
13	Some applications of operational amplifiers	
14	Measurement of operational amplifier parameters	
15	Measurement of operational amplifier parameters	
16	Frequency response of operational amplifiers	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 5th

Name of the Paper- ELTG501 – **ELECTRONICS COMMUNICATION**

Units Assigned – 3, 5

Marks Assigned – 25

Class	Topic/ Unit	Remarks
1.	Ground, space and sky wave propagation	
2.	Propagation through troposphere	

3.	Propagation through ionosphere	
4.	Propagation through space	
5.	Characteristics of various propagation media with reference to LF	
6.	Characteristics of various propagation media with reference to HF	
7.	Characteristics of various propagation media with reference to VHF	
8.	Characteristics of various propagation media with reference to Microwave signals	
9.	Line-of-sight microwave links and communication via satellite	
10.	Line-of-sight microwave links and communication via satellite	
11.	Line-of-sight microwave links and communication via satellite	
12.	Calculation of path Loss and transmitter power required	
13	Calculation of path Loss and transmitter power required	
14	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
15	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
16	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
17	Radio aids to navigation-direction finders	
18	Radio aids to navigation-direction finders	
19	Aircraft navigation system	
20	Aircraft navigation system	
21	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –RMEG

Class/Semester- 5th

Name of the Paper- RMEG-501 – **BASICS OF ELECTRONICS & ELECTRONICS DEVICES**

Units Assigned – 3, 5

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Semi conductors: P-type and N-type semi conductors	
2.	Formation of P-N junction and its properties, specifications and uses	
3.	Formation of P-N-P transistor	
4.	Different types of terminal characteristics, field effect transistor (FET)	
5.	Silicon controlled rectifier (SCR)	
6.	Photo diodes, light emitting diode(LED), characteristics	
7.	Amplification principle of IC, study of common ICs used in Radio and TV receiver circuits	
8.	Amplification principle of IC, study of common ICs used in Radio and TV receiver circuits	
9.	Radio receivers: Block diagram presentation of Radio and working principles	
10.	Radio receivers: Block diagram presentation of Radio and working principles	
11.	Modulators: Purpose of modulators and their types (AM & FM)	
12.	Amplitude Modulation : Different types of amplitude modulation.	
13.	Amplitude Modulation : Different types of amplitude modulation.	
14.	Frequency modulation : Principle of frequency modulation.	
15.	Frequency modulation : Principle of frequency modulation.	
16.	Antenna: Different types of radio receiving antenna.	
17.	Antenna: Different types of radio receiving antenna.	
18.	AM Radio receivers: Tunners, RF amplifies	
19.	IF amplifiers, detectors	

20	AVC and Audio preamplifier and output amplifiers	
21	FM Radio receivers: Identification and study of different stages.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 4th

Name of the Paper- ELTM402- **NETWORK ANALYSIS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Complex frequency and the s-plane	
2	Complex frequency and the s-plane	
3	Properties of poles and zeros in the complex plane	
4	Properties of poles and zeros in the complex plane	
5	Network functions for one port and two port networks	
6	Network functions for one port and two port networks	
7	Poles and zeros of network functions	
8	Poles and zeros of network functions	
9	Restrictions on locations of poles and zeros	
10	Restrictions on locations of poles and zeros	
11	Time domain response from pole and zero plot.	

12	Time domain response from pole and zero plot.	
13	Revision	
14	Superposition theorem	
15	Milman theorem	
16	Thevenin's theorem	
17	Norton's theorem	
18	Maximum power transfer theorem, Reciprocity theorem	
19	Thevenin's theorem in frequency domain	
20	Thevenin's theorem in frequency domain	
21	Norton's theorem in frequency domain	
22	Norton's theorem in frequency domain	
23	Substitution theorem	
24	Compensation theorem	
25	Revision	
26	Short circuit admittance parameters	
27	open circuit impedance parameters	
28	relation between Z- and Y-parameters	
29	Transmission parameters (A,B,C,D,)	
30	A B C D parameters in terms of Z and Y-parameters	
31	A B C D parameters in terms of Z and Y-parameters	
32	hybrid parameters, g- parameters	
33	input impedance in terms of Z- parameters	
34	Y-, ABCD- parameters; output impedance in terms of Z	
35	Output impedance in terms of Y, ABCD – parameter	

36	T-section representation, pi-section representation	
37	Image impedances. Symmetrical Networks	
38	Ladder Networks, Lattice Networks.	
39	Constant K-type filters(Low pass)	
40	Constant K-type filters(high pass)	
41	Constant K-type filters(band pass, band elimination)	
42	M – derived filters(low put, high pass)	
43	M – derived filters(low put, high pass)	
44	M – derived filters(low put, high pass)	
45	Delay network	
46	Attenuators and attenuating pads	
47	Attenuators and attenuating pads	
48	Revision	
49	Revision	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM602- **MICROPROCESSOR & MICROCONTROLLER**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Introduction to microprocessors and microcomputers	
2.	Machine language, assembly language and high level language	
3.	Microprocessor architecture,	
4.	Types of buses, registers,	
5.	Memory mapping	
6.	Basic idea of INTEL 8085, 8086, 80386, 80486, Pentium processors	
7.	8085 Microprocessor : pin-out diagram	
8.	8085 Microprocessor: classification of the signals,	
9.	Bus timings	
10.	Types of machine cycles and their functioning.	

11.	Types of machine cycles and their functioning.	
12.	Revision	
13.	8085 programming model: Accumulator, register	
14.	flags, instruction classification & programming concepts	
15.	Stack and subroutine (CALL and RET statements)	
16.	Stack and subroutine (CALL and RET statements)	
17.	Delay subroutines, Code conversion	
18.	Delay subroutines, Code conversion	
19.	BCD Arithmetic	
20.	Introduction to transmission format	
21	Introduction to transmission format	
22	modes of data transfer	
23	Interrupts: Maskable and non-maskable interrupts	
24	Interrupts: Maskable and non-maskable interrupts	
25	RST (Restart), vectored interrupts	
26	RST (Restart), vectored interrupts	
27	Instructions (SIM & RIM).	
28	Instructions (SIM & RIM).	
29	Memory: Primary & Secondary Memory	
30	Memory Mapping	
31	Serial and Parallel I/O	
32	Memory Interfacing with 8085	
33	Programmable I/O	
34	DMA	

35	Memory Mapped I/O and I/O	
36	Mapped I/O techniques.	
37	8255-Programmable Peripheral Interface	
38	8253- Programmable interval Timer	
39	8259- Priority Interrupt Controller	
40	8279-Programmable Keyboard/Display Interface	
41	8251- USART	
42	8237/8257- Programmable DMA Controller	
43	8237/8257- Programmable DMA Controller	
44	Revision	
45	Introduction to microcontrollers, advantages of microcontrollers.	
46	8031/8051 Microcontroller	
47	Architecture, register bank,	
48	Flags, special function registers, I/O ports	
49	Timers, serial communication, interrupts	
50	Instruction set. Introduction to 8086 & 6800.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 2nd

Name of the Paper- ELTG201- **NETWORK ANALYSIS**

Units Assigned- 4

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Network Analysis Laplace transformation and theorem	
2.	Transient response of RC, RL and RLC networks	
3.	Laplacian transform method, Laplacian transform of step voltage and a rectangular pulse	
4.	Laplacian transform method, Laplacian transform of step voltage and a rectangular pulse	
5.	Laplacian transforms of either commonly used voltage waveforms	
6.	Determination of network response with Laplacian transform	
7.	Response of networks to a pulse series	
8.	Fouriers transforms of step voltage and rectangular pulse	
9.	Fouriers transforms of step voltage and rectangular pulse	
10.	use of Fourier transforms to describe input waveforms	
11.	use of Fourier transforms to describe input waveforms	
12.	Determination of network response by Fourier transforms	

13.	Determination of network response by Fourier transforms	
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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 4th

Name of the Paper- ELTG401- **NETWORK ANALYSIS**

Units Assigned- 4, 6

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Asynchronous counter. Asynchronous decade counter	
2.	Synchronous counters	
3.	Up/down counters	
4.	Self stopping counter	
5.	TTL1C counter	
6.	Sequential counter design procedure and applications.	
7.	Serial in shift registers, parallel-in shift register	
8.	Universal shift register	
9.	3-bits CMOS shift register	
10.	Introduction: RAM, ROM, PROM	
11.	EPROM, secondary memory, floppy, Hard disk	
12.	Magnetic storage, programmable logic devices	

13.	Digital to analog converter,	
14.	Weighted Register DAC	
15.	R-2R ladder DAC	
16.	Analog to digital converter, Successive approximation ADC	
17.	Parallel ADC	
18.	Dual slope ADC, IC ADC 0809	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 6th

Name of the Paper- ELTG601- **ELECTROMAGNETIC AND WAVE PROPAGATION**

Units Assigned- 3, 4

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Energy in a magnetic field	
2.	Maxwell's equation and Maxwell's wave equation	
3.	Pointing theorem & poynting vector	
4.	Simple problems.	
5.	The wave equation, the plane wave	
6.	polarization of electromagnetic waves,	
7.	linear and circular polarization	
8.	Reflection, refraction and dispersion	
9.	Polarization by reflection and total internal reflection	
10.	Electromagnetic waves in non-conducting media, reflection and transmission at oblique incidence	
11.	Snell's law, Fresnel's equation, Brewster's angle,	
12.	Electromagnetic waves in conducting media, skin depth	

13.	Reflection,& transmission at a conducting surface	
14.	Dispersion, normal and anomalous dispersion	
15.	Cauchy's equation	
16.	Revision	
17.	Basic antenna principles, Wire and Aperture Antennas	
18.	Dipole, Power radiated, Radiation Resistance	
19.	Antenna Characteristics, Antenna Patterns	
20.	Radiation Intensity, Directive Gain	
21.	Coordinate system, radiation fields, polarization, isotropic radiator.	
22.	Half-wave Dipole Antenna, Quarter-Wave Monopole Antenna	
23.	Small Loop Antenna, Aperture Antenna	
24.	Antenna Arrays, Microstrip Antennas	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – RMEG

Class/Semester- 6th

Name of the Paper- RMEG-601- **REPAIRING OF TELEVISION & COMPUTERS**

Units Assigned- 1, 2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Introduction to Television Principle and Theory - Principle of conversion of picture to electrical signal	
2.	Introduction to Television Principle and Theory - Principle of conversion of picture to electrical signal	
3.	Picture frame, scanning, scanning lines	
4.	Picture frame, scanning, scanning lines	
5.	Field and frame frequency, interlace scanning	
6.	Field and frame frequency, interlace scanning	
7.	B/W TV receivers: description of B/W TV receiver in block diagram form	
8.	B/W TV receivers: description of B/W TV receiver in block diagram form	
9.	Principle of TV signal reception by antenna, receiving antenna, balloon booster, tunners	

10.	Principle of TV signal reception by antenna, receiving antenna, balloon booster, tunners	
11.	Receiver circuits: Functional description of IF amplifiers	
12.	Video detector, video amplifiers, sound trap	
13.	Audio power amplifier, loud speaker	
14.	Deflection circuits: Description of picture tubes	
16.	Magnetic deflection yoke, system brightness	
17.	Magnetic deflection yoke, system brightness	
18.	Contrast, height and width control circuits	
19.	Contrast, height and width control circuits	
20.	Different type of picture tubes	
21.	Fault finding and rectification of B/W TV receivers trouble shooting	
22.	Fault finding and rectification of B/W TV receivers trouble shooting	
23.	Fault finding and rectification of B/W TV receivers trouble shooting	
24.	Revision	

COURSE PLAN

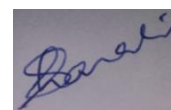
2018-19

DEPARTMENT OF ENGLISH

DIGBOI COLLEGE

NAME OF THE TEACHER: DR. PABITRA BHARALI**(Jun-Dec 2018)****Programs:****Major and General**

Sem	Subject	Course	Units	Marks assigned	No of class per week	No of Projected class
BA3	MAJOR	301	II: Critical terms and Concepts	30	2	20
BA3	MAJOR	302	V: Yeats: The Second Coming Eliot: Journey of the Magi	20	2	20
BA5	MAJOR	502	II: Longinus: On the Sublime	20	2	20
BA5	MAJOR	503	Rousseau: Book I-Citizen	20	2	20
BA5	MAJOR	504	I: History of Indian English Poetry IV: Nissim Ezekiel: Night of the Scorpion K.N. Daruwall: Gulzamon's son A.K.Ramanujan: The last of the Princes Jayanta Mahapatra: Hunger	35	2	24
BA1A	GEN.ENG	101	IV: Paragraph Writing Report Writing	20	2	20
BA1B	GEN.ENG	101	IV: Paragraph Writing Report Writing	20	2	20
BSc1	GEN.ENG	101	IV: Paragraph Writing Report Writing	20	2	20
BA3	GEN.ENG	301	II: Langston Hughes: Ballad of the Landlord Seamus Heaney: The Wife's Tale Grace Nichols: Wherever I Hang Derek Walcott: The River	25	2	20
BA1	ALTE	102	II: Hopkins: pied Beauty III: Pound: The River Merchant's wife: A letter IV: Ramanujan: Breaded Fish Kamala Das: An introduction Vikram Seth: Frogs and Nightingales	30	2	20
BCOM3	ALTE	301	II: Report, Transcoding, Memo IV: Amitav Ghosh: Books	30	1	10



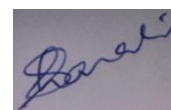
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(Jan-Jun 2019)

Programs:

Major and General

Sem	Subject	Course	Units	Marks assigned	No of class per week	No of Projected class
BA2	MAJOR	201	IV: The Twentieth Century(1900-1945): Theory and Poetry V:The Twentieth Century(1945-2000): Theory and Poetry	20	1	12
BA4	MAJOR	401	I: Of Studies Sir Roger in London II: The superannuated Man Politics and the English Language	40	2	20
BA6	MAJOR	603	I: Post-colonialism: concepts II: Colonialist Criticism	40	3	30
BA6	MAJOR	604	II: Basic Sentence Structures	30	2	30
BA2B+Sc	GEN.ENG	201	I: The Last Leaf II: Reflections on Gandhi	27	2	20
BA2	AltEng	201	I: Secret of work III: Amitav Ghosh: Books IV: critical appreciation of prose/poetry	36	2	20



Signature of faculty

NAME OF THE TEACHER- SANJOY DAS

(Session June- December 2018)

Department Of English

Name of the Teacher- Sanjoy Das

Course –101

Class/Semester- B.A. 1st Semester

Name of the Paper- General English

Units Assigned- Unit – III & IV

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit III: Note making	Introduction
2	Note making defined	Explanation
3	Differences between note-making and note taking explained	Explanation
4.	Various types of Note-making	Discussion
5.	Techniques of note-taking	Explained
6.	Exercise on the task of note-making	Discussion
7	How to write memos and short notes	Explanation
8	Memos guidelines given	Explanation
9	Some specimen of memos given	Exercises
10.	Report – definition and guidelines	Explanation
11	Exercises done on report	Exercises
12	Exercises on report writing given	Exercises
13	Paragraph defined	Explanation
14	Guidelines on paragraph writing	Explanation
15.	Some specimen given	Exercises

(Session: June –Dec, 2018)

Class/Semester: B.A Ist Semester (English Major)

Name of the Paper: History of English Society and Culture I (Anglo Saxon to the Restoration)

Paper I, Unit Assigned: V

Marks Assigned: 16

Class	Topic/ Unit	Remarks
1.	Unit V – The Restoration	Introduction
2.	Characteristics of the age explained	Appreciation
3.	Differentiation from previous ages shown	Appreciation
4.	Impact on English life and literature discussed	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Restoration poetry interpreted	Appreciation
8.	John Dryden and his literary works discussed	Appreciation
9.	Prose writers discussed	Appreciation
10.	Dryden and Pope as satirists	Appreciation
11.	Contd...	Appreciation
12	Contd...	Appreciation
13	Restoration plays sketched	Appreciation
14	Congreve as playwright	Appreciation

15	Contd...	Appreciation
16	Other playwrights detailed	Appreciation
17	Contd...	Appreciation
18	Students queries addressed	Discussion
19	Contd...	Discussion
20	Contd...	Discussion

(June-Dec, 2018)

Paper: III

Class/Semester- 3rd Semester (English Major)

Name of the Paper: History of the English Language, Critical Terms, and Classical Mythology

Units Assigned- Unit I

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit- History of the English Language- introduction	Introduction
2.	Origin of English language elaborated	Analysis and interpretation
3.	Four types of the history or origin of language analysed	Analysis and interpretation
4.	Contd...	Analysis and interpretation
5.	Contd...	Analysis and interpretation
6.	Middle English language	Analysis and interpretation
7.	Contd...	Analysis and interpretation
8.	Contd...	Analysis and interpretation
9.	Change of meaning in English language	Analysis and interpretation
10.	Contd...	Analysis and interpretation
11.	Contd...	Analysis and interpretation
12.	Growth of vocabulary in language	Analysis and interpretation
13.	Contd...	Analysis and interpretation
14.	Contd...	Analysis and interpretation
15.	Contd...	Analysis and interpretation
16.	Contd...	Analysis and interpretation
17.	Revision	Revision
18.	Revision	Revision

(June-Dec, 2018)

Name of the Teacher- Sanjoy Das

Paper: VII

Class/Semester- 5th Semester (English Major)

Name of the Paper: Reading Drama

Units Assigned- I & IV

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Nature of Drama from the Renaissance to the Modern Period	Introduction
2.	Contd...	Appreciation
3.	Becket- Waiting for Godot	Appreciation
4.	Text	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Absurdist ideas explained	Appreciation
10.	As a tragic comedy	Appreciation
11.	Character analysis	Appreciation
12.	Character analysis	Appreciation
13.	Other important themes discussed	Appreciation
14.	Contd...	Appreciation
15.	Contd...	Appreciation
16.	Question of previous year paper discussed	Discussion
17.	Contd...	Discussion
18.	Use of Symbols in the novel , Autobiographical elements in the novel	
19.	Discussion /Tutorial	
20.	Unit IV: Modernist Poetry W. B Yeats: Leda & the Swan	
21.	W.B Yeats: No Second Troy	
22.	W. B Yeats: Sailing to Byzantium	
23.	Contd.	
24.	Yeats' The Second Coming	
25.	Contd.	
25.	Contd.	
26.	Discussion / Tutorial	

Course Plan (Jan-June 2019)

Paper: II

Class/Semester- 2nd Semester (English Major)

Name of the Paper: History of English Society and Culture II (From the 18th century to the 20th Century)

Unit Assigned- Unit II

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1	Unit II: The Romantic Period- definition and its characteristics	Introduction
2	Contd...	Appreciation
3	Romantic poetry elaborated	Appreciation
4	Contd...	Appreciation
5	Wordsworth as a poet	Appreciation
6	Contd...	Appreciation
7	Coleridge, P.B Shelly, John Keats as poets	Appreciation
8	Contd..	Appreciation
9	Contd..	Appreciation
10	Influence of the French Revolution on Romantic Poetry	Appreciation
11	Contd...	Appreciation
12	Treatment of love and nature in Romantic poetry discussed	Appreciation
13	Contd...	Appreciation
14	Keat's concept of beauty explained	Appreciation
15	Supernaturalism in Romantic poetry detailed	Discussion
16	Contd...	Discussion
17	Romantic Prose writing discussed	Discussion
18	Contd...	Discussion
19	Contd...	Discussion
20	Gothic novel and its practitioners detailed	Appreciation
21	Contd...	Discussion
22	Contd...	Discussion
23	Historical Romances discussed	Discussion
24	Contd...	Appreciation
25	Comedy of manners explained	Explanation
26	Contd...	Explanation
27	Women novelists discussed	Discussion
28	Non- fictional writings detailed	Appreciation
29	Contd...	Appreciation
30	Jane Austen as novelist highlighted	Appreciation
31	Contd...	Appreciation
32	Interaction	Interaction
33	Interaction	Interaction

(Jan-June, 2019)

Class/Semester- 4th Semester

Name of the Paper- Reading Fiction

Unit's Assigned-Unit I & II

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I- The socio-political contexts of the English novel – An overview	Introduction
2.	Contd...	Appreciation
3.	Contd...	
4.	Dickens- A Tale of Two Cities – introduction to the author	Background information
5.	Chapterwise discussion of the text	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Contd...	Appreciation
10.	Important issues discussed	Discussion
11.	Discussed the text as historical novel	Discussion
12.	Socio-cultural aspects discussed	Discussion
13.	Contd...	Discussion
14	Interaction	Interaction
15	Interaction	Interaction

Paper- XIV

Class/Semester- B.A. 6th Semester (English Major)

Name of the Paper- Introduction to Linguistics and Phonetics)

Units Assigned- Unit – I

Marks Assigned- 30

Class	Topic/ Unit	Remark
1.	Unit I- Properties of language	Introduction to the unit
2.	Characteristics of human language	Appreciation
3.	Communicative vs. Informative language explained	Appreciation
4.	Language system	Appreciation
5.	Langue and Parole explained	Appreciation
6.	Contd...	Appreciation
7.	Sound and meaning explained	Appreciation
8.	Contd...	Appreciation
9.	Language varieties discussed	Discussion
10.	Contd...	Discussion
11.	Contd...	Discussion
12	Interaction	Interaction and discussion
13	Interaction	Interaction and discussion

NAME OF THE TEACHER- DR. CHANDANA CHETIA

(Session June- December 2018)

Course –101

Class/Semester- B.A. 1st Semester

Name of the Paper- General English B.A, B.SC

Units Assigned- Unit – I & IV

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Comprehension	
2.	Understand what reading comprehension IS	
3.	Know the importance of comprehension	
4.	Learn how to attempt comprehension –based questions	
5.	Exercise on comprehension	
6.	Precis Writing	
7.	What is a Precis	
8.	Uses of a Precis	
9.	How to write a Precis	
10.	Some specimen Precis	
11.	Unit IV : Paragraph Writing	

Name of the Paper: Communication Skills

Units Assigned: Unit I & IV

Marks Assigned: 40

Class	Topic/ Unit	Remarks
1.	Unit I: Essay writing	
2.	Preparing an outline	
3.	Structuring & organizing of ideas	
4.	Writing coherently	
5.	Writing around a theme	
6.	Unit: IV: Grammar in Communication	
7.	Using Synonyms	
8.	Using Antonyms	
9.	Using one –word substitute	
10.	Framing sentences(Phrasal verbs, Idiomatic Expressions)	
11.	Word order/ Reordering jumbled sentences to form a coherent paragraph	

Course –English Major,Course: 302

Class/Semester-3rd Semester

Name of the Paper-Reading Poetry

Units Assigned-I & III

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1.	Unit I: Shakespeare's Sonnet- 18, 60, 65	
2.	Sonnet – Its Nature and Growth	
3.	The English Sonnet – A brief Survey	
4.	Shakespeare's Sonnets—A Survey	
5.	Explanation of Sonnet 18	
6.	Contd.	
7.	Explanation of Sonnet 60	
8.	Contd.	
9.	Explanation of Sonnet 65	
10.	Contd.	
11.	Discussion	
12.	Donne: Valediction Forbidding Mourning	
13.	Donne as a Poet	
14.	Explanation of the poem	
15.	Herbert : Collar	
16.	Herbert as a poet	
17.	Explanation of the poem	
18.	Contd.	
19.	Discussion	
20.	Unit III: Wordsworth: Tintern Abbey	
21	The Age of Romanticism and romantic poetry	
22	Wordsworth as a poet	
23	Explanation of the poem	
24	Contd.	
25	Keats's : Ode on A Grecian Urn	
26	Keats as a Poet	
27	Explanation of the poem	

Course –English Major . Course: 501

Class/Semester-5th Semester

Name of the Paper-Reading Drama(Paper VII)

Units Assigned-I & III

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Nature of Drama from the Renaissance to the Modern Period	
2.	Historical background of the age of Renaissance till Modern age	
3.	Background of the English drama	
4.	Discussion	
5.	Unit : III: Pygmalion	
6.	Introduction to G.B Shaw & his Age	
7.	Act wise Explanation of Pygmalion	
8.	Contd.	
9.	Contd.	
10.	After completion of the Acts discussed the Sequel of Pygmalion	
11.	Discussion	
12.	Discussion	
13.	Tutorial	

Course- English Major, Course :504

Class/Semester-5th Semester

Name of the Paper-Paper X: Indian Writing in English

Units Assigned-I & II

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: History of Indian Writing in English	
2.	History & Reception of Indian Writing in English	
3.	Unit II: Kanthapura	
4.	Raja Rao as an Indian writer in English	
5.	Chapter wise explanation of the novel	
6.	Contd.	
7.	Contd.	
8.	After Completion of the novel Discussion on the various issues in Kanthapura: Indianness in Kanthapura	
9.	Myth in Kanthapura	
10.	Gandhian Ideology in Kanthapura	
11.	Condition of the Coolies in Skeffington Coffee House	
12.	Model answers to questions of previous exams dictated	

(Jan-June, 2019)

Name of the Teacher-Dr. Chandana Chetia

Course – English Major, Course: 201

Class/Semester- B.Com 2nd Semester

Name of the Paper- Business Communication

Units Assigned-IV

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	Unit IV: Business letters and Memo Formats	
2.	Principles of Business Letters	
3.Unit - II	Sales Letters	
4.	Memos	
5.	Collection Letters	
6.	Complaint & Persuasive Letters	
7.	Request Letters	
8.	Good News & Bad News Letters	
9.	Office Memorandum	

Course : General English Course 201

Class/Semester : B.A 2nd Semester

Name of the Paper-General English Paper II

Units Assigned-I

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit I: Short Stories	
2.	O. Hernry : The Last Leaf	
3.	Explanation	
4.	Explanation	
5.	After Completion discussed the Question Answers	
6.	Discussion	
7.	Discussion	
8.	Tutorial	

Course : 401

Class/Semester : 4th Semester

Name of the Paper: Alternative English

Units Assigned-Unit I

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit I: The Old Man and The Sea	
2.	Ernest Hemingway as a Novelist	
3.	Hemingway's Tragic Vision of Man	
4.	The Cuban context of the Old Man & the Sea	
5.	Explanation	
6.	Explanation	
7.	Underlying themes & symbolism in The Old Man & the Sea	
8.	Character Analysis	
9.	Discussion/ Tutorial	

Course : English Major, Course 401

Class/Semester : 4th Semester (English Major)

Name of the Paper- Reading Fiction

Units Assigned- IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit IV: Sons & Lovers	
2.	D.H Lawrence & his Age	
3.	A General Estimate of Lawrence as a Novelist	
4.	An Introduction to Sons & Lovers	
5.	Chapter wise discussion of the Novel	
6.	Contd.	
7.	Contd.	
8.	Characters Analysis	
10.	Oedipus Complex in Sons & Lovers	
11.	Autobiographical Element in the novel	
12.	Discussion	
13.	Tutorial	

Course : English Major, Course 602

Class/Semester:6th Semester

Name of the Paper-602

Units Assigned- Unit III

Marks Assigned- 25

Class	Topic/ Unit	Remarks
1.	Unit III: Desire Under the Elms	
2.	American Drama: An Overview	
3	Eugene O' Neill as a Dramatist	
4.	Desire Under the Elma : Introduction	
5.	Themes of the Play	
6.	Analysis of Part One of the Play	
7.	Part Two Analysis	
8.	Part Three Analysis	
9.	Symbolism	
10.	Characterization	
11.	Discussion	
12.	Discussion	

Course : English Major, Course: 603

Class/Semester2nd Semester

Name of the Paper- Literature in the Postcolonial World

Units Assigned-IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit IV: Disgrace	
2.	Biographical Sketch of J.M Coetzee	
3.	Apartheid in South Africa	
4.	Disgrace: Introduction	
5.	Analysis of the Chapters	
6.	Contd.	
7.	Contd.	
8.	Characterization	
9.	Themes in Disgrace	
10.	Discussion	
11.	Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2018-19)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-1st Semester (Non-CBCS)

Name of the Paper-Physical Geography

Units Assigned-1 and 3 Pass Course

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Basic concepts in Geomorphology	
2.	Major Landforms of the Earth:Plains : Definations and types	
3.	Major Landforms of the Earth:Plains : Elements	
4.	Major Landforms of the Earth:Plateaus : Definations and types	
5.	Major Landforms of the Earth:Plateaus : Elements	
6.	Major Landforms of the Earth: Mountains : Definations and types	
7.	Major Landforms of the Earth: Mountains : Elements	
8.	Earth's movements concept	
9.	Epeirogenic	
10.	Orogenic	
11.	Earthquakes:Types	
12.	Earthquakes Classification	
13.	Earthquakes, causes	
14.	Volcanoes : Types	
15.	Volcanoes : Causes	
16.	Volcanoes : Classification	
17.	Wegener's continental drift theory	
18.	Introduction to ocean floor	
19.	Salinity of ocean water	
20.	Ocean Current : Atlantic	
21.	Ocean Current : Pacific	
22.	Ocean Current : Indian	
23.	Composition of sea water	
24.	Ocean Deposits	
25.	Ocean Deposits Continue----	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2018-19)

Name of the Teacher-Dr. Sangeeta Boruah Saikia

Course –Honours / Generic – Pass Course

Class/Semester-3rd Semester (Non-CBCS)

Name of the Paper-Climate Change : Human and Population Geography

Units Assigned-1(Theory) and 2 (Practical)

Marks Assigned- 24+16=40

Class	Topic/ Unit	Remarks
1.	Meaning and definition Human Geo	
2.	Nature scope and importance of Human Geo	
3.	Man Environment relationship	
4.	Environment Determinism and environment possibilism	
5.	Way of life in Desert Region	
6.	Way of life Polar Region	
7.	Way of life in Equatorial Region	
8.	Bodo tribe dress and food habit	
9.	Naga tribe dress and food habit	
10.	Khasi tribe dress and food habit	
11.	natural region of the world	
12.	Continue natural region of the world	
13.	Meaning definition of Human races	
14.	Classification of Human races in the world	
15.	Human races in India	
16.	Classification of Human races in the world	
17.	Characteristics of human races	
18.	Bases of Human Race	
19.	Distribution of human races	
20.	Drawing of Climograph	
21.	Drawing of Hythergraph	
22.	Preparation of Line graph	
23.	Preparation of Bar graph	
24.	Weather map interpretation Winter	
25.	Weather map interpretation Summer	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2018-19)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2(Theory) Unit-2 (Practical)

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Classification of Industry	
2.	Iron and Steel Industry	
3.	Locational Factors of Iron and Steel Industry	
4.	Distribution of Iron and Steel Industry	
5.	Ruhr basin steel centres of West Germany	
6.	Iron and Steel Industry in Japan	
7.	Locational Factors of Cotton Textile Industry	
8.	Distribution of Cotton Textile Industry	
9.	Cotton Textile Industry in India	
10.	Cotton Textile Industry in U.K	
11.	Cotton Textile Industry in USA	
12.	Classification of Chemical Industry	
13.	Locational Factors of Chemical Industry	
14.	Chemical Industry in India	
15.	World Distribution of Rice	
16.	Practical-Pie Diagram	
17.	World Distribution of Wheat	
18.	Practical-Bar Diagram	
19.	Tea distribution in the World	
20.	Practical-Histogram	
21.	Tea in India	
22.	Practical-Frequency Curve	
23.	Coffee distribution in the World	
24.	Practical- Population distribution map of N.E. India	
25.	Coffee in Brazil	
26.	Practical-Population distribution map of India	
27.	Cotton Distribution in the World	
28.	Practical- Population Density map of N.E. India	
29.	Jute Distribution in the World	
30.	Practical- Population Density map of India	

31.	Rubber Cultivation in the World	
32.	Practical-Population literacy map of India	
33.	Rubber in S,E, Asia	
34.	Practical-Population literacy map of Assam	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2018-19)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-2nd Semester (Non-CBCS)

Name of the Paper- Physical Geography Part II

Units Assigned- 3 and 4

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Biogeography : Definition	
2.	Biogeography : Scope	
3.	Biogeography : Significance	
4.	World distribution of plant	
5.	Factors affecting world distribution of plants	
6.	Zoo geographical regions of the world	
7.	World Distribution of Animals	
8.	Factors affecting world distribution of animals	
9.	Major floristic regions of the world	
10.	Major floristic regions of the India	
11.	World Distribution of Animals	
12.	Soils: Definition	
13.	Soils: Characteristics	
14.	Soil profile and Horizons	
15.	Soil structure and formation	
16.	Soil texture	
17.	Factors affecting of Soil formation	
18.	Soil forming processes	
19.	Classification of Soil	
20.	Distribution of Soil	
21.	Soil Erosion	
22.	Soil Conservation	
23.	Major soil Types of India	
24.	Major soil Types of Assam	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2018-19)

Name of the Teacher-Dr. Sangeeta Boruah Saikia

Course –Honours / Generic – Pass Course

Class/Semester-4th Semester (Non-CBCS)

Name of the Paper-Regional Geography of India

Units Assigned- 2and 3

Marks Assigned- 24(Theory) 16 (Practical) =40

Class	Topic/ Unit	Remarks
1.	Concept of Heavy Industry Iron and Steel Industry	
2.	Production of Iron and Steel Industry in India	
3.	Distribution of Iron and Steel Industry in India	
4.	Production of Cotton Textile Industry in India	
5.	Distribution of Cotton Textile Industry in India	
6.	Classification of Chemical Industry in India	
7.	Heavy Chemical Industry in India	
8.	Petro- Chemical Industry in India	
9.	Industrial belt in India	
10.	Transport system in India, types of transport	
11.	Communication system in India	
12.	Causes of Population Growth	
13.	Factors of Population Distribution	
14.	Population Growth in India	
15.	Distribution of Population	
16.	Physiography of N.E.India	
17.	Climate of N.E.India	
18.	Soil of N.E.India	
19.	Natural vegetation of N.E.India	
20.	Major Minerals of of N.E.India	
21.	Transport and communication of N.E.India	
22.	Production of Major crops of N.E.India	
23.	Distribution of Major crops of N.E.India	
24.	Basic concept of Survey	
25.	Plain table survey by radiation method	
26.	Plain table survey by intersection method	
27.	Open traverse by Prismatic compass	
28.	Close traverse by Prismatic compass	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2018-19)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World

Units Assigned- Unit 1 (Asia)

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)


Class	Topic/ Unit	Remarks
1.	Physical features of Asia	
2.	Climatic Region of Asia	
3.	Factors affecting the climate of Asia	
4.	Climatic Characteristics of Asia	
5.	Soil of Asia	
6.	Natural Vegetation of Asia	
7.	Tea Cultivation in Asia	
8.	Cultivation of Rice in Asia	
9.	Rubber Plantation in Asia	
10.	Coffee Cultivation in Asia	
11.	Maize Cultivation in Asia	
12.	Sugar cultivation in Asia	
13.	Wheat Cultivation in Asia	
14.	Spatial Distribution of Population in S.E. Asia	
15.	Density of Population in Asia	
16.	Practical-International Boundaries of Neighboring Countries	
17.	Iron and Steel Industry in Asia	
18.	Practical-Mac Mohon line	
19.	Petroleum and Natural Gas in S,E, Asia	
20.	Mineral Resources of Asia	
21.	Practical- Demarcation of Red-Cliff line	
22.	Jute Cultivation of Bangladesh	
23.	Practical-International Boundary of India with Myanmar and Bhutan	
24.	Coal recourses of Asia	
25.	Practical-SAARC Countries	
26.	Cotton Textile Industry in Japan	
27.	Practical-Durand Line	
28.	Fishing Industry in Japan	
29.	Practical-Asia political Map	
30.	Manufacturing industry in Japan	

DIGBOI COLLEGE: DIGBOI

Course Plan

2018-19

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Pass Course
Class/Semester- 1st Semester (Non CBCS)
Name of the paper- Physical Geography Part I
Units Assigned- 1,2
Marks Assigned- 40

CLASS	UNITS/TOPICS TAUGHT	REMARKS
1	Geomorphic Processes: Agent	
2	Fluvial Processes	
3	Erosional features	
4	Depositional features	
5	Glacial Processes	
6	Erosional features	
7	Depositional features	
8	Krast Topography	
9	Erosional features	
10	Depositional features	
12	Arid Topography	
13	Erosional features	
14	Depositional features	
15	Normal cycle of Erosion	
16	Definition of Weather and Climate	
17	Elements and factors of Weather and Climate	
18	Horizontal and Vertical distribution of Temperature	
19	Insolation and heat budget	
20	Atmospheric pressure: Global pressure System	
21	Wind belts	
22	Concept of Air masses and fronts	
23	Classifications of Air masses	
24	Classifications of Fronts	
25	Cyclones and Anticyclones	
26	Different between Cyclones and Anticyclones	

DIGBOI COLLEGE, DIGBOI
Course Plan Odd Semester (2018-19)

Name of the Teacher-Mr.Narendra Kr.Das
 Course –Honours / Pass Course
 Class/Semester-3rd Semester (NON-CBCS)
 Name of the Paper- Human and Population Geography
 Units Assigned-II (Theory) and 2(Practical)
 Marks Assigned- 24+16=40

Class	Topic/ Unit	Remarks
1.	World population growth	
2.	Causes of population growth	
3.	World population distribution	
4.	Population growth in India	
5.	Population distribution in India	
6.	Causes of Uneven distribution of population	
7.	Consequences of population growth	
8.	Remedial Measures	
9.	Migration Concept and Pattern	
10.	Causes of Migration	
11.	Consequences of Migration	
12.	Types of Settlement:	
13.	Pattern of Rural Settlement	
14.	Pattern of Urban Settlement	
15.	Concept of towns	
16.	Classification of towns on the basis of its origin	
17.	Functional classification of towns	
18.	Interpretation of Toposheets	
19.	Interpretation of Toposheets	
20.	Interpretation of Toposheets	
21.	Preparation of Transact Chart	
22.	Preparation of Transact Chart	
23.	Preparation of Transact Chart	
24.	Drawing of profiles: Serial	
25.	Drawing of profiles: Serial	
26.	Drawing of profiles	
27.	Superimposed profiles	
28.	Projected profiles	
29.	composite profiles	
30.	Interpretation of Profiles	
31.	Interpretation of Profiles	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2018-19)

Name of the Teacher-Mr.Narendra Kr. Das

Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2


Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Introduction to economic Geography	
2.	Types of economic activities	
3.	Types of economic activities	
4.	Economic activities in the plains of NE India	
5.	Economic activities in the hills of NE India	
6.	Economic activities vs Env. Problems	
7.	Economic activities vs Env. Problems	
8.	Concept of natural resources	
9.	Classification of natural resources	
10.	World Distribution of iron ore	
11.	World Distribution of coal	
12.	Continue	
13.	World Distribution of petroleum	
14.	World Distribution of Gold	
15.	World Distribution of copper	
16.	World Distribution of aluminium	
17.	Hydro-electricity NE India- Problems & Prospects	
18.	Measures of Central tendency	
19.	Mean	
20.	Median	
21.	Mode	
22.	Measures of dispersion	
23.	Measures of dispersion-mean deviation	
24.	Measures of dispersion-standard deviation	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (20218-19)

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Pass Course
Class/Semester- 2nd Semester (Non CBCS)
Name of the paper- Physical Geography -II
Units Assigned- 1,2
Marks Assigned- 40

CLASS	UNITS/TOPIC	REMARKS
1	Concept of Environment	
2	Natural Environment	
3	Human Environment	
4	Man Environment relationship	
5	Emerging Environment issues	
6	Environmental degradation	
7	Causes of Environmental degradation	
8	Environmental pollution	
9	Causes of Environmental pollution	
10	Global Warming Concept	
11	Causes of Global Warming	
12	Climate Change	
13	Causes of Climate Change	
14	Evidences of Climate Change	
15	Consequences of climate change	
16	Meaning and definition of Ecology	
17	Food web and Food Chain	
18	Structure of Ecosystem	
19	Functioning of Ecosystem	
20	Ecology vs Ecosystem	
21	Need of Biodiversity	
22	Conservation of Biodiversity	
23	Concept and importance of sustainable development	
24	Principle and goal of sustainable development	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2018-19)

Name of the Teacher-Mr. Narendra Kr. Das

Course –Honours / Generic – Pass Course

Class/Semester-4th Semester (Non-CBCS)

Name of the Paper-Regional Geography of India

Units Assigned- 1 and 2

Marks Assigned - 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	India: Introduction	
2.	Geological Structure of India	
3.	Physiographical Divisions of India	
4.	Drainage system of India	
5.	Climate of India	
6.	Soil of India	
7.	Natural Vegetation	
8.	Agriculture: Major Crops	
9.	Paddy	
10.	Wheat	
11.	Cotton Textile	
12.	Sugarcane	
13.	Tea	
14.	Major minerals	
15.	Power resources	
16.	Iron ore	
17.	Copper	
18.	Aluminium	
19.	Coalpetroleum	
20.	Natural Gas	
21.	Hydro power	
22.	Projection Concept	
23.	Polar Zenithal Gnomonic Projection	
24.	Polar Zenithal Stereographic Projection	
25.	Polar Zenithal Orthographic Projection	
26.	Conical Projection	
27.	Cylindrical Equal Area Projection	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2018-19)

Name of the Teacher-Mr. Narendra Kr. Das

Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World


Units Assigned- Unit II (Europe)

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Introduction to Europe: Location, Size, Shape etc.	
2.	Physical Divisions of Europe	
3.	Soils of Europe	
4.	Climate of Europe Summer Conditions	
5.	Climate of Europe Winter Conditions	
6.	Vegetation of Europe	
7.	Minerals of Europe: Iron Ore	
8.	Power Resources of Europe: Coal	
9.	Petroleum Resource of Europe	
10.	Hydro-Electricity of Europe	
11.	Agricultural Resources of Europe: Types of Agriculture in Europe	
12.	Wheat- Production & Distribution	
13.	Maize- Production & Distribution	
14.	Rice- Production & Distribution	
15.	Major Industries of Europe	
16.	Major Industries of Europe	
17.	Distribution of Population in Europe	
18.	Practical-Mac Mohon line	
19.	Map of China: Distribution of Industries	
20.	Map of Petroleum reserves of Middle East	
21.	Map of SAARC Countries	
22.	Population Density Map of South East Asia 2001	
23.	Map of China: Distribution of Industries	
24.	Map of Petroleum reserves of Middle East	
25.	Practical-Asia political Map	

Course Plan for the Session (May – November) 2018, Department of Hindi, Digboi College, Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL	Unit-I Apathit Bodh, Unit -III Gadya Khand & Vitan -1,	Unit -III Kavya Khand, Unit -II Rachanatmak Lekhan, Unit -IV-Moukshik Prikshan
H.S.-I-Adv.	Unit -I Old Poetry, Unit -II Modern Poetry,	Unit -III Kahani, Unit -IV Nibandh, Unit -V History of Hindi Literature,
H.S.-II -MIL	Unit -I Apathit Bodh, Unit -III Kavya Khand,	Unit -II Rachanatmak Lekhan or Jansanchar, Unit -III Gadya Khand & Vitan-2,
H.S.-II-Adv.	Unit - I Modern Poetry, Unit – II Bhaskar Varman (Drama)	Unit -III Rani Laxmibai (Novel) Unit -IV Ras, Chhand, Alankar,
Sem.- I MIL	Unit -I Prachin & Madhya Kavya, Unit -II Aadhunik Kavya,	Unit – III Dhruvaswamini, (Novel) Unit - IV Jivan our Sahitya.
Sem.-I (Major)	Unit -II Poorv Madhya Kaal (Bhakti Kaal)1, Unit- III Poorv Madhya Kaal (Bhakti Kaal)2,	Unit- I Aadi Kaal, Unit- IV Aadhunik Kaal ,
Sem.-III (Elec.)	Unit-I Karyalayee Hindi, Unit-IV Patra Lekhan, Aalekhan & Tippan,	Unit- II Pallavan, Unit- III Anuvad,
Sem.-III MIL (Com.)	Unit -II Vigyapan, Unit -III Karyalayee Hindi,	Unit -I Gadya Katha Sansar, Unit-IV Anuvad
Sem. V (Elec.)	Unit-II Bharopiya Parivar, Prachin Bharatiya Arya Bhasha, Unit-III Aadhunik Bhartiya Arya Bhasha,	Unit- I Bhasha our Bhasha Vigyan, Unit- IV Devnagari Lipi, Lipi ka Manak Roop,


 25.06.18
 HOD (HINDI)
 DIGBOI COLLEGE, DIGBOI

Course Plan for the Session (January- May) 2019, Department of Hindi, Digboi College, Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL Hindi	Unit -II Rachanatmak Lekhan, Unit-III Gadya Khand Unit -IV-Moukhik Prikshan,	Unit-I Apathit Bodh, Unit -III Kavya Khand & Vittan -1 ,
H.S.-I-Adv. Hindi	Unit -I Old Poetry, Unit –II Modern Poetry	Unit -III Kahani, Unit -IV-Nibandh, Unit –V History of Hindi Literature
Sem.-II –MIL Hindi	Unit -I Gadya Katha Aalok, Unit -IV Nibandh,	Unit -II Kali Aandhi, (Novel) Unit -III Vyakaran our Rachana,
Sem.-II Hindi (Major)	Unit -I Vidyapati, Surdas, Unit –II Kabirdas,	Unit - III Jayasi- Nagmati Virah Prasang, Unit – IV Bihari & Dev ,
Sem.- IV- MIL Hindi	Unit -I Vyavaharik Hindi, Unit -III Patra Lekhan,	Unit – II Anuvad, Unit - IV Sankshepan,
Sem.-IV- Elec. Hindi	Unit -III Asamiya Sahitya ka Parichayatmak Itihas, Unit- IV Vaishnavyug, Aadhunikyug,	Unit- I Aadikal, Bhaktikal, Rittikal, Aadhunikkal, Unit- II Chhayavad, Prayogvad, Pragativad, Nai Kavita, Upanyas, Kahani, Natak, Ekanki,
Sem.-VI- Elec. Hindi	Unit- I Alochana Ka Swaroop, Unit- II Hindi Alochana - Shukla & Dwevedi,	Unit-III Jan Sanchar Madhyam, Unit-IV Sanchar Madhyam Ke Vividh Roop,


 22/11/19
 HOD (HINDI)

DIGBOI COLLEGE, DIGBOI

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION: 2018 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER I SUBJECT: HISTORY PAPER: COURSE I

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1671- 1826	Course contents to be covered
June	23	Theory-	English: Baruah, S.L. –A Comprehensive History of Assam Gait, E.A.- A History of Assam	Soures:Archaeological,Epigraphic,Literary. Numismatic and accounts of the Foreign Travellers.
August	19	Theory-	Assamese: Baruah, Surajit Boruah,Nirode- Asomar Itihas,2 nd edition (revised) Nath,D. –Asam Buranji, Revised and enlarged edition	Political condition Of The Brahmaputra Valley at the Time of Foundation of The Ahom Kingdom. Sukapha – An Assessment.Sudangpha. State Information in the Brhmaputra valley—The chutiya . Kachari and the Koch state.
September	20	Theory-		Expansion of Ahom Kingdom in the 16 th century-Dihingiya Raja, political Devolpments in the 17 th Century –rule of Pratap Singh (1603-1641) Ahom – Mughal wars –treaty of 1639.
October	17	Theory-		Administrative developments and role of Mumai Tamuli barbarua. Assam in the second half of the 17 th century –the Ahom –Mughal wars- Mirjumla;s Assam invasion-causes and consequences. Invasion of Ram Singha –the battle of Saraighat(1671)and its results.

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER III SUBJECT: HISTORY PAPER: COURSE:III

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Europe(1453-1815)	Course contents to be covered
June	23	Theory-	English: Hayes,C.J.H.-A Political and Cultural History of Early Modern Europe; Phukan ,Meenakshi- Rise of the Modern West: Social and Economic History of Early Modern Europe	American war of independence –Political and economic issues and significance. Enlightenment in Europe- its Impact. Enlightened Despotism in Europe – Russia and prussia and Austria.
August	19	Theory-	Assamese: Bhattacharya-Adhunik Paschattyar Utthan	The Industrial Revolution in Europe Causes and Significance. Transition From Feudalism to capitalism .French Revolution .causes course and significance. The Industrial Revolution in Europe Causes and Significance.
September	20	Theory-		Napoleon Bonaparte – internal and external polices-downfall of Napoleon Bonaparte
October	17	Theory-		The Congress of Vienna. Europe in 18 15

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: SRI PARTHA KR NARAH
CLASS: T.D.C. SEMESTER V SUBJECT: HISTORY PAPER: COURSE:V

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics:History of India(1526-1947)	Course contents to be covered
June	23			Political Conditions in Northern India in the beginning of the 16 th century –The Afghan Empire and the Mughals –resistance struggle for hegemony.
August	19	Theory-	English: Banerjee,A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)	The Age of the Mughals-foundation of the Mughal Empire –Humayun and his struggle-his conflict with Sher-Shah.
September	20	Theory-	Assamese: Barua, P.K. Hussain, T.A.- Bharat Buranji Goswami, S.D. - Bharat Buranji	The Age of the Mughals-foundation of the Mughal Empire –Humayun and his struggle-his conflict with Sher-Shah.Akbar to Aurangzeb – politicalSupremacy and administrative developments. The later Mughal and the decline and fall of the Mughal Empire.
October	17	Theory-		Rise of the Marathas in Deccan – Sivaji and his career. Society Economy ,religious and culture under the Mughals. Beginning of the European settlements in India-the portugues,the Dutch,the French and the English.British conquest of India ,The Battle Of Plasesy and its effects

DIBROU COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION: 2018 DEPARTMENT: HISTORY
NAME OF TEACHER: DR. ANAMIKA NEOG
CLASS: T.D.C. SEMESTER I SUBJECT: HISTORY PAPER: COURSE I

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Assam A.D.1671- 1826	Course contents to be covered
June	23	Theory-	English: Baruah, S.L. –A Comprehensive History of Assam Gait, E.A.- A History of Assam	Post-Saraighat Assam ; Ascendancy of the Tungkhungia dynasty-the reign of Gadadhar Singha; Ahom rule at its zenith-the reign of Rudra Singha,
August	19	Theory-	Assamese: Baruah, Surajit Boruah, Nirode- Asomar Itihas, 2 nd edition (revised) Nath, D. –Asam Buranji, Revised and enlarged edition	Rajeshwar Singha (1751- 1769); Lakshmi Singha (1769- 1780) : political history; Decline and fall of the Ahom Kingdom- the Moamariya Rebellion;
September	20	Theory-		The Burmese invasions ;The East India company in Assam politics- the Treaty of Yandabo and Assam; Ahom system of administration- the paik system
October	17	Theory-		Ahom policy towards the neighbouring hill tribes; Society in Assam under the Ahoms- caste and class structures; Sankardev and the Neo-Vaishnavite Movement- background and implications

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER III SUBJECT: HISTORY PAPER: COURSE:III

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics History of Europe(1453-1815)	Course contents to be covered
June	23	Theory-	English: Hayes,C.J.H.-A Political and Cultural History of Early Modern Europe; Phukan ,Meenakshi- Rise of the Modern West: Social and Economic History of Early Modern Europe	Renaissance-meaning-backgrounds-impacts; Reformation-origin,courses and consequences; Counter Reformation
August	19	Theory-	Assamese: Bhattacharya-Adhunik Paschattyar Utthan	; The Thirty Years' War-causes and consequences; Colonial Expansion in the 15 th and 16 th centuries-causes , extent and implications; Absolute Monarchy in Europe-Spain
September	20	Theory-		Absolue Monarchy in Europe- France ,England and Russia
October	17	Theory-		The Glorious Revolution-background and results; The Scientific Revolution in the 16 th -17 th centuries- extent, nature and results Mercantilism and European Economy 17thand 18 th centuries

DIGBOI COLLEGE
TEACHERS' COURSE PLAN
STREAM: ARTS SESSION:2018 DEPARTMENT: HISTORY
NAME OF TEACHER: DR.ANAMIKA NEOG
CLASS: T.D.C. SEMESTER V SUBJECT: HISTORY PAPER: COURSE:V

Month	No. of teaching days	No. of periods :	Course information (Title/Text Books/ List of Topics:History of India(1526-1947)	Course contents to be covered
June	23	Theory-	English: Banerjee,A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)	Expansion and consolidation of the British rule in India upto 1857- Conflict with the Marathas, Mysore, Awadh, Punjab and Sindh;
August	19	Theory-	Assamese: Barua, P.K. Hussain, T.A.- Bharat Buranji Goswami, S.D. - Bharat Buranji	Administrative developments and socio- economic reform upto 1857;Revolt of 1857 and its aftermath; Post 1858 administrative developments till 1919; Socio-religious reform movements in the post 1857 period; Growth of press and rise of national consciousness
September	20	Theory-		Freedom struggle upto 1919- Partition of Bengal and the Swadeshi Movement, Home Rule League; Rise of Muslim of Muslim Politics; Freedom Struggle from 1919 to 1939- Gandhi in politics- Khilafat and Non- Cooperation Movement- Civil Disobedience Movement; Government of India Act, 1935;
October	17	Theory-		Rise of Communalism, revolutionary terrorism, trade unionism and Leftist politics; Cripps Mission- Quit India Movement- Second World War- INA; Post- War Development- Cabinet Mission , Transfer of power

DIGBOI COLLEGE, DIGBOI
Course Plan Jan, 2019

Name of the Teacher- Partha K Narah

Course –Core / Pass course

Class/Semester-II

Name of the Paper- History of Assam A.D.1826- 1947

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Political Condition in Assam on the Eve of the British rule.	Text Books:
2.	Establishment and Consolidation of the British rule – Reforms and Reorganizations David Scott Measures.	English: Baruah, S.L. –A Comprehensive History of Assam Barpujari, H.K. -(ed) The Comprehensive History of Assam, Vol.IV&V
3.	David Scott, Administrative Reforms	
4.	David Scott, Revenue and Judicial Reforms.	
5.	Robertson's–Administrative Reorganization and Revenue Measures	
6.	Francis Jenkins	
7.	Annexation of Lower Assam, Administrative Reorganization and Revenue Measures.	
8.	Early phase of Revolts and Resistance to British	
9.	Gomdhar Konwar, Piyali Phukan,	
10	Restoration of Purondar Singha and Treaty of 1833.	
11	U.Tirut Singh .The Khamti and the Singpho Rebellion	
12	Annexation of Cachar	
13	The 1857 Revolt in Assam and its Aftermath	
14	Maniram Dewan	
15	Establishment of Chief commissionership of Assam	
16	Land Revenue Measures and Peasant Uprisings in 19th century Assam	
17	Peasant Uprisings of Lower Assam	
18	Patharughat Uprising	

DIGBOI COLLEGE, DIGBOI
Course Plan Jan, 2019

Name of the Teacher- Partha Kr Narah

Course –Core/ Pass course

Class/Semester-IV

Name of the Paper- History of India earliest time to 1526 A.D.

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Sources –A survey. Archaeological sources.	Text Books: English: Thapar. Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India
2.	Literary sources	
3	Foreign accounts	
4	Harappan Civilization.Origin and extent.	
5	Salient features, of Harappans Civilisation	
6	Town planning.	
7	Socials and Economic conditions of Harappans	
8	Religions and decline and the end of Civilization.	
9	Vedic Civilization society, economy, polity and culture of the Rig-Vedic	
10	Later Vedic periods	
11	Raise of the Territorial States –Mahajanapadas.Ascendancy of Magadha	
12	Alexander invasion of India	
13	Rise of the Mauryan Empire under Asoka-his inscription	
14	Dhamma of Asoka.	
15	Mauryan system of Administration.	
16	Political developments in the Post-Mauryan The period (200BC-3000BC) The Sungas	
17	The Satavahanas	
18	The Kushanas	
19	Sangam literature	

DIGBOI COLLEGE, DIGBOI

Course Plan Jan, 2019

Name of the Teacher- Partha kr Narah

Course –Core / Pass course

Class/Semester-VI

Name of the Paper- Women in Indian History

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Definition and Scope	Text Books: English: Altekar, A.S.-The Position of Women in Hindu Civilization. 2 nd print Chandel.Bhuban(ed.)- Women in Ancient and Medieval India. Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women 1836-1937
2	Feminist, movements and Developments of women's History	
3	Key Concepts in Women's studies Gender.	
4	Patriarchy and sexual Division and Labour.	
5	Sources for Reconstruction of women's History Oral, Narratives	
6	Autobiography, Dairies	
7	Women in Ancient Indian Society Vedic period	
8	Status of women in Buddhism Changing Status of women in the subsequent period.,	
9	Women in Medieval India.	
10	Female Infanticide.	
11	Social Customs and Reform Movements in 19 th century; Sati, widow Remarriage	
12	Role of Brahma Samaj.Arjya Samaj. Parthana Samaj,and	
13	Aligarh Movements	

DIGBOI COLLEGE, DIGBOI

Course Plan , January, 2019

Name of the Teacher- Dr. Anamika Neog

Course –II (General) HISGII

Class/Semester- II

Name of the Paper-History of Modern Assam

Units Assigned- Unit III (3.04) – Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Growth of national consciousness	Text Books:
2.	Assam association	English: Baruah, S.L. –A Comprehensive History of Assam Barpujari, H.K. -(ed) The Comprehensive History of Assam, Vol. IV&V
3.	Sarbajniksabhas	Assamese: Nath, D. – Asam Buranji, Revised and enlarged edition
4.	Rayatsabhas.	
5.	Impact of Partition of Bengal in Assam.	
6.	Impact of Swadeshi Movement in Assam	
7.	Government of India Act, 1919	
8.	Dyarchy on Trial in Assam	
9.	Non-Co-operation Movement in Assam	
10.	Swarajist Politics in Assam	
11.	The Civil Disobedience Movement	
12.	Student Movement in Assam	
13.	Trade Union and Allied Movements	
14.	Tribal League and Politics in Assam.	
15.	Migration	
16.	Line System and its Impact on Politics in Assam	
17.	Quit India Movement in Assam	
18.	Cabinet Mission plan and the Grouping Controversy.	
20.	The Sylhet Referendum	

DIGBOI COLLEGE, DIGBOI

Course Plan January, 2019

Name of the Teacher-Dr. Anamika Neog

Course – IV (General) – HISG IV

Class/Semester- IV

Name of the Paper- History of India From the earliest times to 1526

Units Assigned- Unit III (3.04) – Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Gupta Age- Political history	Text Books:
2.	Gupta Age- society,economy and culture	English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India
3.	Post-Gupta period(upto 640 A.D.)- polity, society,economy and culture	Assamese: Barua, P.K.- Bharat Buranji Nath, D.- BharatarRajnoitikaruSanskritikBuranji(Revised)
4.	Political developments in the South- the Pallavas	
5.	The Imperial Cholas	
6.	The Rashtrakutas	
7.	The Chalukyas	
8.	The Arabs in Indian politics	
9.	The Turks in Indian politics- Ghaznavides	
10.	The Ghorid invasions	
11.	Indian Society during 650-1200 A.D.-literature & language, temple architecture and sculpture	
12.	The Delhi Sultanate- the Slave dynasty	

13.	The Khaljis- AlauddinKhalji's administration	
14.	The Tughluqs dynasty	
15.	Disintegration of the Delhi Sultanate and rise of Provincial Kingdoms	
16.	Vijayanagar Kingdom	
17.	Bahmani Kingdom	
18.	Polity, society of the Sultanate period	
19.	Economy, religion and culture of the Sultanate period,	
20.	Bhakti Movement and Sufism	

DIGBOI COLLEGE, DIGBOI

Course Plan , January,2019

Name of the Teacher- Dr. Anamika Neog

Course – VI (Optional -II) (General)

Class/Semester- VI

Name of the Paper- Women in Indian History

Units Assigned- Unit III (3.03)- Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Development of Women's Education in the 19 th and 20 th centuries	Text Books:
2.	Role of Social Reformers	English: Altekar, A.S.-The Position of Women in Hindu Civilization, 2 nd print Chandel,Bhuban(ed.)- Women in Ancient and Medieval India, Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women1836-1937
3.	Role of Missionaries	Assamese: Goswami,Gita, Goswami,P-BharatorItihasot Nari
4.	Sarda Act,1929	
5.	Hindu Women's Right to Property Act,1937	
6.	Development of Women's Organisation	
7.	Women's Conference,1910	
8.	National Council of Women in India	
9.	Demand for Women's Franchise	

10.	Women in Indian Freedom Struggle:Pre-Gandhian Phase	
11.	Women in Freedom Struggle-Gandhian Phase	
12.	Women in Revolutionary Movement	
13.	Women and Society in Medieval Assam	
14.	Patriarchy in Medieval Assam	
15.	Social Reform Movement in 19 th and 20 th centuries	
16.	Development of Women's Organisation in Assam	
17.	Women in Freedom Struggle in North East India	

Department of Mathematics
Digboi College
Course Plan
Session 2018-2019

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session June-December, 2018)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Major/Pass
Class/Semester: First semester
Name of the Paper: MM101/NM101
Units Assigned: Vector Calculus, Unit-I
Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit-1: Vector Calculus, Introduction	
2	Ordinary derivatives of vectors, Definition Limit, derivative	
3	Examples	
4	Space curves, Definition of Continuity and differentiability	
5	Examples	
6	Differentiation formulae, addition, subtraction, uv and v/v form.	
7	Partial derivatives of vectors and related problems	
8	Vector differential operator del, Gradient, Directional derivative	
9	Divergence and Curl, Laplacian operator	
10	Vector identities and related problems.	

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session June-December, 2018)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Major
Class/Semester: Third semester
Name of the Paper: MM301
Units Assigned: Unit-IV
Marks Assigned: 4

Class	Topic/ Unit	Remarks
1	Unit-IV: Definition of Beta functions, Examples	
2	Problems of Beta functions.	
3	Definition of Gama functions, Examples	
4	Relation ship between Beta and Gama functions.	
5	Examples	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session June-December, 2018)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major

Class/Semester: Fifth Semester

Name of the Paper: Fluid Mechanics: Paper MM503

Units Assigned: Complete Paper

Marks Assigned: Theory – 80.

Class	Topic/ Unit	Remarks
1	Unit-1: Kinematics introduction.	
2	Types of fluids and their properties	
3	Velocity of a fluid at a point and examples.	
4	Eulerian and Lagrangian method, stream lines and path lines and examples	
5	Steady and unsteady flows, velocity potential	
6	Tutorial	
7	Rotational and irrotational motions, local and particle rate of change.	
8	Equation of continuity in cartesian form	
9	Equation of continuity in vector form	
10	Equation of continuity examples	
11	Equation of continuity examples	
12	Tutorial	
13	Acceleration of a fluid at a point and examples.	
14	General analysis of fluid motion	
15	Unit-2: Equation of motion introduction	
16	Euler's equation of motion in cartesian form	
17	Euler's equation of motion in vector form	
18	Tutorial	
19	Bernoullis equation and examples	
20	Steady motion under conservative forces,	
21	Impulsive motion	
22	Circulation, Kelvin's circulation theorem	
23	Examples on Circulation	
24	Tutorial	
25	Unit-3: General theory of irrotational motion introduction	
26	Potential flow, deductions from Green's theorem.	
27	Kinetic energy of a liquid,	
28	Uniqueness theorems, Kelvin's minimum energy theorem,	
29	Mean value of velocity potential	
30	Tutorial	
31	Unit-4: Fluid pressure. Introduction	
32	Definition and examples of Density and specific gravity	
33	Theorems on fluid pressure under gravity	

34	Rate of variation of pressure	
35	Differential equation of pressure	
36	Tutorial	
37	Condition of equilibrium of floating body	
38	Equi-pressure surfaces and lines of force	
39	Curves of equi-pressure	
40	Curves of equi-density	
41	Examples	
42	Tutorial	
43	Unit-5: Resultant Pressure and Centre of Pressure	
44	Definition of Resultant Pressure and Centre of Pressure	
45	Determination of centre of pressure of parallelogram	
46	Determination of centre of pressure of triangle	
47	Determination of centre of pressure of circle	
48	Tutorial	
49	Determination of centre of pressure of different examples	
50	Thrust on curved surface	
51	Example on thrust on curved surface	
52	Unit-6: Equilibrium and Stability of Floating Bodies	
53	Condition of equilibrium of floating bodies	
54	Examples	
55	Stable, Unstable and Neutral equilibrium	
56	Determination of Meta centre	
57	Examples	
58	Tutorial	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session January-May, 2019)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Major / Pass: Major

Class/Semester: Fourth semester

Name of the Paper: C-Programming and Computer Lab, Paper-MM401

Units Assigned: Complete paper

Marks Assigned: Theory 50 and Practical 30

Class	Topic/ Unit	Remarks
1	(A)Unit-I: Introduction to C-Programming	
2	Basic programming concept, data types etc	
3	Programming approach to solving problem, flowcharts, algorithm	
4	Character set, C tokens, keywords and identifiers	
5	Constants, variables, data types, declarations of variables	
6	Declaration of storage class, assigning values to variables.	
7	Examples	
8	Unit-II: Operators and expressions	
9	Arithmetic operators, relational operators, logical operators, assignment operators with examples	
10	Increment and decrement operators, conditional operators, bitwise operators with examples	
11	Arithmetic expressions, precedence of arithmetic operators	
12	Type conversions in expressions operator precedence and associativity with examples	
13	Mathematical functions like sin(x), cos(x), sqrt(x), fabs(x) etc.	
14	Unit-III: Input output operations, printf(), scanf() functions	
15	Reading and writing a character	
16	Formatted input, like scanf("%d, %f,x,y) etc.	
17	Formatted output, like printf("%d, %f",x,y)	
18	Unit-IV: Decision Making and Branching	
19	IF statement, IF ... ELSE statement, nested IF, ELSE IF Ladder with examples	
20	WHILE statement, DO statement with examples	
21	FOR statement, Jumps in Loops, goto statement with examples	
22	Unit-V: Arrays definition	
23	One dimensional arrays, declaration of one dimensional arrays,	
24	Initialization of one dimensional arrays, two dimensional arrays	
25	Examples and programming of one and two dimensional array	
26	Initializing two dimensional arrays with examples	
27	Initializing multi dimensional arrays with examples	
28	Example by matrix addition, subtraction and multiplication.	
29	Unit-VI: User defined functions:	

30	Elements of user defined functions, Definition of functions, return values and their types	
31	Function calls, function declaration	
32	Category of functions, no arguments and no return values, arguments with return values	
33	No arguments but returns a value, functions that return multiple values.	
	B. Computer Laboratory	
34	(a) Practical: C-Programming : Introduction	
35	Program for 1.Temperature conversion 2. Area of triangle	
36	Program for 3. Solution of linear equations	
37	Program for 4. Simple and compound interest, 5. Sum of series	
38	Program for 6. Solution of quadratic equation, 7. Checking of Prime numbers.	
39	Program for 8. Sum of sine, cosine and Fibonacci series,	
40	Program for 9. Mean and standard deviation 10. Printing of a matrix	
41	Program for 11. Matrix addition, subtraction, multiplication, transpose	
42	Program for 12. Solution of equation by Newton – Raphson method, Bisection method.	
43	Program for 13. Simpson's 1/3 rule 14. Sorting of numbers (ascending and descending)	
44	Program for 15. Computation of salary 16. Find the largest number among three numbers	
45	Program for 17. Finding the factorial of a number 18. Printing of even and odd numbers in a range.	
46	Program for 19. Sum of digits of a number	
47	Program for 20. Printing of numbers in various forms, number tables.	
48	(b) Matlab: Evaluation of arithmetic expression	
49	Evaluation of exponential, logarithmic and trigonometric functions	
50	Computation of complex numbers	
51	Plotting of curves (Algebraic function, trigonometric function and exponential function),	
52	Operations in matrices	
53	Plotting of 3D curves and shapes	
54	Solution of algebraic equation	
55	Solution of simultaneous linear equations.	

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session January-May, 2019)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Major
Class/Semester: Fourth semester
Name of the Paper: Linear Programming, Part of Paper-MM402
Units Assigned: Unit – I to Unit- IV
Marks Assigned: 45

Class	Topic/ Unit	Remarks
	UNIT- I: LP Model formulation & Graphical Method:	
1	LP Model formulation, introduction	
2	General structure and assumption of LP model	
3	Mathematical formulation of a linear programming problem	
4	Examples LP model Formulation	
5	Examples LP model Formulation	
6	Feasible solution, basic solution	
7	Graphical method for the solution of a linear programming problem	
8	Convex set and its theorems	
	UNIT II: Theory of simplex algorithm and simplex method	
9	Standard form of an LP Problem	
10	Simplex Algorithm	
11	Solutions of unique optimal solution	
12	Examples	
13	Alternative optimal solution, unbounded solution, Examples	
14	Artificial variable technique	
15	Charnes' M-technique with example	
16	Two phase method with examples	
17	Degeneracy of LPP	
	UNIT III: Duality Theory:	
18	Concept of duality, Types of primal dual problem, standard form	
19	Rules for constructing the dual from primal	
20	Examples	
21	Simple and mixed type problems	
22	Theorem on duality, Fundamental duality theorem(Statement only)	
	UNIT IV: Transportation Problem	
23	Definition, Transportation Table	
24	Loops in transportation tables and their properties	
25	Determination of an initial basic feasible solution by North West corner method,	
26	Determination of an initial basic feasible solution by LCM	
27	Determination of an initial basic feasible solution by VAM	
28	Unbalanced transportation problem	
29	Optimization by Modi method	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session January-May, 2019)

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Pass
Class/Semester: Fourth semester
Name of the Paper: Linear Programming, Paper-NM401
Units Assigned: Full Paper
Marks Assigned: Theory 50, Practical 30

Class	Topic/ Unit	Remarks
	UNIT- I: LP Model formulation & Graphical Method:	
1	LP Model formulation, introduction	
2	General structure and assumption of LP model	
3	Mathematical formulation of a linear programming problem	
4	Examples LP model Formulation	
5	Examples LP model Formulation	
6	Feasible solution, basic solution	
7	Graphical method for the solution of a linear programming problem	
8	Convex set and its theorems	
	UNIT II: Theory of simplex algorithm and simplex method	
9	Standard form of an LP Problem	
10	Simplex Algorithm	
11	Solutions of unique optimal solution	
12	Examples	
13	Alternative optimal solution, unbounded solution, Examples	
14	Artificial variable technique	
15	Charnes' M-technique with example	
16	Two phase method with examples	
17	Degeneracy of LPP	
	UNIT III: Duality Theory:	
18	Concept of duality, Types of primal dual problem, standard form	
19	Rules for constructing the dual from primal	
20	Examples	
21	Simple and mixed type problems	
22	Theorem on duality, Fundamental duality theorem(Statement only)	
	UNIT IV: Transportation Problem	
23	Definition, Transportation Table	
24	Loops in transportation tables and their properties	
25	Determination of an initial basic feasible solution by North West corner method,	
26	Determination of an initial basic feasible solution by LCM	
27	Determination of an initial basic feasible solution by VAM	
28	Unbalanced transportation problem	
29	Optimization by Modi method	
30	Problems on NWCM	
31	Problems on LCM	
32	Problems on VAM	
33	Problems on MODI Method	

	(B) Computer Laboratory (Practical)	
34	(b) Matlab: Evaluation of arithmetic expression	
35	Evaluation of exponential, logarithmic and trigonometric functions	
36	Evaluation of logarithmic function	
37	Evaluation of trigonometric functions	
38	Computation of complex numbers	
39	Plotting of curves (Algebraic function, trigonometric function and exponential function),	
40	Plotting of curves trigonometric function	
41	Plotting of curves exponential function	
42	Operations in matrices	
43	Plotting of 3D curves and shapes	
44	Solution of algebraic equation	
45	Solution of simultaneous linear equations.	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session January-May, 2019)

Name of the Teacher: Dr. Jatindra Lahkar
Course –Major / Pass: Major
Class/Semester: Six semester
Name of the Paper: Relativity, Part of Paper-MM604
Units Assigned: Unit – I to Unit- IV
Marks Assigned: 40

Class	Topic/ Unit	Remarks
	UNIT- I: Special Theory:	
1	The fundamental postulates	
2	Lorentz transformation, equations	
3	Composition of velocities in terms of rapidity	
4	Problems on Lorentz transformation	
5	Problems on Composition of velocities	
6	Lorentz transformation as rotation	
7	Consequences of Lorentz transformation equation	
8	Lorentz-Fitzgerald contraction	
9	Time dilation with problems	
10	The clock paradox with Problems	
11	Space like intervals	
12	Time like intervals	
	UNIT II: Relativistic mechanics	
13	The relativistic conception of mass increasing with velocity	
14	Examples	
15	Transformation laws of mass	
16	Transformation laws of velocity	
17	Transformation laws of acceleration	
18	Transformation laws of density	
19	Transformation laws of momentum	
20	Transformation laws of energy	
21	Transformation laws of force	
22	The mass energy relation.	
23	Problems on time dilation	
24	Problems on length contraction	
25	Problems on space and time like intervals	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: First semester

Name of the Paper: MM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of π .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: First semester

Name of the Paper: NM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of e .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: UNIT-I, II

Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, sub normal, polar sub tangent and polar subnormal	
5	Derivative of arc length (Cartesian and polar forms), values of , angle between radius vector and tangent	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals,	
8	Differentiability, Darboux's theorem, Rolle's theorem,	
9	Lagrange mean value theorem, Cauchy's mean value theorem,	
10	Taylor's theorem,	
11	Taylor's series,	
12	Maclaurin's series	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM302

Units Assigned: UNIT-II

Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Normal subgroups	
2	Quotient groups	
3	Quotient groups related theorem	
4	Homomorphisms and properties of homomorphism	
5	Examples of homomorphisms	
6	Isomorphisms and examples	
7	Isomorphisms related theorem	
8	Permutations and examples	
9	Operations on permutations	
10	cyclic permutations, cycles of a permutation,	
11	Disjoint permutations	
12	Permutation Group	
13	Cayley's theorem.	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Fifth semester

Name of the Paper: MM502

Units Assigned: (A) Linear Algebra- unit 1 & 2, (B) Number Theory- unit 1,2,3,4

Marks Assigned: 80

Class	Topic/Unit	Remarks
1	A-Unit-1: System of linear equations	
2	Consistency and inconsistency of System of linear equations	
3	Definitions and examples of Vector space	
4	Properties of Vector space	
5	vector subspace	
6	Theorems on vector subspaces	
7	Linear independence and dependence	
8	Linear Span	
9	Base and dimension	
10	Theorems on base and dimension of vector spaces	
11	Dimension theorem	
12	Solved examples	
13	A-Unit-2: Definition of a line	
14	Theorem on lines	
15	Affine Space	
16	Theorem on Affine Space	
17	Quotient Space	
18	Theorems on Quotient Space	
19	Linear transformation with examples	
20	Properties of linear transformation	
21	Theorem on linear transformation	
22	Representation of Linear maps by Matrices	
23	Kernel and image of a linear transformation	
24	linear isomorphism	
25	Geometric Ideas and some loose ends	
26	B-Unit-1: Peano's axiom and Well ordering property of positive integer	
27	Division Algorithm	
28	G.C.D and LCM	
29	Euclidean Algorithm	
30	Unit-2: Prime numbers	
31	unique factorization theorem	
32	Euclid's theorem	

33	greatest integer function	
34	Unit-3: Definition and Basic properties of congruence	
35	complete residue system and reduced residue system	
36	Application of CRS and RRS	
37	Fermat's little theorem	
38	Euler's theorem	
39	Wilson's theorem	
40	Application of Fermat's, Euler's & Wilson's theorem	
41	Solution of Congruence	
42	Solutions of the problems of type $ax+by+c=0$	
43	Chines Remainder theorem	
44	Solutions of simultaneous equations by using Chines Remainder theorem	
45	Unit-4: Arithmetic Function	
46	Properties of arithmetic	
47	Euler's function	
48	Division function	
49	Mobius function	
50	Mobius inversion formula	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain
Course –Major / Pass: Major
Class/Semester: First semester
Name of the Paper: MM101
Units Assigned: UNIT-I, II, III & IV
Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: First semester

Name of the Paper: NM101

Units Assigned: UNIT-I, II, III & IV

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	De Moivre's theorem	
2	Examples related with application of De Moivre's theorem	
3	Important deductions from De Moivre's theorem	
4	Important deductions from De Moivre's theorem	
5	Trigonometrical functions of complex arguments	
6	Trigonometrical functions of complex arguments	
7	Exponential functions of complex arguments	
8	Exponential functions of complex arguments	
9	Gregory's series	
10	Application of Gregory's series.	
11	Gregory's series and evaluation of .	
12	Summation of trigonometric series	
13	Summation of trigonometric series	
14	Summation of trigonometric series	
15	Summation of hyperbolic functions	
16	Summation of hyperbolic functions	

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DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: UNIT-I, II

Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, sub normal, polar sub tangent and polar subnormal	
5	Derivative of arc length (Cartesian and polar forms), values of , angle between radius vector and tangent	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals,	
8	Differentiability, Darboux's theorem, Rolle's theorem,	
9	Lagrange mean value theorem, Cauchy's mean value theorem,	
10	Taylor's theorem,	
11	Taylor's series,	
12	Maclaurin's series	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM302

Units Assigned: UNIT-II

Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Normal subgroups	
2	Quotient groups	
3	Quotient groups related theorem	
4	Homomorphisms and properties of homomorphism	
5	Examples of homomorphisms	
6	Isomorphisms and examples	
7	Isomorphisms related theorem	
8	Permutations and examples	
9	Operations on permutations	
10	cyclic permutations, cycles of a permutation,	
11	Disjoint permutations	
12	Permutation Group	
13	Cayley's theorem.	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Fifth semester

Name of the Paper: MM502

Units Assigned: (A) Linear Algebra- unit 1 & 2, (B) Number Theory- unit 1,2,3,4

Marks Assigned: 80

Class	Topic/Unit	Remarks
1	A-Unit-1: System of linear equations	
2	Consistency and inconsistency of System of linear equations	
3	Definitions and examples of Vector space	
4	Properties of Vector space	
5	vector subspace	
6	Theorems on vector subspaces	
7	Linear independence and dependence	
8	Linear Span	
9	Base and dimension	
10	Theorems on base and dimension of vector spaces	
11	Dimension theorem	
12	Solved examples	
13	A-Unit-2: Definition of a line	
14	Theorem on lines	
15	Affine Space	
16	Theorem on Affine Space	
17	Quotient Space	
18	Theorems on Quotient Space	
19	Linear transformation with examples	
20	Properties of linear transformation	
21	Theorem on linear transformation	
22	Representation of Linear maps by Matrices	
23	Kernel and image of a linear transformation	
24	linear isomorphism	
25	Geometric Ideas and some loose ends	
26	B-Unit-1: Peano's axiom and Well ordering property of positive integer	
27	Division Algorithm	
28	G.C.D and LCM	
29	Euclidean Algorithm	
30	Unit-2: Prime numbers	
31	unique factorization theorem	
32	Euclid's theorem	

33	greatest integer function	
34	Unit-3: Definition and Basic properties of congruence	
35	complete residue system and reduced residue system	
36	Application of CRS and RRS	
37	Fermat's little theorem	
38	Euler's theorem	
39	Wilson's theorem	
40	Application of Fermat's, Euler's & Wilson's theorem	
41	Solution of Congruence	
42	Solutions of the problems of type $ax+by+c=0$	
43	Chines Remainder theorem	
44	Solutions of simultaneous equations by using Chines Remainder theorem	
45	Unit-4: Arithmetic Function	
46	Properties of arithmetic	
47	Euler's function	
48	Division function	
49	Mobius function	
50	Mobius inversion formula	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2019)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Second semester

Name of the Paper: MM201

Units Assigned: Ordinary Differential Equation Unit -I, II & III

Marks Assigned: 30

Class	Topic/Unit	Remarks
1	Unit-I Differential equation of the type $\frac{dy}{dx} + Py = Q$	
2	Examples	
3	Exact differential equations of first order	
4	Equations of first order higher degree	
5	Clairaut's form and Examples	
6	wronskian, its properties and	
7	Application of wronskian	
8	Unit-II Linear differential equation of higher order with constant coefficients	
9	Linear differential equation of higher order with constant coefficients	
10	Linear differential equation of higher order with constant coefficients	
11	Linear differential equation of higher order with constant coefficients	
12	linear homogeneous equations.	
13	linear homogeneous equations.	
14	linear homogeneous equations.	
15	Unit III: Linear equation of second order with variable coefficients.	
16	Removal of first order derivative.	
17	Removal of first order derivative	
18	Change of independent variables	
19	Change of independent variables	
20	Method of variation of parameters	
21	Method of variation of parameters	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2019)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: Second semester

Name of the Paper: NM201

Units Assigned: Ordinary Differential Equation Unit -I, II & III

Marks Assigned: 30

Class	Topic/Unit	Remarks
1	Unit-I Differential equation of the type $\frac{dy}{dx} + Py = Q$	
2	Examples	
3	Exact differential equations of first order	
4	Equations of first order higher degree	
5	Clairaut's form and Examples	
6	wronskian, its properties and	
7	Application of wronskian	
8	Unit-II Linear differential equation of higher order with constant coefficients	
9	Linear differential equation of higher order with constant coefficients	
10	Linear differential equation of higher order with constant coefficients	
11	Linear differential equation of higher order with constant coefficients	
12	linear homogeneous equations.	
13	linear homogeneous equations.	
14	linear homogeneous equations.	
15	Unit III: Linear equation of second order with variable coefficients.	
16	Removal of first order derivative.	
17	Removal of first order derivative	
18	Change of independent variables	
19	Change of independent variables	
20	Method of variation of parameters	
21	Method of variation of parameters	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2019)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Sixth semester

Name of the Paper: MM602

Units Assigned: (B) Graph Theory Unit -I & II

Marks Assigned: 35

Class	Topic/Unit	Remarks
1	(B) Unit-I: Introduction to graph Theory & definitions	
2	Directed and undirected graphs & basic terminologies	
3	finite and infinite graph	
4	incidence and degree of vertex, isolated and pendent vertices, null graph	
5	Handshaking theorem	
6	types of graphs, sub graphs	
7	graphs isomorphism	
8	Solved examples	
9	operations of graphs	
10	Solved Examples	
11	connected graph, disconnected graphs and components	
12	Theorems on connected graph, disconnected graphs and components	
13	Unit-II: Walk, path and circuits	
14	Eulerian graphs and Hamiltonian graphs	
15	Theorems on Eulerian graphs and Hamiltonian graphs	
16	Dirac's theorem	
17	Ore's, theorem	
18	Konigsberg's Bridge problem	
19	Representation of graphs and matrix representation of graph	
20	adjacency matrix, Incidence matrix	
21	Linked representation of graphs	

DIGBOI COLLEGE, DIGBOI

DEPARTMENT OF MATHEMATICS

Course Plan (Session January-May, 2019)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Sixth semester

Name of the Paper: MM603

Units Assigned: Algebra-II, Unit -I, II & III

Marks Assigned: 40

Class	Topic/Unit	Remarks
1	Unit I: Automorphism of groups, ,	
2	Examples on Automorphism of groups	
3	Inner automorphism	
4	Inner automorphism related theorem and Examples	
5	external direct products.	
6	external direct products related theorem	
7	internal direct products and theorems	
8	Unit II: Definition and examples of Ring,	
9	Properties of rings	
10	Special kinds of rings	
11	Sub rings and Examples	
12	Theorems on sub rings	
13	Ideals and Examples	
14	Theorems on ideals	
15	Discussion on the whole unit.	
16	Sum and product of ideals.	
17	Unit III: Quotient Ring,	
18	Quotient Ring	
19	Theorems on Quotient Ring	
20	Homomorphism of ring, Imbedding of rings,	
21	Properties of Homomorphism of ring	
22	Imbedding of rings,	
23	Examples Imbedding of rings,	
24	Maximal and Prime ideal	
25	Theorems on Maximal and Prime ideal	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2018)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: First semester
 Name of the Paper: MM101
 Units Assigned: Theory of Equations, UNIT-III
 Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit III: Theory of Polynomial equations: Definitions.	
2	Division algorithm,	
3	Remainder theorem, factor theorem	
4	and theorems on Existence of real roots (statements only) with examples,,	
5	Descartes' rule of sign	
6	Fundamental Theorem of Algebra and Existence of complex roots	
7	Relation between roots and coefficients and related problems	
8	Transformation of equation	
9	Cardon's method of solution of cubic equation.	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2018)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Pass
 Class/Semester: First semester
 Name of the Paper: NM101
 Units Assigned: Theory of Equations, UNIT-III
 Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Unit III: Theory of Polynomial equations: Definitions.	
2	Division algorithm,	
3	Remainder theorem, factor theorem	
4	and theorems on Existence of real roots (statements only) with examples,,	
5	Descartes' rule of sign	
6	Fundamental Theorem of Algebra and Existence of complex roots	
7	Relation between roots and coefficients and related problems	
8	Transformation of equation	
9	Cardon's method of solution of cubic equation.	

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Course Plan (Session June-December, 2018)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Major
Class/Semester: Third semester
Name of the Paper: MM302
Units Assigned: Co-ordinate Geometry (2D) UNIT-III
Marks Assigned: 27

Class	Topic/ Unit	Remarks
1	Unit I: Transformation of coordinates	
2	Translation of axes, Rotation of axes, Invariants,	
3	Removal of xy-term.	
4	Unit II: Pair of straight lines: Pair of straight lines through origin,	
5	Angle and Bisectors of the angle between the lines given by homogenous equation of 2nd degree,	
6	Condition for the general equation of second degree to represent a pair of straight lines,	
7	Solved problems of second degree to represent a pair of straight lines	
8	Pair of intersecting straight lines,	
9	Pair of parallel straight lines	
10	Unit III: General Equation of second degree	
11	Equation to the conic sections, ,	
12	Centre of a conic	
13	Reduction to central and non central conic,	
14	Tangent to the conic and condition of tangency,	
15	Chord of contact, Pole and Polar	
16	Conjugate diameter	

DIGBOI COLLEGE, DIGBOI
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Course Plan (Session June-December, 2018)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Third semester
Name of the Paper: NM302
Units Assigned: Co-ordinate Geometry (2D) UNIT-III
Marks Assigned: 27

Class	Topic/ Unit	Remarks
1	Unit I: Transformation of coordinates	
2	Translation of axes, Rotation of axes, Invariants,	
3	Removal of xy-term.	
4	Unit II: Pair of straight lines: Pair of straight lines through origin,	
5	Angle and Bisectors of the angle between the lines given by homogenous equation of 2nd degree,	
6	Condition for the general equation of second degree to represent a pair of straight lines,	
7	Solved problems of second degree to represent a pair of straight lines	
8	Pair of intersecting straight lines,	
9	Pair of parallel straight lines	
10	Unit III: General Equation of second degree	
11	Equation to the conic sections, ,	
12	Centre of a conic	
13	Reduction to central and non central conic,	
14	Tangent to the conic and condition of tangency,	
15	Chord of contact, Pole and Polar	
16	Conjugate diameter	

Course Plan (Session June-December, 2018)

Class	Topic/ Unit	Remarks
1	(a) Mathematical Logic Unit I: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value,	
4	Validity, truth function	
5	Tautology and related theorems,	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Theory of Inference:.,	
8	Theory of Consequence	
9	rule of inference and applications.	
10	Predicate calculus:	
11	symbolizing language	
12	Discussion about the whole unit	
13	(b) CombinatoircsUnit-I: Fundamental Principles of Counting	
14	Binomial Theorem	
15	Pascal and Vander Monde's identity	
16	Multinational theorem	
17	Ramsey number, Catalan numbers, Stirling and Bell number.	
18	Unit II: The principles of Inclusion-Exclusion:	
19	Generalization of the principles of Inclusion-Exclusion,	
20	Pigeon Hole Principle,	
21	Derangement	
22	Generating function	
23	and introductory examples	
24	(B) Analysis III (Complex Analysis) Unit I: Analytic Function and Examples	
25	Limit, Continuity and differentiability	
26	Cauchy-Riemann equations.	
27	Necessary and sufficient condition for a function to be analytic	
28	Polar form of C.R. equation, Harmonic functions	
29	Construction of analytic function.	
30	Unit II: Complex Integrals :	
31	Definite integral,	
32	Jordan arc, contour,	
33	line integrals,	
34	Cauchy's theorem,	

35	Simply and multiply connected domains,	
36	Cauchys' integral formula,	
37	Derivatives of analytic function, Morera's theorem	
38	Liouville's theorem.	
39	Unit III: Power series	
40	Taylor's series.	
41	Laurent's series and their	
42	Power series related problems	
43	Unit IV: Poles & Residues	
44	Definition and statement of the related theorems of isolated singularity	
45	Removable singularity and poles	
46	Removable singularity and poles	
47	calculation of residues	
48	Cauchy's residue theorem	
49	Contour Integration	
50	Contour Integration (Integration round the unit circle, Integration of the type $\int_{-\alpha}^{+\alpha} f(x)dx$ where no poles on the real axis)	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2018)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Fifth semester
Name of the Paper: NM501
Units Assigned: Complex Analysis, Unit-I,II,III
Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Unit I: Analytic Function:	
2	Limit, Continuity and differentiability	
3	Cauchy-Riemann equations..	
4	Necessary and sufficient condition for a function to be analytic,	
5	polar form of C.R. equation,	
6	Harmonic functions, Construction of analytic function	
7	Unit II: Complex Integrals , Definite integral	
8	Jordan arc, contour,	
9	line integrals,	
10	Cauchy's theorem,	
11	Simply and multiply connected domains,	
12	Cauchys' integral formula,	
13	Derivatives of analytic function, Morera's theorem	
14	Liouville's theorem.	
15	Unit III: Taylor and Laurent theorem (statements only) and related problems,	
16	Taylor and Laurent theorem related problems,	
17	Definition and statement of the related theorems of isolated singularity,	
18	Definition and statement of the related theorems of isolated singularity,	
19	Removable singularity and poles	
20	Removable singularity and poles	
21	Cauchy's residue theorem,	
22	Contour Integration	
23	Contour Integration (Integration round the unit circle)	

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Course Plan (Session Jan-May, 2019)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: Sixth Semester
 Name of the Paper: MM601
 Units Assigned: Statistics (UNIT I, II,III,IV,V & VI)
 Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Unit I: Probability: Basic terminology,	
2	Mathematical probability, Statistical probability,	
3	Axiomatic approach to probability. Some theorems on probability	
4	Conditional probability, Multiplication theorem of probability,	
5	independent events, Extension of multiplication theorem of probability	
6	Independent events, Multiplication theorem of probability for independent events, Extension of multiplication theorem of probability	
7	Baye's theorem.	
8	Unit II: Measures of Dispersion: Standard deviation	
9	Quartile deviation	
10	Co-efficient of variation.	
11	Unit IV: Correlation and regression	
12	Karl Pearson's co-efficient of correlation	
13	Spearman Rank correlation co-efficient	
14	Regression lines and equation.	
15	Unit V: Theoretical Probability Distribution	
16	Binomial Distribution and their applications to simple problems.	
17	Binomial Distribution and their applications to simple problems.	
18	Poisson Distribution and their applications to simple problems.	
19	Poisson Distribution and their applications to simple problems.	
20	Normal Distribution and their applications to simple problems.	
21	Normal Distribution and their applications to simple problems.	
22	Unit VI: Time series analysis	
23	Different components of time series,	
24	Analysis of trends (Least Square Method)	
25	Analysis of trends (Moving Average Method)	

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Course Plan (Session Jan-May, 2019)

Name of the Teacher: Dr. J. Changmai
Course –Major / Pass: Pass
Class/Semester: Sixth Semester
Name of the Paper: NM601
Units Assigned: Discrete Mathematics (UNIT I, II,III,)
Marks Assigned: 45

Class	Topic/ Unit	Remarks
1	Unit I: Logic: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value, Validity	
4	Truth function,	
5	Tautology and related theorems	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Logic: Theory of Inference:	
8	Consequence	
9	Rule of inference and applications	
10	Predicate calculus:	
11	Symbolizing language.	
12	Symbolizing language.	
13	Unit III: Lattice: Definition and examples,	
14	Hasse diagram,	
15	Properties of Lattice,	
16	Lattice as an Algebraic systems,	
17	Sub lattice and lattice isomorphism,.	
18	Special Classes : of lattice,	
19	Distributive lattice and Boolean algebras	
20	Unit IV: Boolean Algebra:.	
21	Boolean algebra as lattice,	
22	Boolean algebra as an algebraic system,	
23	Properties of Boolean algebra ,	
24	Sub-algebra and homomorphism of Boolean algebra,	
25	Boolean expressions	
26	Sum-of-products canonical form,	
27	Values of Boolean expression and Boolean functions	
28	Representation by Karnaugh Maps,	
29	Minimization of Boolean functions using Karnaugh Maps	

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Course Plan (Session June-December, 2018)

Name of the Teacher: Mr K. N. Tinsina
 Course –Major / Pass: Major/Pass
 Class/Semester: First semester
 Name of the Paper: MM101/NM101
 Units Assigned: UNIT-II, Infinite series
 Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Infinite Series and its convergence: Introduction, Necessary condition for convergence,	
2	Cauchy's general principle of convergence for series, Statements of preliminary theorems	
3	Positive series and its necessary condition of convergence, Geometric series	
4	Comparison series ,Statements of comparison test (first and second types)	
5	Cauchy's Root Test , D'Alembert's Ratio Test	
6	Raabe's Test	
7	Leibnitz's Test for convergence of an alternating Series.	

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Course Plan (Session June-December, 2018)

Name of the Teacher: Mr K. N. Tinsina
 Course –Major / Pass: Major
 Class/Semester: Third semester
 Name of the Paper: MM301
 Units Assigned: DIFFERENTIAL CALCULUS (UNIT III) & INTEGRAL CALCULUS
 Marks Assigned: 15

Class	Topic/ Unit	Remarks
1	Partial derivatives	
2	Euler's theorem on homogeneous function	
3	Euler's theorem on homogeneous function	
4	Evaluation of definite integrals by using properties only	
5	Evaluation of definite integrals by using properties only	
6	Reduction formula of the integrands $\sin^n \theta$	
7	Reduction formula of the integrands $\cos^n \theta$	
8	Reduction formula of the integrands $\tan^n \theta$	
9	Reduction formula of the integrands $\sin^n \theta \cos^n \theta$	

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Course Plan (Session June-December, 2018)

Name of the Teacher: Mr. K. N. Timsina
 Course –Major / Pass: Major
 Class/Semester: Third Semester
 Name of the Paper: MM302
 Units Assigned: UNIT I
 Marks Assigned: 5

Class	Topic/ Unit	Remarks
1	Transformation of coordinates: Translation of axes	
2	Transformation of coordinates: Rotation of axes	
3	Invariants, Removal of xy-term.	

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Course Plan (Session June-December, 2018)

Name of the Teacher: Mr. K. N. Timsina
 Course –Major / Pass: Pass
 Class/Semester: Third Semester
 Name of the Paper: NM301
 Units Assigned: ANALYSIS (UNIT I, II, III & IV)
 Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, Sub normal	
5	Curvature and radius of curvature	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals	
8	Differentiability, Darboux's theorem	
9	Rolle's theorem	
10	Lagrange mean value theorem	
11	Cauchy's mean value theorem	
12	Taylor's theorem	
13	Taylor's series	
14	Maclaurin's series	
15	Partial Derivatives	
16	Euler's theorem on homogeneous function.	
17	Euler's theorem on homogeneous function.	
18	Euler's theorem on homogeneous function.	
19	Evaluation of definite integrals by using properties only	
20	Evaluation of definite integrals by using properties only	
21	Reduction formula of the integrands $\sin^n \theta$	
22	Reduction formula of the integrands $\cos^n \theta$	
23	Reduction formula of the integrands $\tan^n \theta$	
24	Reduction formula of the integrands $\sin^n \theta \cos^n \theta$	
25	Rectification of plane curves	

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Course Plan (Session June-December, 2018)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Fifth Semester
Name of the Paper: MM504
Units Assigned: DYNAMICS (UNIT I, II & III)
Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	Motion in a straight line and plane	
2	Radial and transverse velocities and acceleration	
3	Angular velocity and angular acceleration, tangential and normal acceleration	
4	Simple Harmonic Motion	
5	Central forces	
6	Central forces	
7	Motion under resistance	
8	Motion under resistance	
9	Dynamics of Rigid Body: Moments of inertia,	
10	Theorems of parallel and perpendicular axes, Moment of inertia about a line	
11	Moment and product of inertia of a plane lamina	
12	Moment of inertia and momental ellipse	
13	D'Alembert's principle and general equations of motion	
14	Motion of the centre of inertia and relative to the centre of inertia	

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Course Plan (Session June-December, 2018)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Pass
Class/Semester: Fifth Semester
Name of the Paper: NM501
Units Assigned: DYNAMICS (UNIT I, II & III)
Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	Motion in a straight line and plane	
2	Radial and transverse velocities and acceleration	
3	Angular velocity and angular acceleration	
4	Tangential and normal acceleration	
5	Simple Harmonic Motion	
6	Central forces	
7	Central forces	
8	Motion under resistance	
9	Motion under resistance	
10	Motion under resistance	
11	Dynamics of Rigid Body: Moments of inertia,	
12	Theorems of parallel and perpendicular axes	
13	Moment of inertia about a line	
14	Moment and product of inertia of a plane lamina	
15	Momental ellipsoid and momental ellipse	
16	Momental ellipsoid and momental ellipse	

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Course Plan (Session Jan-May, 2019)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Second Semester
Name of the Paper: MM201
Units Assigned: MATRICES (UNIT I & II)
Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Rank of a matrix	
2	Elementary operations on a matrix	
3	Determination of rank by reduction into echelon (triangular) form & normal form	
4	Elementary matrices	
5	Solution of homogeneous & non homogeneous linear equations	
6	Solution of homogeneous & non homogeneous linear equations	
7	Characteristic polynomial	
8	Characteristic equation	
9	Eigen values and Eigen vectors	
10	Cayley-Hamilton theorem.	
11	Cayley-Hamilton theorem	

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Course Plan (Session Jan-May, 2019)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Pass
Class/Semester: Second Semester
Name of the Paper: NM201
Units Assigned: MATRICES (UNIT I & II)
Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Rank of a matrix	
2	Elementary operations on a matrix	
3	Determination of rank by reduction into echelon (triangular) form & normal form	
4	Elementary matrices	
5	Solution of homogeneous & non homogeneous linear equations	
6	Solution of homogeneous & non homogeneous linear equations	
7	Characteristic polynomial	
8	Characteristic equation	
9	Eigen values and Eigen vectors	
10	Cayley-Hamilton theorem	
11	Examples related to Cayley-Hamilton theorem	

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Course Plan (Session Jan-May, 2019)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major/Pass
Class/Semester: Sixth Semester
Name of the Paper: MM601
Units Assigned: METRIC SPACE (UNIT I, II, III & IV)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Definition and examples of metric spaces	
2	Open spheres and closed spheres	
3	Neighborhoods, Open sets, Equivalent metrics	
4	Interior points, Closed sets	
5	Limit points and isolated points	
6	Closure of a set, Boundary points	
7	Distance between sets and diameter of a set	
8	Subspace of metric space	
9	Product metric spaces (definition only), Bases	
10	Convergent sequences	
11	Examples of Convergent sequences	
13	Cauchy sequences	
14	Examples of Cauchy sequences	
15	Complete & separable spaces, dense sets	
16	Continuous functions	
17	Definition and characterizations	
18	Extension theorem	
19	Uniform continuity (definition only)	
20	Homeomorphism	
21	Examples of Homeomorphism	
22	Compact spaces	
23	Compact sets	
24	Examples of Compact spaces and compact sets	
25	Sequential compactness.	

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Course Plan (Session Jan-May, 2019)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Sixth Semester
Name of the Paper: MM604
Units Assigned: SPACE DYNAMICS (UNIT I, II, & III)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Introduction to Spherical Trigonometry	
2	Examples related to Spherical Trigonometry	
3	Spherical triangles and its properties	
4	Spherical triangles and its properties	
5	Examples of Spherical triangles	
6	The sine-cosine formulae	
7	Examples related to the sine-cosine formulae	
8	Four parts formula and examples	
9	Coordinate systems: Position on the earth surface	
10	Horizontal system	
11	Equatorial system	
13	Ecliptic system	
14	Elements of the orbit in space	
15	Rectangular coordinate system	
16	Orbital plane coordinate system	
17	Transformation of systems	
18	Problems and solutions	
19	Gravitation	
20	The one and two body problems	
21	Elliptic motion	
22	Attraction of irregular bodies	
23	Rotational distortion	
24	Coordinates the orbits in space	
25	Problems and solutions	

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COURSE PLAN
SESSION: 2018--19

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 1ST Semester (M)

Paper Code : M 101, Name of the paper-Indian Philosophy (I)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	General characteristics of Indian philosophy	Explanation
2	Astika and Nastika Schools	Explanation
3	Charges against Indian philosophy	Note
4	Vedas Rita, Rina	Note
5	Vedas Yajna	Explanation
6	Upanisads—Brahman and Atman	Explanation
7	Carvaka epistemology	Explanation
8	Carvakas rejection of Anumana and Sabda	Note
9	Carvaka Metaphysics	Note
10	Carvakas rejection of non-material entities	Note
11	Jainism – concept of reality- sat	Explanation
12	Jainism ---concept of dravya and guna	Explanation
13	Jainisim ---concept of paryaya, jiva-ajiva	Explanation
14	Jainism—concept of Anekantavada	Note
15	Jainiam—concept of Syadvada and nayavada	note
16	Buddhism—four-noble truth	Note
17	Buddhism-- pratityasamudpada	Explanation
18	Buddhism—Anityavada and Nirvana	Explanation
19	Madyamprativada schools of Buddhism	Explation
20	Nyaya—prama-aprama	Explanation
21	Theory of pramanas	Notes
22	Nyaya theory of error--Anyathakhyativada	Explanation
23	Vaisesika-- padartha	Notes
24	Vaisesika-- paramanuvada	Explanation
25	Theory of extrinsic validity and invalidity of knowledge	Explanation

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COURSE PLAN
SESSION: 2018--19

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – NON-MAJOR

Class/Semester : 5th Semester (p)

Paper Code : NM 501, Name of the paper—Indian and Western Logic

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Nyaya view of Anumana----	Explanation
2	Definition, Structure and kinds	Explanation
3	Nyaya kinds & ascertainment of Vyapti	Note
4	Hetabhasas	Note
5	Nature of logic	Explanation
6	Definition between traditional and modern logic	Explanation
7	Vharacteristics of symbolic logic	Explanation
8	Use of symbols	Note
9	Categorical Syllogism--- rules and figures---	Note
10	Moods and fallacies	Note
11	Venn diagram technique of testing the validity of syllogistic arguments	Explanation

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COURSE PLAN
SESSION: 2018--19

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 502, Name of the paper- WESTERN LOGIC

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature of logic	Explanation
2	Truth and validity of logic	Explanation
3	Nature of proposition , modern classification of proposition	Note
4	Square of proposition	Note
5	Classical and modern logic, use of symbols	Explanation
6	Categorical syllogism—Venn diagram	Explanation
7	Technique of testing the validity of syllogisms	Explanation
8	Truth functions	Note
9	Truth table method of testing the validity of argument—direct, indirect	Note
10	Formal proof of validity	Note
11	Proving invalidity	Explanation
12	Predicate logic—Quantification and its rules	Explanation
13	Symbolization of traditional categorical proposition	Explanation
14	Universal quantifiers	Note
15	Existential quantifiers	note
16	Problem of induction	Note
17	Problem of logical justification of induction	Explanation
18	Probability and induction	Explanation
19	Hypothesis-- conditions	Explation
20	Hypothesis—proofs and kinds	Explanation
21	Mill's method of Experimental enquiry	Notes
22	Mill's method of Experimental enquiry	Explanation
23	Mill's method of Experimental enquiry	Notes
24	Mill's method of Experimental enquiry	Explanation
25	Mill's method of Experimental enquiry	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2018--19

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 503, Name of the paper- HISTORY OF WESTERN PHILOSOPHY

Unit Assigned : I & II

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Greek philosophy—philosophy of number	Explanation
2	Greek Atomism	Explanation
3	Sophistic movement	Note
4	Socrates—Virtue is knowledge	Note
5	Plato's theory of ideas	Explanation
6	Aristotle's Form and matter	Explanation
7	Concept of Self in Plato	Explanation
8	Concept of Self in Aristotle	Note

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COURSE PLAN
SESSION: 2018--19

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 3rd Semester (M)

Paper Code : M 302, Name of the paper—Western Philosophy (II)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Definition and characteristics of Realism	Explanation
2	Different types of Realism	Explanation
3	Naive Realism	Note
4	Scientific Realism	Note
5	Neo- Realism & Neo –critical Realism	Explanation
6	Definition and characteristics of Idealism	Explanation
7	Different types of Idealism	Explanation
8	Subjective Idealism	Note
9	Phenomenalistic Idealism	Note
10	Objective Idealism	Note
11	Origin of the World	Explanation
12	Creative theory of the World	Explanation
13	Evolution theory of World	Explanation
14	Mechanical theory of evolution	Note
15	Teleological theory of evolution	note
16	Emergent theory of evolution	Note
17	Creative theory of evolution	Explanation
18	Nature and attributes of God	Explanation
19	Proofs for the existence of God	Explation
20	God and World, Deism	Explanation
21	Theism, Pantheism, Panentheism	Notes
22	God and the Absolute	Explanation
23	Pluralism, Monism , Dualism	Notes
24	Meaning of Value, kinds of Value	Explanation
25	Intrinsic and Extrinsic Value, Subjective –Objective Value	Explanation
26	Relative and Absolute Value	Explanation

SESSION: 2018--19

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – Non-Major

Class/Semester : 3rd Semester (NM)

Paper Code : M 301, Name of the paper: (Indian Philosophy -(II)

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Samkhya concept of Prakriti, Purusa	Explanation
2	Samkhya theory of Evolution	Explanation
3	Yoga Psychology	Note
4	Visistadvaita Vedanta, Saguna Brahma	Note
5	Rejection of Sankara's Maya	Explanation
6	Concept of Jiva, Jagat	Explanation
7	Nirguna Brahman	Explanation
8	Maya in Advaita Vedanta	Note
9	Budhistic Ethics, Four Noble Truth	Note
10	Eight Fold- Path	Note
11	Pancha Mahavrata	Explanation

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic —Major

Class/Semester : 5th Semester (M)

Paper Code : M 503, Name of the paper: History of Western Philosophy

Unit Assigned : II & III

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Platos theory of Ideas	Explanation
2	Aristotle's Form and Matter	Explanation
3	Concept of Self in Plato and Aristotle	Note
4	Descartes Innate Idea	Note
5	Descartes Cogito Ergo Sum	Explanation
6	Descartes Dualism	Explanation
7	Leibnitz's Monadology	Explanation
8	Pre-established harmony	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2018--19

Name of Teacher: Bisti Ram Narzary
 Course : Honours/Generic – MAJOR
 Class/Semester : 5th Semester (M)
 Paper Code : M 504, Name of the paper: (Philosophy of Religion)
 Unit Assigned : Full Paper
 Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and Scope of Philosophy of Religion	Explanation
2	It's Relation to Theology and Morality	Explanation
3	Religious consciousness	Note
4	Foundation of Religious belief- revelation, reason	Note
5	Mystic experience, Ecstasy	Explanation
6	Origin of Religion- anthropological theories	Explanation
7	Origin of Religion- psychological theory	Explanation
8	Development of the Idea of God- Polytheism, Monotheism	Note
9	Divine determinism	Note
10	Human freedom of Will	Note
11	Immortality of Soul----	Explanation
12	Metaphysical argument	Explanation
13	Religious argument	Explanation
14	Problem of Evil	Note
15	Anti-theistic trends—Positivism, Marxism	note
16	Freudian psycho-analysis	Note
17	Acquaintance with Buddhism	Explanation
18	Acquaintance with Christianity and Islam	Explanation
19	Basic features of Hinduism	Explanation
20	Principal sects of Hinduism- Saivism, Saktism	Explanation
21	Neo-vaisnavism—Sankaradeva, Madhabdeva	Notes
22	Objective of comparative religion	Explanation
23	Value of comparative religion	Notes
24	Possibility of Universal religion	Explanation
25	Secularism	Explanation
26	Religious Understanding	Explanation

DIGBOI COLLEGE, DIGBOI

Teacher's Course plan.

Session 2018-19

Name of the teacher- Dr. Reepa Sarmah. Department of Philosophy

Course- Major/ Non Major:**Non Major**

Class/semester – **1st semester**

Name of the Paper – Indian Philosophy (I)

Units Assigned – Half (2 units)

Marks Assigned – 40

Class	Topic/Unit	Remarks
1	Nature of Indian philosophy	Explain
2	Nature of Indian philosophy	Provide Notes
3	Orthodox Schools of Indian Philosophy	Explain
4	Orthodox Schools of Indian Philosophy	Provide Notes
5	Heterodox Schools of Indian Philosophy	Explain
6	Heterodox Schools of Indian Philosophy.	Provide Notes
7	Characteristics of Indian Philosophy	Explain
8	Characteristics of Indian Philosophy	Explain
9	Characteristics of Indian Philosophy	Provide Notes
10	Indian philosophy as Passimistic	Explain
11	Indian philosophy as Passimistic	Explain
12	Indian philosophy as Passimistic	Provide Notes
13	Indian philosophy as Dogmatic	Explain
14	Indian philosophy as Dogmatic	Explain
15	Indian philosophy as Dogmatic	Provide Notes
16	Characteristics of Contemporary Indian Philosophy	Explain

17	Characteristics of Contemporary Indian Philosophy	Explain
18	Characteristics of Contemporary Indian Philosophy	Provide Notes
19	Nyaya theory of Perception	Explain
20	Nyaya theory of Perception	Provide Notes
21	Mimamsa Arthapatti	Explain
22	Mimamsa Arthapatti	Explain
23	Mimamsa Arthapatti	Provide Notes
24	Radhakrishnan's Intellect and Intuition	Explain
25	Radhakrishnan's Intellect and Intuition	Explain
26	Radhakrishnan's Intellect and Intuition	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan(2018—2019)

Name of the teacher- Dr. Reepa Sarmah

Course- Major/Non-Major: **Major**

Class/semester – 3rd semester

Name of the Paper – Indian Philosophy (II)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Samkhya theory of Causation	Explain
2	Samkhya theory of Causation	Explain
3	Samkhya theory of Causation	Provide Notes
4	Samkhya theory of Prakriti	Explain
5	Samkhya theory of Prakriti	Explain
6	Samkhya theory of Prakriti	Provide Notes
7	Samkhya theory of Parinamavada	Explain
8	Samkhya theory of Parinamavada	Explain
9	Samkhya theory of Parinamavada	Provide Notes
10	Samkhya theory of Purusa	Explain
11	Samkhya theory of Purusa	Explain
12	Samkhya theory of Purusa	Provide Notes
13	Samkhya theory of Plurality of Purusa	Explain
14	Samkhya theory of Plurality of Purusa	Explain
15	Samkhya theory of Plurality of Purusa	Provide Notes
16	Samkhya theory of bondage	Explain
17	Samkhya theory of bondage	Provide Notes
18	Samkhya theory of liberation	Explain
19	Samkhya theory of Libaration	Provide Notes
20	Yoga concept of Citta	Explain
21	Yoga concept of Citta	Provide Notes
22	Yoga concept of Cittavriti	Explain
23	Yoga concept of Cittavriti	Provide Notes
24	Role of God in Yoga Philosophy	Explain
25	Role of God in Yoga Philosophy	Provide Notes
26	Mimamsa philosophy	Explain
27	Difference between Kumarila and	Explain

	Prabhakara	
28	Difference between Kumarila and Prabhakara	Provide Notes
29	Nature of valid knowledge.	Explain
30	Arthapatti	Explain
31	Arthapatti	Provide Notes
32	Anupalabdhi	Explain
33	Anupalabdhi	Provide Notes
34	Svatahpramanyavada	Explain
35	Svatahpramanyavada	Provide Notes
36	Paratahpramanyavada	Explain
37	Paratahpramanyavada	Provide Notes
38	Vedanta philosophy	Explain
39	Advaita vedanta	Explain
40	Advaita vedanta	Explain
41	Advaita vedanta	Provide Notes
42	jiva	Explain
43	jiva	Provide Notes
44	Jivan mukti	Explain
45	Jivan mukti	Provide Notes
46	Visistaadvaitavada	Explain
47	Visistaadvaitavada	Provide Notes
48	Saguna Brahman	Explain
49	Saguna Brahman	Provide Notes
50	Parinamavada	Explain
51	Parinamavada	Provide Notes
52	Refutation of Maya	Explain
53	Refutation of Maya	Provide Notes
54	Jiva	Explain
55	Bhakti	Explain
56	Prapatti	Explain
57	Rejection of Jivanmukti	Explain
58	Philosophy of Bhagavad Gita	Explain
59	Philosophy of Bhagavad Gita	Provide Notes
60	Concept of Ultimate Reality	Explain
61	Concept of Ultimate Reality	Provide Notes
62	Doctrine of Incarnation	Explain
63	Doctrine of Incarnation	Provide Notes
64	Concept of Soul	Explain
65	Concept of Soul	Provide Notes
66	Immortality of Soul	Explain
67	Immortality of Soul	Provide Notes
68	Sthitaprajna	Explain
69	Sthitaprajna	Explain
70	Sthitaprajna	Provide Notes

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Course plan (2018-19)

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 5 th semester

Name of the Paper – Logic (Indian) (M 501)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Nature of Indian Logic	Explain
2	Nature of Indian Logic	Explain
3	Nature of Indian Logic	Provide Notes
4	Development of Indian Logic	Explain
5	Development of Indian Logic	Explain
6	Development of Indian Logic	Provide Notes
7	Development of Indian Logic	Explain
8	Indian Logic and Epistemology	Explain
9	Indian Logic and Epistemology	Explain
10	Indian Logic and Epistemology	Provide Notes
11	Classification of Knowledge by Nyaya	Explain
12	Classification of Knowledge by Nyaya	Provide Notes
13	Prama	Explain
14	Prama	Explain
15	Prama	Explain
16	Prama	Provide Notes
17	Aprama	Explain
18	Apram	Explain
19	Apram	Provide Notes
20	Pramanas as the Karana of Prama	Explain
21	Pramanas as the Karana of Prama	Explain
22	Pramanas as the Karana of Prama	Provide Notes
23	Characteristics of Pramanas	Explain
24	Characteristics of Pramanas	Explain
25	Characteristics of Pramanas	Provide Notes
26	Kinds of Pramanas	Explain
27	Kinds of Pramanas	Explain

28	Kinds of Pramanas	Provide Notes
29	Nyaya pratyaksa	Explain
30	Nyaya pratyaksa	Explain
31	Nyaya pratyaksa	Provide Notes
32	Mimamsa Pratyaksa	Explain
33	Mimamsa Pratyaksa	Explain
34	Mimamsa Pratyaksa	Provide Notes
35	Definition of Anumana	Explain
36	Definition of Anumana	Provide Notes
37	Constituents of Anumana	Explain
38	Constituents of Anumana	Explain
39	Constituents of Anumana	Explain
40	Constituents of Anumana	Provide Notes
41	Kinds of Anumana	Explain
42	Kinds of Anumana	Explain
43	Kinds of Anumana	Provide Notes
44	Paksata	Explain
45	Paksata	Explain
46	Paksata	Provide Notes
47	Vyapti	Explain
48	Vyapti	Provide Notes
49	Ascertainment of Vyapti	Explain
50	Ascertainment of Vyapti	Explain
51	Ascertainment of Vyapti	Provide Notes
52	Types of Vyapti	Explain
53	Types of Vyapti	Explain
54	Types of Vyapti	Provide Notes
55	Marks of Valid Reason	Explain
56	Nyaya Hetabhasa	Explain
57	Nyaya Hetabhasa	Explain
58	Nyaya Hetabhasa	Explain
59	Nyaya Hetabhasa	Explain
60	Nyaya Hetabhasa	Explain
61	Nyaya Hetabhasa	Provide Notes

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COURSE PLAN
SESSION: 2018--19

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 4th Semester (M)

Paper Code : M 401, Name of the paper- INDIAN ETHICS

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Meaning of Dharma	Explanation
2	Classification of Dharma	Explanation
3	Varnasramadharma & Caturasrama	Note
4	Theory of Karma—ethical implication	Note
5	Purusartha	Explanation
6	Purusartha and their interrelations	Explanation
7	Purusarthasadhana in Vedas	Explanation
8	Carvaka ethics—gross egoism	Note
9	Buddhist ethics—Eight – fold - path	Note
10	Buddhist ethics-- Pancasila	Note
11	Jaina ethics—Triratna along with Dharmavidhi	Explanation
12	Jaina ethics-- Anuvrata	Explanation
13	Jaina ethics-- Mahavrata	Explanation
14	Yoga ethics—eight-foldpath	Note
15	Yoga ethics—Cittavritti nirodha	note
16	Gandhian ethics-- Ahimsa	Note
17	Gandhian ethics-- Satyagraha	Explanation
18	Ethics of Bhagavadgita-- Svabhava	Explanation
19	Ethics of Bhagavadgita-- Svadharma	Explation
20	Ways to attain the highest goal	Explanation
21	Synthesis of jnana	Notes
22	Karma and bhakti margas	Explanation
23	Niskama karma	Notes
24	Lokasangraha	Explanation

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COURSE PLAN
SESSION: 2018--19

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 603, Name of the paper- SOCIAL AND POLITICAL PHILOSOPHY

Unit Assigned : I & II

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Nature and scope of social philosophy	Explanation
2	Political philosophy and its relation to Sociology	Explanation
3	Political philosophy and its relation to Political Science	Note
4	Concept of Society	Note
5	Social nature of man	Explanation
6	Different theories regarding the relation between individual and society	Explanation
7	Different theories regarding the relation between individual and society	Explanation
8	Different theories regarding the relation between individual and society	Note
9	Different theories regarding the relation between individual and society	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2018--19

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 604, Name of the paper- PSYCHOLOGY

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature of psychology	Explanation
2	Methods of psychology-----	Explanation
3	Methods of psychology-----	Note
4	Methods of psychology-----	Note
5	Schools of psychology-----	Explanation
6	Schools of psychology-----	Explanation
7	Schools of psychology-----	Explanation
8	Applied psychology-- introduction	Note
9	Psychological basis of mental life	Note
10	Nervous system	Note
11	Doctrine of central localisation	Explanation
12	Sensation- its definition	Explanation
13	Weber-Fechner law of sensation	Explanation
14	Perception—its definition	Note
15	Gestalt theory of perception	note
16	Memory-- factors	Note
17	Condition and marks of good memory	Explanation
18	Forgetting—its causes	Explanation
19	Imagination--- nature and kinds	Explation
20	Freudian theory of dream	Explanation
21	The nature of feeling, feeling and emotion	Notes
22	James—Lange theory of emotion	Explanation
23	Learning—theories of learning	Notes
24	Personality- traits, factors, kinds	Explanation
25	Intelligence—Nature, Test IQ	Notes
26	Motivation—Nature and types	Notes

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COURSE PLAN
SESSION: 2018--19

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic –NON- MAJOR

Class/Semester : 6th Semester (NM)

Paper Code : M 601, Name of the paper- SOCIAL PHILOSOPHY AND PSYCHOLOGY

Unit Assigned : I, II & IV

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Nature and scope of social philosophy----	Explanation
2	Its relation to Sociology	Explanation
3	Its relation to psychology	Note
4	Its relation to ethics	Note
5	Relation between individual and society----	Explanation
6	Its different theories	Explanation
7	Its different theories	Explanation
8	Definition and type of Social groups and institutions	Note
9	Definition and type of Social groups and institutions	Note
10	Definition and type of Social groups and institutions	Note
11	Nature, scope, methods of psychology	Explanation
12	Nature, scope, methods of psychology	Explanation
13	Physiological basis of mental life—structure of brain	Explanation
14	Physiological basis of mental life—structure of brain	Note

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COURSE PLAN

SESSION: 2018--19

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – NON-MAJOR

Class/Semester : 2ND Semester (NM)

Paper Code : NM 201, Name of the paper: (WESTERN PHILOSOPHY(I))

Unit Assigned : UNIT: I, II, & III

Marks Assigned : 48

Class	Topic/Unit	Remarks
1	Definition and nature of philosophy	Explanation
2	Scope and relevance of philosophy	Explanation
3	Relation between philosophy and epistemology	Note
4	Relation between philosophy and metaphysics	Note
5	Relation between philosophy and axiology	Explanation
6	Relation between philosophy and Theology	Explanation
7	Theories of Knowledge—Rationalism-- Empiricism	Explanation
8	Scepticism, Kant's critical theory	Note
9	Categories of Knowledge—Space, Time	Note
10	Categories of Knowledge—Substance, causality	Note
11	Theories of truth—correspondence theory	Explanation
12	Coherence theory	Explanation
13	Pragmatic & Self-evident theory	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2018--19

Name of Teacher: Bisti Ram Narzary
Course : Honours/Generic – MAJOR
Class/Semester : 4th Semester (M)
Paper Code : M 402, Name of the Paper: (WESTERN ETHICS)
Unit Assigned : Full Paper
Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and Scope of Ethics	Explanation
2	Utility of the study of ethics	Explanation
3	Relation of ethics to psychology, Metaphysics	Note
4	Relation of ethics to politics & Religion	Note
5	Moral consciousness, object of moral consciousness	Explanation
6	Moral sentiment, moral obligation	Explanation
7	Meaning of good, ought, right	Explanation
8	Duty and conflict of duties	Note
9	Virtue ethics of Plato	Note
10	Virtue ethics of Aristotle	Note
11	Teleological ethics –Egoism, Altruism	Explanation
12	Deontological ethics of Kant	Explanation
13	Existential ethics of Kant	Explanation
14	Meta ethical theory of Moore	Note
15	Meta ethical theory of Stevenson	note
16	Meta ethical theory of R.M Hare	Note
17	Professional Ethics	Explanation
18	Environmental ethics	Explanation
19	Postulates of morality	Explation
20	Crime and punishment	Explanation
21	Different theories of punishment	Notes

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COURSE PLAN
SESSION: 2018--19

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 602, Name of the Paper: (CONTEMPORARY OF WESTERN PHILOSOPHY)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	William James Pragmatism	Explanation
2	James theory of knowledge	Explanation
3	James nature and function of knowledge	Note
4	The conception of truth and error	Note
5	G.E Moore's refutation of Idealism	Explanation
6	Moore's Neo-Realism	Explanation
7	Moore's problem of sense data	Explanation
8	Ayer's Elimination of metaphysics	Note
9	Russell's Logical atomism	Note
10	Wittgenstein's facts and proposition	Note
11	Wittgenstein's picture theory of meaning	Explanation
12	Wittgenstein's language game	Explanation
13	Wittgenstein's refutation of atomism	Explanation
14	Salient features of existentialism	Note
15	Theistic and atheistic existentialism	note
16	J.P. Sartre's humanism	Note
17	Phenomenalism—a movement of thought	Explanation
18	Husserl's phenomenology	Explanation
19	Strawson's concept of person	Explation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2018--19

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 603, Name of the Paper: (Social and political philosophy)

Unit Assigned : III & IV

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Social groups and institution-- family	Explanation
2	Social groups and institution-- Education	Explanation
3	Social groups and institution-- Religion	Note
4	Social evolution and social progress	Note
5	Social evil	Explanation
6	Relation between state and communities	Explanation
7	Relation between state and society	Explanation
8	Elements and function of state	Note
9	Theories of street Greek & Social contract	Note

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Course plan (2018-19)

Name of the teacher- Dr. Reepa Sarmah

Course:Major/Non-Major: Major

Class/semester – 2nd semester

Name of the Paper – Western Philosophy (M201)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Definition of Philosophy	Explain
2	Definition of Philosophy	Provide Notes
3	Nature of Philosophy	Explain
4	Nature of Philosophy	Provide Notes
5	Scope of Philosophy	Explain
6	Scope of Philosophy	Provide Notes
7	Relevance of Philosophy	Explain
8	Relevance of Philosophy	Provide Notes
9	Philosophy and Epistemology	Explain
10	Philosophy and Epistemology	Provide Notes
11	Philosophy and Metaphysics	Explain
12	Philosophy and Metaphysics	Provide Notes
13	Philosophy and Theology	Explain
14	Philosophy and Theology	Provide Notes
15	Philosophy and Axiology	Explain
16	Philosophy and Axiology	Provide Notes
17	Science and Philosophy	Explain
18	Science and Philosophy	Provide Notes
19	Knowledge definition	Explain
20	Kinds of knowledge	Provide Notes
21	Knowledge by acquaintance	Explain
22	Knowledge by acquaintance	Provide Notes
23	Knowledge by Description	Explain
24	Knowledge by Description	Provide Notes
25	Necessary and Sufficient conditions of Propositional knowledge	Explain
26	Necessary and Sufficient conditions of Propositional knowledge	Provide Notes
27	Rationalism	Explain

28	Empiricism	Provide Notes
29	Critical theory	Explain
30	Critical theory	Provide Notes
31	Scepticism	Explain& provided notes
32	Categories of knowledge	Explain& provided notes
33	Space	Explain& provided notes
34	Time	Explain& provided notes
35	Causality	Explain
36	Causality	Provide Notes
37	Substance	Explain
38	Substance	Provide Notes
39	Problem of Certainty of knowledge	Explain
40	Problem of Certainty of knowledge	Provide Notes
41	Scepticism	Explain
42	Scepticism	Provide Notes
43	Answer to Scepticism	Explain
44	Answer to Scepticism	Provide Notes
45	Logical Positivism	Explain& provided notes
46	Refutation of Metaphysics	Explain
47	Refutation of Metaphysics	Provide Notes
48	Universals	Explain& provided notes
49	Realism	Explain& provided notes
50	Nominalism	Explain& provided notes
51	Conceptualism	Explain& provided notes
52	Correspondance theory of truth	Explain
53	Correspondance theory of truth	Provide Notes
54	Coherence theory of truth	Explain
55	Coherence theory of truth	Provide Notes
56	Pragmatic theory of truth	Explain& provided notes
57	Self-evident theory of truth	Explain
58	Self-evident theory of truth	Provide Notes

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Course plan (2018-19)

Name of the teacher- Dr. Reepa Sarmah

Course:Major/Non-Major: Non- Major

Class/semester – 4th semester

Name of the Paper – Western Philosophy (II)

Units Assigned – Half (2 units)

Marks Assigned – 40

Class	Topic/Unit	Remarks
1	Nature of God	Explain
2	Nature of God	Provide Notes
3	Attributes of God	Explain
4	Attributes of God	Explain
5	Attributes of God	Provide Notes
6	Proofs for Gods Existence	Explain
7	Proofs for Gods Existence	Explain
8	Proofs for Gods Existence	Explain
9	Proofs for Gods Existence	Explain
10	Proofs for Gods Existence	Explain
11	Proofs for Gods Existence	Explain
12	Proofs for Gods Existence	Explain
13	Proofs for Gods Existence	Provide Notes
14	Deism	Explain
15	Deism	Explain
16	Deism	Provide Notes
17	Theism	Explain
18	Theism	Provide Notes
19	Pantheism	Explain
20	Pantheism	Provide Notes
21	Panentheism	Explain
22	Panentheism	Provide Notes
23	Different theories of Moral Obligation	Explain
24	Different theories of Moral Obligation	Explain
25	Different theories of Moral Obligation	Explain
26	Different theories of Moral Obligation	Explain
27	Different theories of Moral Obligation	Explain
28	Different theories of Moral Obligation	Provide Notes

29	Postulates of Morality	Explain
30	Postulates of Morality	Explain
31	Postulates of Morality	Provide Notes

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Course plan (2018-19)

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 6 th semester

Name of the Paper – Contemporary Indian Philosophy (M601)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Contemporary Indian Philosophy	Explain
2	Characteristics of Contemporary Indian Philosophy	Explain
3	Characteristics of Contemporary Indian Philosophy	Explain & Provided Notes
4	Practical Vedanta	Explain
5	Practical Vedanta	Explain & Provided Notes
6	Vivekananda's Universal Religion	Explain
7	Vivekananda's Universal Religion	Explain & Provided Notes
8	Vivekananda's Philosophy of Education	Explain
9	Vivekananda's Philosophy of Education	Explain
10	Vivekananda's Philosophy of Education	Explain & Provided Notes
11	Aurobindo's Evolution	Explain
12	Aurobindo's Evolution	Explain
13	Aurobindo's Evolution	Explain & Provided Notes
14	Aurobindo's Supermind	Explain
15	Aurobindo's Supermind	Explain
16	Aurobindo's Supermind	Explain & Provided Notes
17	Synthesis of Yoga	Explain
18	Synthesis of Yoga	Explain
19	Synthesis of Yoga	Explain
20	Synthesis of Yoga	Explain & Provided Notes
21	Integralism	Explain
22	Integralism	Explain
23	Integralism	Explain
24	Integralism	Explain & Provided Notes

25	Tagore's Humanism	Explain
26	Tagore's Humanism	Explain
27	Tagore's Humanism	Explain
28	Tagore's Humanism	Explain & Provided Notes
29	Nature of Religion	Explain
30	Nature of Religion	Explain
31	Nature of Religion	Explain
32	Nature of Religion	Explain & Provided Notes
33	Iqbal's Intuition	Explain
34	Iqbal's Intuition	Explain
35	Iqbal's Intuition	Explain
36	Iqbal's Intuition	Explain & Provided Notes
37	Human Ego	Explain
38	Human Ego	Explain
39	Human Ego	Explain
40	Human Ego	Explain
41	Human Ego	Explain & Provided Notes
42	Man and his Destiny	Explain
43	Man and his Destiny	Explain
44	Man and his Destiny	Explain & Provided Notes
45	Gandhi's Truth	Explain
46	Gandhi's Truth	Explain
47	Gandhi's Truth	Explain
48	Gandhi's Truth	Explain & Provided Notes
49	Gandhi's Non-violence	Explain
50	Gandhi's Non-violence	Explain
51	Gandhi's Non-violence	Explain
52	Gandhi's Non-violence	Explain & Provided Notes
53	Radhakrishnan's Intellect and Intuition	Explain
54	Radhakrishnan's Intellect and Intuition	Explain
55	Radhakrishnan's Intellect and Intuition	Explain
56	Radhakrishnan's Intellect and Intuition	Explain
57	Radhakrishnan's Intellect and Intuition	Explain & Provided Notes

COURSE PLAN

2018-19

**DEPARTMENT OF PHYSICS,
DIGBOI COLLEGE**

DIGBOI COLLEGE, DIGBOI

Course Plan

Period: July-December 2018

Name of the Teacher - Dr Kanchan Konwar

Course – Honours

Class/Semester - 5th Semester (NCBCS)

Name of the Paper - PHYM -504 (Electronics)

Units Assigned - I, II, III

Marks Assigned - 60

Unit	Class	Topic/ Unit	Remarks
Unit I	1.	Charged particles and electronic structure of elements	
	2.	Energy band theory of crystals, conductors, semiconductors and insulators	
	3.	Electrons and holes in semiconductor	
	4.	Donor and acceptor impurity, generation and recombination of charge	
	5.	Diffusion, continuity equation	
	6.	Junction diode characteristics: the open circuited PN junction, I-V characteristics of P-N diode	
	7.	Breakdown diodes	
	8.	Diode as a rectifier	
	9.	Half-wave rectifier	
	10.	Full-wave rectifier with resistance load	
	11.	Ripple factor	
	12.	Smoothing filters	
	13.	DC power supply	
Unit II	1.	Transistors: NPN and PNP transistors	
	2.	Transistor action, common emitter connection	
	3.	Common base and common collector connections,	
	4.	Transistor biasing (fixed bias, base resistor, voltage divider) and thermal stabilization	
	5.	Amplifier equivalent circuits	
	6.	Hybrid parameters, small signal transistor voltage amplifier	
	7.	RC coupled and LC coupled amplifier	
	8.	Power amplifier (Class A and Class B)	
	9.	Distortion in amplifier	
	10.	Amplifier with negative feedback, effect of negative feedback on gain, output impedance and distortions	
Unit III	1.	Oscillators: transistor as sinusoidal oscillator	
	2.	Barkhausen criterion	
	3.	Tuned collector Oscillator	
	4.	Hartley, RC oscillator	
	5.	Wein Bridge and crystal oscillator	
	6.	Integrated Circuit: basic ideas, differential amplifier	
	7.	Operational amplifiers, CMRR, inverting, non-inverting modes	
	8.	Basic mathematical operations- addition, differentiation, integration.	
Unit IV	1.	Logic gates: binary numbers	
	2.	Decimal to binary conversion	

	3.	Binary to decimal conversion	
	4.	Logic gates and their realization by P-N diodes and transistor	
	5.	Half adder, full adder	
	6.	NAND, NOR and XOR gates	
	7.	Boolean algebra	
	8.	De Morgan's theorem and its applications	
	9.	K-maps	

Course – Honours

Class/Semester - 5th Semester (NCBCS)

Name of the Paper - PHYM -503 (Atomic and Molecular Physics)

Units Assigned - III

Marks Assigned - 21

Unit	Class	Topic/ Unit	Remarks
Unit III	1.	Molecular spectra: Pure rotation spectra	
	2.	Theory of pure rotation spectra, selection rules	
	3.	Vibration spectra and selection rules	
	4.	Theory of rotation-vibration spectra	
	5.	P and R branches	
	6.	Rayleigh scattering	
	7.	Raman scattering	
	8.	Raman effect	
	9.	Classical theory of Raman effect	
	10.	Introduction to Lasers: Spontaneous and stimulated emission,	
	11.	Population inversion and Einstein's A and B coefficients	
	12.	Ammonia beam maser	
	13.	Ruby laser	
	14.	He-Ne laser	

Course – Honours

Class/Semester – 3rd Semester (CBCS)

Name of the Paper - PHYSICS-C VII: DIGITAL SYSTEMS AND APPLICATIONS (THEORY)

Units Assigned – from 1 to 12

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Block Diagram of CRO. Electron Gun, Deflection System and Time Base. Deflection Sensitivity	
	2	Applications of CRO: Study of Waveform	
	3	Measurement of Voltage, Current, Frequency, and Phase Difference.	
II	1	Integrated Circuits : Active & Passive components. Discrete components. Wafer. Chip.	
	2	Advantages and drawbacks of ICs. Scale of integration: SSI, MSI, LSI and VLSI.	
	3	Classification of ICs. Examples of Linear and Digital ICs.	
III	1	Difference between Analog and Digital Circuits. Binary Numbers.	
	2	Decimal to Binary and Binary to Decimal Conversion.	
	3	BCD, Octal and Hexadecimal numbers.	

	4	AND, OR and NOT Gates (realization using Diodes and Transistor).	
	5	NAND and NOR Gates as Universal Gates.	
	6	XOR and XNOR Gates and application as Parity Checkers.	
IV	1	De Morgan's Theorems. Boolean Laws.	
	2	Simplification of Logic Circuit using Boolean Algebra.	
	3	Fundamental Products.	
	4	Idea of Minterms and Maxterms.	
	5	Conversion of a Truth table into Equivalent Logic Circuit by Sum of Products Method	
	6	Karnaugh Map.	
V	1	Basic idea of Multiplexers	
	2	De-multiplexers	
	3	Decoders	
	4	Encoders	
VI	1	Binary Addition	
	2	Binary Subtraction using 2's Complement	
	3	Half and Full Adders.	
	4	Half & Full Subtractors	
	5	4-bit binary Adder/Subtractor	
VII	1	SR, D Flip-Flops	
	2	JK Flip-Flops	
	3	Level and Edge Triggered Flip-Flops	
	4	Preset and Clear operations	
	5	Race-around conditions in JK Flip-Flop	
	6	M/S JK Flip-Flop	
VIII	1	IC 555: block diagram	
	2	Astable multivibrator	
	3	Monostable multivibrator.	
IX	1	Serial-in-Serial-out, Serial-in-Parallel-out Shift Registers	
	2	Parallel-in-Serial-out and Parallel-in-Parallel-out	
X	1	Ring Counter	
	2	Asynchronous counters	
	3	Decade Counter	
	4	Synchronous Counter	
XI	1	Input/Output Devices. Data storage (idea of RAM and ROM).	
	2	Computer memory	
	3	Memory organization & addressing	
	4	Memory Interfacing. Memory Map	
XII	1	Main features of 8085. Block diagram. Components. Pin-out diagram.	
	2	Buses. Registers. ALU. Memory. Stack memory	
	3	Timing & Control circuitry	
	4	Timing diagram of MOV and MVI.	
	5	Timing states. Instruction cycle	
XIII	1	Introduction to Assembly Language:	
	2	1 byte, 2 byte & 3 byte instruction	

Course – Honours

Class/Semester – 1st Semester (CBCS)

Name of the Paper - Physics-C- II (MECHANICS)

Units Assigned – from 6 to 10

Marks Assigned – 33

Unit	Class	Topic/ Unit	Remarks
VI	1	Fluid Motion: Kinematics of Moving Fluids:	
	2	Poiseuille's Equation	
	3	Poiseuille's Equation contd.	
VII	1	Gravitation and Central Force Motion: Law of gravitation.	
	2	Gravitational potential energy. Inertial and gravitational mass.	
	3	Potential and field due to spherical shell and solid sphere.	
	4	Motion of a particle under a central force field.	
	5	Two-body problem and its reduction to one-body problem and its solution.	
	6	The energy equation and energy diagram.	
	7	Kepler's Laws.	
	8	Satellite in circular orbit and applications. Geosynchronous orbits. Weightlessness.	
	9	Basic idea of global positioning system (GPS).	
VIII	1	Simple Harmonic Oscillations.	
	2	Differential equation of SHM and its solution.	
	3	Differential equation of SHM and its solution contd.	
	4	Kinetic energy, potential energy, total energy and their time-average values..	
	5	Damped oscillation	
	6	Forced oscillations: Transient and steady states;	
	7	Resonance, sharpness of resonance; power dissipation and Quality Factor	
IX	1	Non-inertial frames and fictitious forces. Uniformly rotating frame.	
	2	Laws of Physics in rotating coordinate systems.	
	3	Centrifugal force , Coriolis force and its applications	
	4	Components of Velocity and Acceleration in Cylindrical and Spherical Coordinate Systems	
X	1	Michelson-Morley Experiment and its outcome. Postulates of Special Theory of Relativity.	
	2	Lorentz Transformations. Simultaneity and order of events.	
	3	Lorentz contraction. Time dilation.	
	4	Relativistic transformation of velocity, frequency and wave number	
	5	Relativistic addition of velocities.	
	6	Variation of mass with velocity	
	7	Massless Particles. Mass-energy Equivalence	
	8	Relativistic Doppler effect.	
	9	Relativistic Kinematics. Transformation of Energy and Momentum .	

Period: January-June 2019

Course – Honours

Class/Semester – 2nd Semester (CBCS)

Name of the Paper - PHYSICS-C III: ELECTRICITY AND MAGNETISM

Units Assigned – I, II, VI, VII, VIII

Marks Assigned – 41

Unit	Class	Topic/ Unit	Remarks
I	1	Electric field: Electric field lines.	
	2	Electric flux.	
	3	Gauss' Law with applications to charge distributions with spherical, cylindrical and planar symmetry.	
	4	Electrostatic Potential. Laplace's and Poisson equations.	
	5	The Uniqueness Theorem.	
	6	Potential and Electric Field of a dipole. Force and Torque on a dipole.	
	7	Electrostatic energy of system of charges.	
	8	Electrostatic energy of a charged sphere.	
	9	Conductors in an electrostatic Field	
	10	Surface charge and force on a conductor	
	11	Capacitance of a system of charged conductors. Parallel-plate capacitor. Capacitance of an isolated conductor	
	12	Method of Images and its application to (1) Plane Infinite Sheet and (2) Sphere	
II	1	Electric Field in matter. Polarization, Polarization Charges. Electrical Susceptibility and Dielectric Constant.	
	2	Capacitor (parallel plate, spherical, cylindrical) filled with dielectric	
	3	Displacement vector D. Relations between E, P and D.	
	4	Gauss' Law in dielectrics	
VI	1	AC Circuits: Kirchhoff's laws for AC circuits.	
	2	Complex Reactance and Impedance.	
	3	Series LCR Circuit	
	4	Parallel LCR Circuit.	
VII	1	Ideal Constant-voltage and Constant-current Sources.	
	2	Network Theorems: Thevenin theorem, Norton Theorem,	
	3	Superposition theorem, Reciprocity theorem,	
	4	Maximum Power Transfer theorem.	
VIII	1	Torque on a current Loop.	
	2	Ballistic Galvanometer: Current and Charge Sensitivity.	
	3	Electromagnetic damping. Logarithmic damping. CDR.	

Course – Honours

Class/Semester – 4th Semester (CBCS)

Name of the Paper - PHYSICS-C-X : ANALOG SYSTEMS AND APPLICATIONS

Units Assigned – I to X

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Semiconductor Diodes	
	2	P and N type semiconductors.	
	3	Energy Level Diagram.	
	4	Conductivity and Mobility, Concept of Drift velocity.	
	5	Barrier Formation in PN Junction Diode. Static and Dynamic Resistance.	
	6	Current Flow Mechanism in Forward and Reverse Biased Diode. Drift Velocity.	
	7	Derivation for Barrier Potential, Barrier Width and Current for Step Junction	
II	1	Rectifier Diode: Half-wave Rectifiers.	
	2	Centre-tapped Rectifiers	
	3	and Bridge Full-wave	
	4	Calculation of Ripple Factor and Rectification Efficiency, C-filter	
	5	Zener Diode and Voltage Regulation.	
	6	Principle and structure of (1) LEDs, (2) Photodiode and (3) Solar Cell	
III	1	n-p-n and p-n-p Transistors.	
	2	Characteristics of CB, CE and CC Configurations	
	3	Current gains α and β Relations between α and β .	
	4	Load Line analysis of Transistors. DC Load line and Q-point.	
	5	Physical Mechanism of Current Flow. Active, Cutoff and Saturation Regions.	
IV	1	Transistor Biasing and Stabilization Circuits.	
	2	Fixed Bias	
	3	Voltage Divider Bias	
	4	Transistor as 2-port Network.	
	5	h-parameter Equivalent Circuit	
	6	Analysis of a single-stage CE amplifier using Hybrid Model.	
	7	Input and Output Impedance. Current, Voltage and Power Gains.	
	8	Classification of Class A, B & C Amplifiers	
V	1	RC coupled Amplifier	
	2	Two stage RC coupled Amplifier	
	3	frequency response	
VI	1	Effect of positive and negative feedback on Input impedance,	
	2	Effect of positive and negative feedback on Output impedance,	
	3	Effect of positive and negative feedback on Gain	
	4	Effect of positive and negative feedback on Stability, Distortion and noise.	
VII	1	Barkhausen's Criterion for self-sustained oscillations.	
	2	RC Phase shift oscillator	
	3	Hartley & Colpitts oscillators	
VIII	1	Characteristics of an Ideal and Practical Op-Amp. (IC 741)	
	2	Open-loop and Closed-loop Gain.	
	3	Frequency Response. CMRR.	
	4	Slew Rate and concept of Virtual ground	
IX	1	Applications of Op-Amps: Inverting and non-inverting amplifiers	
	2	Adder, Subtractor	
	3	Differentiator, Integrator	
	4	Log amplifier, Zero crossing detector	
	5	Wein bridge oscillator.	
X	1	Resistive network (Weighted and R-2R Ladder).	
	2	Accuracy and Resolution.	

	3	A/D Conversion (successive approximation)	
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Course – Honours

Class/Semester – 6th Semester (NCBCS)

Name of the Paper - PHYM – 604 (Laser and its Application)

Units Assigned – I to V

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Absorption and emission of radiation	
	2	Spontaneous emission of radiation, stimulated emission,	
	3	Einstein coefficients, significant of Einstein coefficients	
	4	Basic Laser system requirements	
	5	Method of creation of population inversion, optical resonator, Q factor, optical cavity, Standing wave ,	
	6	Threshold condition for laser oscillator .	
II	1	Description of Ammonia beam Maser	
	2	Ruby Laser	
	3	He-Ne Laser,	
	4	Semiconductor Laser.	
III	1	Intensity, Monochromaticity	
	2	Coherence properties of Laser radiation, spatial, and Temporal Coherence,	
	3	Purity of spectral line and Temporal Coherence relation with Coherence,	
	4	Visibility of fringes and degree of coherence	
	5	Relation between visibility and coherence.	
IV	1	Introduction: Basic principle of Fiber optics, structure and classification,	
	2	acceptance angle and numerical aperture,	
	3	Intermodal dispersion in a step index fiber,	
	4	Ray path in index fiber.	
	5	Advantages of fiber optics communication	
V	1	Faraday effect- Determination of magnetic rotation,	
	2	Classical theory of Faraday Effect,	
	3	Kerr electro Optic effect	
	4	Harmonic generation, second harmonic generation	

Course Plan 2018-19

Name of the Teacher-Banjit Kumar Das

Course –Honours

Class/Semester- B.A. 1st Semester

Name of the paper- C 2 (Constitutional Government and Democracy in India)

Units Assigned-III, IV & V

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Organs of Government- The Judiciary- The Supreme Court of India- Composition	
2	Powers and functions of the Supreme Court of India	
3	High Court-Composition, Powers and functions	
4	Judicial Review	
5	Judicial Activism	
6	Relation between Executive and Judiciary	
7	Public Interest Litigation	
8	Federalism- Nature of Indian Federation	
9	Federal and non-federal features of the Indian Constitution	
10	Emergency Provisions	
11	Division of Powers between the Centre and States	
12	Administrative relations between Centre and States	
13	Legislative relations between Centre and States	
14	Financial relations between Centre and States	
15	Causes of Centre State conflicts	
16	Fifth & Sixth Schedule of the Indian Constitution	
17	Panchayatiraj institutions- Village Panchayat-functions	
18	73 rd Amendment	
19	74 th Amendment	
20	11 th & 12 th Schedules	

Name of the Teacher-Banjit Kumar Das

Course –Generic

Class/Semester- B.A. 1st Semester

Name of the paper- GE 1A (Nationalism in India)

Units Assigned-III (Nationalist politics and Expansion of its Social Base)

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	The exploitative role of British rule	
2	Nationalist politics under liberals	
3	Swadeshi Movement	
4	Extremist phase of freedom struggle	
5	Beginning of constitutionalism	
6	Indian Council Act, 1909	
7	Government of India Act, 1919	
8	Government of India Act, 1935	
9	Indian Independence Act, 1947	
10	Gandhi and mass mobilization	
11	The non-co-operation Movement	
12	The Civil Disobedience Movement	
13	Quit India Movement	
14	Crip's Mission Plan	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Honors' / Generic – Honours

Class/Semester- B.A. 2nd Semester

Name of the paper- C-3 (Political Theory-Concepts and Debates)

Units Assigned–II

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Freedom-Introduction, Meaning, Concepts of positive and negative freedom	
2	Kinds of Liberty	
3	Safeguards of liberty	
4	Some dimensions of negative and positive freedom.	
5	Freedom and rights	
6	J.S. Mill on Freedom of Expression	
7	Principles of Utilitarianism	
8	Mill as Utilitarian	
9	Freedom of Expression and Dissent	
10	Discussion	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-III

Paper-PSCM 301(Public Administration)

Units Assigned- **–IV & V**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Recruitment: Meaning and Definition
2	Problems of Recruitment
3	Types of Recruitment: Direct Recruitment, Merits and demerits
4	Types of Recruitment: Indirect Recruitment, , Merits and demerits
5	Promotion Meaning and Definition
6	Principles of Promotion
7	Seniority principle of Promotion, Merits and demerits
8	Merit principle of Promotion, Merits and demerits
9	Promotion system in India
10	Morale: Meaning, definition
11	Measures to boost morale
12	Importance of Morale in Administration
13	Training: Meaning and Definition
14	Kinds of Training
15	Methods of Training
16	Union Public service Commission
17	State Public service Commission
18	Budget: Meaning and Types
19	Principles of Budget
20	Budget making process in India

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-IV

Paper-PSCM 401(Comparative Politics)

Units Assigned- **–II, III & IV**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit
1	Parliamentary Executive in Britain: King
2	Powers and functions of the British King
3	Role and Position of the King
4	Distinction between King and the Crown
5	British Prime Minister, Powers and functions
6	British Council of Ministers: Powers and functions
7	American President: Powers and Functions
8	American President: Powers and Functions
9	Comparison between the American President and British Prime Minister
10	Swiss Federal Council: Powers and Functions
11	Chinese President: Powers and Functions
12	Chinese Premier: Powers and Functions
13	British Parliament, Powers and Functions of the House of Lords
14	Powers and Functions of the House of Commons
15	American Congress, Senate and House of representatives
16	Powers and Functions of the Senate
17	Powers and Functions of the House of Representatives
18	Swiss federal Assembly: Composition, Powers and Functions
19	Chinese National People's Congress: Composition, Powers and Functions
20	Standing Committee of the National People's Congress
21	Comparison between the Various legislatures

22	British Judiciary; Composition, Powers and Functions
23	American Supreme Court: Composition, Powers and Functions
24	Judicial Review of the Supreme Court of America
25	Swiss Federal Tribunal: Composition, Powers and Functions
26	Swiss Federal Tribunal: Composition, Powers and Functions
27	Chinese Judiciary: Composition, Powers and Functions
28	Comparison between the Various Judiciaries
29	Comparison between the Various Judiciaries
30	Comparison between the Various Judiciaries

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-IV

Paper-PSCM 402(Politics of North-East India with special reference to Assam))

Units Assigned- II

Marks Assigned- 16

Serial number of classes	Topic/ Unit
1	Genesis of the Problem of Autonomy
2	Meaning of Regionalism, Causes for the growth of Regionalism
3	Arguments in favor and against of regionalism
4	Development Regionalism in Assam
5	Assam Accord
6	Sub-Regionalism: Meaning, Causes for Sub-Regionalism
7	The Remedy to avoid Regionalism
8	Demand for Autonomous State
9	Causes of Demanding Autonomous state in Assam
10	Bodo Movement

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-V

Name of the paper- PSCM 503 (Indian Foreign Policy)

Units Assigned- **–I,II,III,IV & V**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Origin and evolution of Indian foreign Policy	
2	Origin and evolution of Indian foreign Policy	
3	Origin and evolution of Indian foreign Policy	
4	Determinants of Foreign Policy	
5	Domestic determinants of Foreign Policy	
6	External determinants of Foreign Policy	
7	Non-align movement in India's foreign policy	
8	Causes for accepting non-alignment in India's foreign Policy	
9	Principles of India's Foreign Policy	
10	Objectives of India's Foreign Policy	
11	Continuities and Changes of India's Foreign Policy	
12	Continuities and Changes of India's Foreign Policy	
13	Continuities and Changes of India's Foreign Policy	
14	Indo-US relations	
15	Indo-US relations during the time of Nehru	
16	Indo-US relations during the time of Indira Gandhi	
17	Indo-US relations during the time of Rajiv Gandhi	
18	Indo-US relations in post-Cold war period	
19	Indo-US relations in post Cold war period	
20	Indo- Soviet Relations during Cold war period	
21	Indo- Russian Federation Relations after Cold war period	
22	India's relations with China	
23	India's relations with China	
24	Look East Policy and South East Asia	
25	Look East Policy and ASEAN	
26	Indo-Pak Relations	
27	Causes of conflicts of Indo-Pak relations	

28	Causes of Indo-Pak Conflict	
29	Indo-Bangladesh relations	
30	Causes of Indo-Bangladesh Conflict	
31	Indo-Nepal relations	
32	Decline of relationship between India and Nepal	
33	India and UNO	
34	India and UNO	
35	India and Un Peace keeping Mission	
36	Initiatives of UN in India's Development	
37	India's role in UN Peace Keeping Mission	
38	India and SAARC	
39	Evaluation of SAARC	
40	Economic Diplomacy in India's Foreign Policy	
41	Objectives of Economic Diplomacy	
42	Aspects of India's Economic diplomacy	
43	Globalization: Meaning, definition	
44	Economic consequences of Globalization	
45	Globalization and India's Approach , Effects of Globalization in India	
46	Nuclear Issues and India's approach	
47	India's Nuclear Policy	
48	Global Terrorism: India's approach	
49	India's approach to terrorism	
50	Discussion	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-VI

Name of the paper- PSCM 604 (Indian Administration)

Units Assigned- **–I,II,III,IV & V**

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Administration and Environment	
2	Nature of Indian Administration	
3	Features of Indian Administration	
4	Legacies of Indian Administration	
5	Indian Administration and Cultural Environment	
6	Indian Administration and Cultural Environment	
7	Indian Administration and Social Environment	
8	Indian Administration and Political Environment	
9	Indian Administration and Political Environment	
10	Indian Administration and Economic Environment	
11	Indian Administration and Constitutional Environment	
12	The President of India	
13	Role and position of the President of India	
14	Prime Minister of India	
15	Union Council of Ministers	
16	Central Secretariat: Meaning and Nature of Secretariat	
17	Functions and role of Secretariat	
18	Structures of Central Secretariat	
19	Structures of Central Secretariat	
20	Structures of Cabinet Secretariat	
21	Cabinet Secretary: functions	
22	Cabinet Secretary: Role	
23	State Governor: Powers and functions	

24	State Chief Minister: Powers and functions	
25	Chief Minister as real executive	
26	State Secretariat: Structure	
27	Internal Organizations of Secretariat Department	
28	Chief Secretary: Functions	
29	Secretariat and Field Departments	
30	Relation between V and field departments	
31	Evolution of District Administration	
32	Organisation of District Administration	
33	Deputy Commissioner: Duties	
34	Deputy Commissioner: Duties	
35	Position of Deputy Commissioner	
36	District administration and Democratic Decentralization	
37	Relation between Deputy Commissioner and Technical Departments	
38	Role of Deputy Commissioner in District Administration	
39	Role of Deputy Commissioner in District Administration	
40	Sub-Divisional Officer: Duties	
41	Role of Sub-Divisional Officer: in Sub-Divisional Administration	
42	Divisional Commissioner: Functions	
43	Divisional Commissioner: Duties	
44	Public Service: Meaning, Features	
45	Functions of Civil Service	
46	Structure of Central Civil Service	
47	All India Services	
48	Strengthening of All India Services	
49	State Service	
50	Discussion	

COURSE PLAN : APARAJITA GOGOI - DEPARTMENT OF ZOOLOGY : 2018

JANUARYEVEN SEMESTER CLASSES

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
January	1 st	ZOOM 201 Metabolism	ZOOM -401 Mitochondria structure ZOOM 401- Mitochondia function	ZOOM- 601 – Parasitology Types of parasites ZooM 601-Vectors Parasites- Entamoeba histolytica	ZOOG 201- Syllabus given Introductory class	ZOOG 401 Digestion of proteins Digestion of lipids	ZOOG 601 Introductory class
	2 nd	ZOOM 201 Metabolism - Glycolysis	ZOOM 401- Mitochondria function ; Structure and ffunction of Nucleus	ZOOM 601 –Parasitology Parasitic adaptation, effect on host ZOOM 603- Immunity, Types of cells and organs	ZOOG 201- Structure and function of prokaryotic & eukaryotic cells	ZOOG 401 Digestion of lipids	ZOOG 601 Population dynamics
	3 rd	ZOOM 201 Pyruvic acid oxidation, Krebs cycle; ETS	ZOOM 401- Fertilization mechanism	ZOOM 603- -Innate & adaptive immunity	ZOOG 201- Eukaryotic cells	ZOOG-401 Anatomy and Function of adrenal hormones;	ZOOG 601 Population dynamics
	4 th	ZOOM 201 Electron Transport system	ZOOM 401 Fertilization mechanism	ZOOM 606- Cellular and humoral immunity	-	Function of adrenal hormones	ZOOG 601 Population dynamics

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
February	1 st	ZOOM 201 Unit 3 Electron transport system	ZOOM 403-Unit 2 Fertilization significance	ZOOM 604- Unit 2 Bioinformatics	ZOOG 201- Chromosome	ZOOG-401 Blood	-
	2 nd	ZOOM 201 Energetics of ETS	ZOOM 403- Cortical reaction- fertilization membrane	ZOOM 604- Database ZOOM 606- Aquaculture	ZOOG 201- Heterochromatin, euchromatin Packaging	ZOOG-401 Blood coagulation	ZOOG 601 Biotic potential
	3 rd		ZOOM 403- Significance of Fertilization	ZOOM 606 – Aquaculture Induced breeding	ZOOG 201- Mitochondria		
	4 th	ZOOM 201 Beta oxidation of fatty acids	ZOOM 403- Parthenogenesis	ZOOM 601 Management of fish ponds	ZOOG 201- Mitochondria function	ZOOG-401 Coagulation of blood; Mechanism	ZOOG 601 Ecosystems
March	1 st	ZOOM-201 Beta oxidation of fatty acids	ZOOM 401- Unit 4 Cell signalling; Types	ZOOM 601- Unit 5 Communication in animal Trypanosoma		ZOOG-401 Mechanism of coagulation of blood	
	2 nd		ZOOM- 401 GPCR, second messenger	ZOOM 601- Unit 5 Trypanosoma pathogenicity; orientation in animals	ZOOG 201 unit 5 Electron transport syst.		ZOOG 601 Ecosystem food chain
	3 rd		ZOOM- 401 Chromatin ; Heterochromatin	ZOOM 601- Unit 5 Offensive defensive behaviour			

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
March	4 th		ZOOM 401-Unit 5 DNA packaging Nucleosome	ZOOM 601- Unit 5 Offensive behaviour	ZOOG 201 ETS		ZOOG 601- Survivorship curve
April	1 st		ZOOM 403- Bone & Kidney structure; tissues	ZOOM 606 Unit 2- Prawn culture fish by product 603 Unit 4- Antigens –types- properties	ZOOG 201- ETS –ATP formation Unit 2- Nucleus		ZOOG 601- Biotic potential & Env resistance
	2 nd		ZOOM 403- Germ layers Fate maps	ZooM 603 Antigen –antibody interaction Immunodiffusion RIA, ELISA; Vaccine & vaccination	Unit 2- Nucleus function		
	3 rd			ZooM- 601 Fasciola hepatica	Unit 2- Nucleus function		

COURSE PLAN : APARAJITA GOGOI; DEPARTMENT OF ZOOLOGY : 2018 JUNE

ODD SEMESTER CLASSES

MONTH	WEEK	SEM I H	SEM III H	SEM V H	SEM I G	SEM III G	Sem V G
JUNE	2 nd		ZOOM 301- Unit 2- Amphibia Parental care	ZOOM 501 – UNIT 1 Gene and allele concept Mendel Laws	ZOOG 101-	ZOOG 301 Syllabus given- Introductory class	
	3 rd		ZOOM 301- Unit 2- Metamorphosis	ZooM 501- Lethal factors; Quantitative inheritance ZOOM 503-Unit 1 Muscle cells ,contraction of muscle		ZOOG 301 Unit 2- Amphibia Parental care	
	4 th		ZOOM 301- Neoteny ZOOM 303- Unit 1- Chromatography	ZOOM 503 – Isometric/ isotonic contraction, tetanus	ZOOG 101 Introductory class	ZOOG-301 Fishes- characters, classification	ZOOG 501 Mendels laws
August	1 st	ZOOM 101 Introduction- syllabus	ZOOM 303 Unit 1 chromatography	ZOOM 507-Unit 4 Hormonal control of reproduction		ZOOG-301 Respiratory organs of fishes; accessory resp. organs	
	2 nd	ZOOM 101- Mollusca		ZOOM 507- Thyroid comparative		ZOOG-301 accessory resp. organs	
August	3 rd	ZOOM 101- Mollusca	ZOOM 301- Mammalia	ZOOM 507- Thyroid comparative ZOOM 503- Reflexaction	ZOOG 101- Torsion detorsion	ZOOG 301- Mammalia	ZOOG 501- Mendels laws

August	4 th	ZOOM 101- Digestion,respiration excretion inmolluscs	ZOOM 301- Mammalia Adaptation	ZOOM 501 Lethality ZOOM 505 –Unit 4 Renewable and non- renewable resources	ZOOG 101- Torsion detorsion	ZOOG 301- Mammalia	ZOOG 501- Gene interaction
Sept	1 st	ZOOM 101- Torsion- detorsion	ZOOM 301- Mammalia ZOOM 303- Unit 1- Sampling	ZOOM 501 Continental drift; Adaptive radiation ZOOM 505 –Unit 4 Bioindicators, ecological backlash, succession, greenhouse effect. Ozone depletion	ZOOG 101 Echinodermata	ZOOG 301- Mammalia	ZOOG 501- Linkage
	2 nd	Sessional 1 st					
	3 rd	ZOOM 101- Echinodermata.	ZOOM 303- Unit 1- Sampling Graphical representation	ZOOM 503-Unit 5 Vision –eye str.	ZOOG 101 Echinodermata Water vascular system		ZOOG 501- Linkage
	4 th	ZOOM 101- Echinodermata Water vascular system	ZOOM 301- Mammalia Echolocation Integumentary system of fish	ZOOM 503-Unit 5 Vision –defects	ZOOG 101 Taxonony, systematics	ZOOG 301- Cleavage patterns	
October	1 st	ZOOM 101- Echinodermata larval forms	ZOOM 301Vertebrate circulatory system	ZOOM 503-Unit 5 Drug addiction Reproctive hormones, Contraception methods	ZOOG 101 Taxonony, systematics	ZOOG 301- Cleavage patterns	

MONTH	WEEK	SEM I H	SEM III H	SEM V H	SEM I G	SEM III G	Sem V G
October	2 nd	ZOOM 101- Taxonomy Systematic; hierarchy Species concept Speciation	ZOOM 301- Unit 1- Chromatography ion exchange Chromatography	ZOOM 505 – UNIT 5 Biodiversity threats; insitu –exsitu conservation	ZOOG 101- Taxonomy, systematic Species concept speciation	ZOOG 301 Gastrulation Germ layers; fate maps	ZOOG 501- Linkage; crossing over - Sex determination Cytoplasmic inheritance

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **2ndSemester (Non-CBCS)**

Paper Code: **201 (Theory)**

Name of the Paper- **Biochemistry**

Units Assigned- **Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Structure of carbohydrates	
2.	UNIT 2: Classification of carbohydrates	
3.	UNIT 2: Amino acids	
4.	UNIT 2: Amino acids	
5.	UNIT 2: Proteins	
6.	UNIT 2: Proteins	
7.	UNIT 2: Proteins	
8.	UNIT 2: Levels of organization of proteins.	

9.	UNIT 2: Levels of organization of proteins.	
10.	UNIT 5: Structure and forms of DNA	
11.	UNIT 5: Structure and forms of RNA	
12.	UNIT 5: DNA as genetic material	
13.	UNIT 5: DNA replication	
14.	UNIT 5: DNA replication	
15.	UNIT 5: DNA replication	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **2ndSemester (Non-CBCS)**

Paper Code: **202 (Practical)**

Name of the Paper- **Biochemistry**

Units Assigned- **Unit 1, Unit 2, Unit 3**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Preparation of molar, normal and buffer solution.	
2.	UNIT 2: Qualitative test for carbohydrate to identify the common monosaccharides	
3.	UNIT 2: Qualitative test for carbohydrate to identify the common monosaccharides	
4.	UNIT 2: Qualitative test for carbohydrate to identify the common disaccharides	
5.	UNIT 2: Qualitative test for carbohydrate to identify the common disaccharides	
6.	UNIT 3: Essay of enzyme urease by titrimetric method	
7.	UNIT 3: Essay of enzyme peroxidase by titrimetric method	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **2ndSemester (Non-CBCS)**

Paper Code: **201 (Theory)**

Name of the Paper- **Cell Biology and Biochemistry**

Units Assigned- **Unit 1, Unit 3, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Structure of Plasma Membrane	
2.	UNIT 1: Structure of Plasma Membrane	
3.	UNIT 1: Function of Plasma Membrane	
4.	UNIT 1: Membrane transport- Osmosis	
5.	UNIT 1: Membrane transport- Diffusion	
6.	UNIT 1: Membrane transport- Active transport	
7.	UNIT 3: Cell Cycle	
8.	UNIT 3: Basic Concept of Cancer	
9.	UNIT 4: Types of Carbohydrates	
10.	UNIT 4: Types of Proteins	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **2ndSemester (Non-CBCS)**

Paper Code: **201 (Practical)**

Name of the Paper- **Cell Biology and Biochemistry**

Units Assigned- **Unit 1, Unit 3, Unit 4, Unit 5**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Study of Mitosis with the help of permanent slides	
2.	UNIT 1: Study of Meiosis with the help of permanent slides	
3.	UNIT 2: Preparation of Normal and Molar Solutions	
4.	UNIT 3: Qualitative test of Carbohydrate	
5.	UNIT 4: Qualitative test of salivary amylase	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **401 (Theory)**

Name of the Paper- **Cell Biology, Histology and Histochemistry**

Units Assigned- **Unit 1, Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Overview of Prokaryotic and Eukaryotic cells	
2.	UNIT 1: Structure of Plasma Membrane	
3.	UNIT 1: Structure of Plasma Membrane	
4.	UNIT 1: Structure of Plasma Membrane	
5.	UNIT 1: Function of Plasma Membrane	
6.	UNIT 1: Extra Cellular Matrix	
7.	UNIT 1: Receptor Mediated Endocytosis	
8.	UNIT 2: DNA Packaging in prokaryotes	
9.	UNIT 2: DNA Packaging in Eukaryotes	
10.	UNIT 2: Models of Chromosomal movements	
11.	UNIT 5: Types of Staining	
12.	UNIT 5: Vital Staining, Classification and Properties of Dyes	
13.	UNIT 5: Metachromatic Dyes and Staining	
14.	UNIT 5: Histological Structure of Stomach	
15.	UNIT 5: Histological Structure of Intestine	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **402 (Practical)**

Name of the Paper- **Cell Biology, Histology and Histochemistry**

Units Assigned- **Unit 1, Unit 2, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Study of Mitosis in Tadpole tail	
2.	UNIT 2: Study of Meiosis in testes of Grasshopper	
3.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
4.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
5.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
6.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
7.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **403 (Theory)**

Name of the Paper- **Developmental Biology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

	Topic/ Unit	Remarks
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Class		
1.	UNIT 3: Cleavage pattern	
2.	UNIT 3: Blastulation in Chick Embryo	
3.	UNIT 3: Blastulation in Chick Embryo	
4.	UNIT 3: Gastrulation in Chick Embryo	
5.	UNIT 3: Gastrulation in Chick Embryo	
6.	UNIT 3: Inductive Substances	
7.	UNIT 5: Development of Eyes	
8.	UNIT 5: Development of Eyes	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **404 (Practical)**

Name of the Paper- **Developmental Biology**

Units Assigned- **Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
2.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
3.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick	

	Embryo	
4.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
5.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Generic

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **401 (Theory)**

Name of the Paper- **Animal Physiology and Endocrinology**

Units Assigned- **Unit 2, Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Physiology of Excretion in Mammals	
2.	UNIT 2: Physiology of Excretion in Mammals	
3.	UNIT 3: Neurons	
4.	UNIT 3: Conduction of Nerve Impulse	
5.	UNIT 3: Conduction of Nerve Impulse	
6.	UNIT 3: Conduction of Nerve Impulse	
7.	UNIT 5: General Characters of Hormones	
8.	UNIT 5: Feedback Mechanism	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Generic

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **402 (Practical)**

Name of the Paper- **Animal Physiology and Endocrinology**

Units Assigned- **Unit 1, Unit 2, Unit 5**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Preparation of Haemin Crystal	
2.	UNIT 2: Counting of RBC	
3.	UNIT 2: Counting of WBC	
4.	UNIT 2: Study of histological Slides of Endocrine glands	
5.	UNIT 2: Study of histological Slides of Endocrine glands	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **601 (Theory)**

Name of the Paper- **Parasitology and Ethology**

Units Assigned- **Unit 1, Unit 2, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Life history mode of infection and pathogenicity of <i>Trichomonas vaginalis</i>	
2.	UNIT 1: Life history mode of infection and pathogenicity of <i>Plasmodium</i> spp.	
3.	UNIT 2: life history, parasitic adaptation and pathogenicity of <i>Ancylostoma duodenale</i>	
4.	UNIT 4: Introduction to Animal Behaviour	
5.	UNIT 4: Brief History of Ethology	
6.	UNIT 4: Patterns of Behaviour	
7.	UNIT 4: Patterns of Behaviour	
8.	UNIT 4: Patterns of Behaviour	
9.	UNIT 4: Genetical aspects of behaviour	
10.	UNIT 4: Ecological aspects of Behaviour	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Honours**
Class/Semester- **6thSemester (Non-CBCS)**
Paper Code: **602 (Practical)**
Name of the Paper- **Parasitology and Ethology**
Units Assigned- **Unit 1, Unit 3**
Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of mosquito species causing malaria, encephalitis and dengue fever	
2.	UNIT 3: Study of geotactic, phototactic, chemotactic and sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	
3.	UNIT 3: Study of geotactic, phototactic, chemotactic and sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	
4.	UNIT 3: Study of geotactic, phototactic, chemotactic and sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	

DIGBOI COLLEGE, DIGBOI
Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Honours**
Class/Semester- **6thSemester (Non-CBCS)**
Paper Code: **603 (Theory)**

Name of the Paper- **Molecular Biology and Immunology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Recombination in prokaryotes	
2.	UNIT 3: Transformation	
3.	UNIT 3: Conjugation	
4.	UNIT 3: Transduction	
5.	UNIT 3: Concept of transposons and plasmids	
6.	UNIT 3: Regulation of gene expression in prokaryotes	
7.	UNIT 3: Operon concept (Lac operon).	
8.	UNIT 5: Major histocompatibility complex- structure	
9.	UNIT 5: Major histocompatibility complex- functions	
10.	UNIT 5: Immune system in health and disease	
11.	UNIT 5: Immune system in health and disease	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **604 (Theory)**

Name of the Paper- **Biotechnology and Bioinformatics**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: DNA sequencing	
2.	UNIT 2: Human genome project	
3.	UNIT 4: Nucleic acid and protein sequence database	
4.	UNIT 4: NCBI	
5.	UNIT 4: Gene bank	
6.	UNIT 4: SWISS- PROT	
7.	UNIT 4: Data mining and data mining tools (ENTREZ).	
8.	UNIT 4: Data mining and data mining tools (ENTREZ).	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **605 (Practical)**

Name of the Paper- **Molecular Biology and Immunology**

Units Assigned- **Unit 3, Unit 7, Unit 8**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Estimation/Detection of RNA	
2.	UNIT 7: Different E resources and Database search	
3.	UNIT 8: Similarity search in sequence such as BLAST	

4.	UNIT 8: Similarity search in sequence such as FASTA	
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DIGBOI COLLEGE, DIGBOI
Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **606 (Theory)**

Name of the Paper- **Economic Zoology**

Units Assigned- **Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
2.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
3.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
4.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its	

	prevention/control	
5.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
6.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
7.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
8.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **607 (Practical)**

Name of the Paper- **Economic Zoology**

Units Assigned- **Unit 1, Unit 2, Unit 7, Unit 8**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of silkworms (eri, muga& mulberry), immature and adult stages	
2.	UNIT 2: Submission of life cycles of eri/ muga/ mulberry silkworms	
3.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	
4.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	

5.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	
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DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **601 (Theory)**

Name of the Paper- **Animal Ecology and Biostatistics**

Units Assigned- **Unit 3**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Environmental pollution and types	
2.	UNIT 3: Sources, causes and control of Air pollution	
3.	UNIT 3: Sources, causes and control of water pollution	
4.	UNIT 3: Sources, causes and control of soil pollution	
5.	UNIT 3: Biogeochemical cycle (carbon)	
6.	UNIT 3: Biogeochemical cycle (Nitrogen)	
7.	UNIT 3: Green House Effect	
8.	UNIT 3: Ozone depletion and its impact	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2018, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **602 (Practical)**

Name of the Paper- **Animal Ecology and Biostatistics**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: To find out abundance and density of soil fauna by quadrat method	
2.	UNIT 1: To find out abundance and density of soil fauna by quadrat method	
3.	UNIT 2: To find out the biotic components of pond ecosystem	
4.	UNIT 2: To find out the biotic components of pond ecosystem	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **101 (Theory)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 2, Unit 3**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Annelida: General characters	
2.	UNIT 2:Annelida: classification upto orders with examples	
3.	UNIT 2:Annelida: Excretion of <i>Pheretima</i>	
4.	UNIT 2:Annelida: Reproduction and importance of <i>Pheretima</i>	
5.	UNIT 2:Annelida: Coelom and metamerism in Annelids.	
6.	Unit-3: Arthropoda: General characters	
7.	Unit-3: Arthropoda: classification upto orders with examples	
8.	Unit-3: Arthropoda: classification upto orders with examples	
9.	Unit-3: Arthropoda: classification upto orders with examples	
10.	Unit-3: Arthropoda: classification upto orders with examples	
11.	Unit-3: Arthropoda: mouth parts of insects	
12.	Unit-3: Arthropoda: larval forms in crustacea	
13.	Unit-3: Arthropoda: excretion in arthropoda	
14.	Unit-3: Arthropoda: vision in arthropoda	
15.	Unit-3: Arthropoda: Affinity of Onychophora.	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **102 (Practical)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 1, Unit 2, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
2.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
3.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
4.	Unit 1: Dissection: Earthworm: Urinogenital system	
5.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
6.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
7.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
8.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
9.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
10.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **101 (Theory)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	Unit 3: Annelida: Coelom in Annelida	
2.	Unit 3: Annelida: Excretion in Annelida	
3.	Unit 3: Arthropoda: Mouth Parts	
4.	Unit 3: Arthropoda: Legs in Insects	
5.	Unit 3: Arthropoda: Crustacean Larval Forms	
6.	Unit 3: Arthropoda: Social Life in Honey Bee	
7.	Unit 5: Concept of Evolution	
8.	Unit 5: Evolutionary Theories	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **1st Semester (Non-CBCS)**

Paper Code: **102 (Practical)**

Name of the Paper- **Non Chordate Diversity, Systematics and Evolution**

Units Assigned- **Unit 1, Unit 2, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	

2.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
3.	Unit 2: Identification of Invertebrates with reason (As per syllabus)	
4.	Unit 1: Dissection: Earthworm: Urinogenital system	
5.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
6.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
7.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
8.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
9.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	
10.	Unit 3: Preparation of Permanent slides of suitable Invertebrate materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July– December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **301 (Theory)**

Name of the Paper- **Chordate Diversity and Comparative Anatomy**

Units Assigned- **Unit 4, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: General characters of Aves	
2.	UNIT 4: Classification of Aves upto super orders with examples	
3.	UNIT 4: Mechanisms of bird flight	
4.	UNIT 4: Perching mechanism in birds	
5.	UNIT 4: Flight adaptation in bird	

6.	UNIT 4: Migration in Birds	
7.	UNIT 5: Comparative Anatomy of Brain in Animals	
8.	UNIT 5: Comparative Anatomy of Brain in Animals	
9.	UNIT 5: Comparative Anatomy of Cranial Nerves in Animals	
10.	UNIT 5: Comparative Anatomy of Cranial Nerves in Animals	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **302 (Practical)**

Name of the Paper- **Chordate Diversity and Comparative Anatomy**

Units Assigned- **Unit 1, Unit 2, Unit 3, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
2.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
3.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
4.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
5.	UNIT 2: Dissection: Weberian Ossicles of Carp fish	
6.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
7.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
8.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	

9.	UNIT 4: Study of vertebral column of mammals; pectoral and pelvic girdle of reptiles, bird and amphibia	
10.	UNIT 4: Study of vertebral column of mammals; pectoral and pelvic girdle of reptiles, bird and amphibia	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **303 (Theory)**

Name of the Paper- **Bioinstrumentation and Biostatistics**

Units Assigned- **Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: Principles and uses of Kymography	
2.	UNIT 4: microtomy and ultramicrotomy	
3.	UNIT 4: principles and practices of centrifugation	
4.	UNIT 4: principles and practices of autoradiography	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **304 (Practical)**

Name of the Paper- **Bioinstrumentation and Biostatistics**

Units Assigned- **Unit 1**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Demonstration of instruments (As per syllabus)	
2.	UNIT 1: Demonstration of instruments (As per syllabus)	
3.	UNIT 1: Demonstration of instruments (As per syllabus)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **301 (Theory)**

Name of the Paper- **Chordate Diversity and Developmental Biology**

Units Assigned- **Unit 3, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: General characters of Aves	
2.	UNIT 3: Classification of Aves upto super orders with examples	
3.	UNIT 3: Beaks and Claws in Birds	
4.	UNIT 3: Perching mechanism in birds	
5.	UNIT 3: Flight adaptation in bird	
6.	UNIT 3: Migration in Birds	
7.	UNIT 4: Fertilization types	
8.	UNIT 4: Fertilization Mechanisms	
9.	UNIT 4: Parthenogenesis	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **302 (Practical)**

Name of the Paper- **Chordate Diversity and Developmental Biology**

Units Assigned- **Unit 1, Unit 2, Unit 3, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Dissection: Efferent Branchial System of Carp fish	
2.	UNIT 2: Identification of Museum specimens (As per syllabus)	
3.	UNIT 2: Identification of Museum specimens (As per syllabus)	
4.	UNIT 2: Identification of Museum specimens (As per syllabus)	
5.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
6.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
7.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
8.	UNIT 4: Study of Chick embryo development upto 72 hours	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **501 (Theory)**

Name of the Paper- **Genetics and Evolution**

Units Assigned- **Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Linkage	
2.	UNIT 2: Crossing over	
3.	UNIT 2: Basic knowledge of gene mapping	

4.	UNIT 5: Concept of population- gene pool	
5.	UNIT 5: Concept of population- gene frequency (Hardy- Weinberg law)	
6.	UNIT 5: Change in gene frequency (genetic drift)	
7.	UNIT 5: Change in gene frequency (gene flow)	
8.	UNIT 5: Change in gene frequency (genetic load)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **502 (Practical)**

Name of the Paper- **Genetics and Evolution**

Units Assigned- **Unit 1**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Study of Chromosomal slides of suitable materials	
2.	UNIT 2: Study of Chromosomal slides of suitable materials	
3.	UNIT 2: Study of Chromosomal slides of suitable materials	
4.	UNIT 2: Study of Chromosomal slides of suitable materials	
5.	UNIT 2: Study of Chromosomal slides of suitable materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **503 (Theory)**

Name of the Paper- **Animal Physiology**

Units Assigned- **Unit 4, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: Circulation- coronary circulation	
2.	UNIT 4: origin and conduction of cardiac impulse	
3.	UNIT 4: cardiac cycle	
4.	UNIT 4: Cardiac output and its regulation	
5.	UNIT 4: Disorders of cardio-vascular system	
6.	UNIT 4: Haemostasis	
7.	UNIT 4: Respiration- structure and functions of haemoglobin	
8.	UNIT 4: O ₂ and CO ₂ Transport by blood	
9.	UNIT 4: Regulation of respiration	

10.	UNIT 4: Carbon monoxide poisoning	
11.	UNIT 4: Tracheal respiration in insects	
12.	UNIT 5: Drug addiction and its physiological and social implications	
13.	UNIT 5: Drug addiction and its physiological and social implications	
14.	UNIT 5: Drug addiction and its physiological and social implications	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **504 (Practical)**

Name of the Paper- **Animal Physiology**

Units Assigned- **Unit 1, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Determination of RQ of Cockroach	
2.	UNIT 3: Preparation of Haemin crystals	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **505 (Theory)**

Name of the Paper- **Environmental Biology and wildlife Biology**

Units Assigned- **Unit 1, Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Concepts pertaining to ecosystem, species	
2.	UNIT 1: Community, biome and ecotone	
3.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
4.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
5.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
6.	UNIT 3: Biogeochemical cycles (carbon)	
7.	UNIT 3: Biogeochemical cycles (Nitrogen)	
8.	UNIT 5: IUCN status of species category	
9.	UNIT 5: Important endangered species of N.E. India - rhinoceros	
10.	UNIT 5: Important endangered species of N.E. India - tiger	
11.	UNIT 5: Important endangered species of N.E. India - golden langur	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **506 (Practical)**

Name of the Paper- **Environmental Biology and Wildlife Biology**

Units Assigned- **Unit 2, Unit 6**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Find out the abundance and density of insect pests in some essential food commodities	
2.	UNIT 6: Field study: To visit a National park/ Wildlife Sanctuary to study the habitat/ forest types and prepare a full note on it.	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **507 (Theory)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	

2.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
3.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
4.	UNIT 5: Neuroendocrine system in insects	
5.	UNIT 5: Neuroendocrine system in insects	
6.	UNIT 5: Role of Hormones in growth and development of insects	
7.	UNIT 5: Role of Hormones in growth and development of insects	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **508 (Practical)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Histological preparation of thyroid gland	
2.	UNIT 1: Histological preparation of thyroid gland	
3.	UNIT 1: Histological preparation of thyroid gland	
4.	UNIT 1: Histological preparation of thyroid gland	
5.	UNIT 3: Study of permanent slides of endocrine glands	
6.	UNIT 3: Study of permanent slides of endocrine glands	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **501 (Theory)**

Name of the Paper- **Molecular Biology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Nucleic Acids	
2.	UNIT 3: DNA as a Genetic Material	
3.	UNIT 3: Structure and functions of DNA	
4.	UNIT 3: Structure and functions of RNA	
5.	UNIT 5: Genetic engineering	
6.	UNIT 5: Basic Steps in cloning	
7.	UNIT 5: Cloning Vectors	
8.	UNIT 5: Restriction Enzymes	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2018, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **502 (Practical)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Construction of Nucleotides using Ball and Stick Model	
2.	UNIT 2: Preparation of slides for study of Mitosis using suitable material	
3.	UNIT 2: Preparation of slides for study of Mitosis using suitable material	
4.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	
5.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	
6.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	

COURSE PLAN

2019-20

**DEPARTMENT OF ASSAMESE,
DIGBOI COLLEGE**

COURSE PLAN FOR MAJOR COURSE (NON-CBCS)**2019-20****Name of the Teacher:- Purnananda Saikia****Department of Assamese****Digboi College, Digboi**

Course: Major

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and relevant books	
2	Ancient Assamese literature: Characteristics.	
3	Charyapads, SriKrishna Kirtan and Sunya Puran	
4	Charyapada: linguistic and literary value	
5	Selected text from Charyapada	
6	The pre-Sankardeva period: Introduction	
7	Hem Saraswati	
8	Haribar Bipra	
9	Rudra Kandali and Kavi Ratna Saraswati	
10	Madhava Kandali and Assamese Ramayan	
11	The Ramayana and Devajit	
12	Characteristics of Pre Sankardeva period	
13	Do	
14	Pre Sankardeva period and Assamese language	
15	Discussion of the tentative questions and answer	
16	Revision	

Course: MIL (Assamese)

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASM - 101

Unit Assignes: Unit-5

Marks Assign: 12

Class	Topic/Unit	Remarks
1	Introduction and related books	
2	Definition of culture	
3	Do	
4	Classification of culture	
5	Various aspects of culture	
6	Society and culture	
7	Revision	
8	Revision	
9	Revision	

Course: Major
 Class: BA 2nd Semester
 Name of the paper: History of Assamese Literature
 Paper Code: ASMM - 201
 Unit Assignes: Unit-3
 Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	The Jonaki: 2 nd golden age of Assamese Literature	
3	B background of Jonaki	
4	Background of Romanticism	
5	Characteristics of Romanticism	
6	Romanticism in Assamese literature	
7	Assamese poetry in the period	
8	Do	
9	Short story in the period	
10	Do	
11	Growth of Assamese Novel	
12	Do	
13	Assamese Drama: Pre Independence Period	
145	Do	
15	Literary Criticism and non-fictional prose	
16	Biography, Autobiography, Child literature	
17	Humour and satire, gender issues and others	
18	Revision	

Course: MIL (Assamese)
 Class: BA 2nd Semester
 Name of the paper: Practices of Assamese Language
 Paper Code: ASM - 201
 Unit Assignes: Unit-3
 Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Technical terms: General discussion	
3	Technical terms in Assamese language	
4	Do	
5	Administrative terms various uses	
6	Administrative terms in Assamese literature	
7	Revision	
8	Revision	

_Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-4

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Assamese poetry: Pre-Romantic period	
3	kamalakanta Bhattacharyya: life an creations	
4	Discussion of selected text: Ekura Jui	
5	Romanticism: Definition and characteristics	
6	Romanticism in Assamese poetry	
7	Life and poetic works of Chandra Kumar Agarwala	
8	Selected text: Tejimola	
9	Tejimola as a literary Ballad	
10	Mysticism: Definition and characteristics	
11	Mysticism in Assamse Literature	
12	Paramtrishna by Nalini bala Devi	
13	Do	
14	Patriotism in Assamese literature	
15	Chiro Chenehi Mur Bhasa Janani by Mitraddev Mahanta	
16	New trends in Assamese poetry towards modernism	
17	Kathmistrir Ghor by Dharendra Nath Dutta	
18	Revision	
19	Revision	

_Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Pre Sankardeva period and Madhava Kandali	
3	The Ramayana: Assamese Version	
4	Sundarakanda	
5	Discussion of the selected text	
6	Madhav dev: life and creative work	
7	Discussion of the selected text Namghosha	
8	Introduction to the Panchali Literature	
9	Pitambar kabi and Usha Parinoy	
10	Disussion of selected text from Usha Parinoy	
11	Do	
12	Introduction to Sufism	
13	Sufism and Assamese literature	
14	Dwija Rama and Sahapari Upakhyan	
15	Selected text from Sahapari Upakhyan	
16	Do	

17	Revision	
18	Revision	
19	Revision	

_Course: Major

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-2

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Early Assamese Prose: Various Aspects	
3	Characteristics of early Assamse literature	
4	Assamese Buranji literature	
5	Selected text from Tunkhungia Buranji	
6	Do	
7	Assamse Charit Tradition and Evolution	
8	Katha Guru Charit linguistic and historical values	
9	Selected text from Katha Guru Charit	
10	Revision	
11	Revision	

Course: Major - V

Class: BA 4th Semester

Name of the paper: Cultural Studies

Paper Code: ASMM - 501

Unit Assignes: Unit-All

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Definition of culture	
3	Various aspects of culture	
4	Classification of Culture	
5	Culture and society with human values	
6	Various anthropological aspects in Assamese culture	
7	Assimilation in Assamse culture	
8	Faiths and traditional customs of different ethnic groups in Assam	
9	Do	
10	Do	
11	Performing art in Assam	
12	Do	
13	Do	
14	Traditional dresses and ornaments in Assam	
15	Do	
16	Do	
17	Introduction to the painting and Architecture in Assam	
18	Do	
19	Revision	

20	Revision	
21	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Different aspects of Language and literature

Paper Code: ASMM - 601

Unit Assignes: Unit - 4

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Introduction to sociology of literature	
3	Definition of sociology of literature	
4	Human Manners in literature	
5	Human Values in literature	
6	Literature and traditional customs in society	
7	Revision	
8	Revision	
9	Revision	
10	Revision	

Course: Major

Class: BA 6th Semester

Name of the paper: Introduction to world literature

Paper Code: ASMM - 604

Unit Assignes: Unit-2 & 5

Marks Assign: 15+10=25

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Life and literary works of Kalidas	
3	Do	
4	Abhigyan Sakuntalam: Discussion in details	
5	Do	
6	Selected text. Act IV of the play	
7	Plot structure of the play	
8	Characteristics of the play	
9	Do	
10	Do	
11	Nature and human being in the play	
12	Sakuntala and Indian Philosophy	
13	Life and dramatics works of Shakespeare	
14	Atul Chandra Hazarika as a dramatics	
15	The king lear in Assamese Ashrutirtha	
16	Plot construction of the play	
17	Characteristics of the play	
18	Other aspects	
19	Revision	
20	Revision	
21	Revision	
22	Revision	

Name of the Teacher:- Achyut Saikia
Department of Assamese
Digboi College, Digboi

Course: Major

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-3

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the whole course and relevant books and journals	
2	Different periods of early Assamese literature	
3	Sankardeva and his times – social, political and religious aspects.	
4	Sankari Yuga – First golden age of Assamese literature, brief discussion	
5	Discussion of Indian Bhakti Movement	
6	Life and works of Sankardeva	
7	Poetic creation of Sankardeva	
8	Ankiya Nat and other works	
9	Life and literary works of Madhadev	
10	Differences of Ankiya nat and Borgeet of Sankardeva and Madhadev.	
11	Aananta Kandali and Sridhdar Kandali	
12	The Manasa Poets, Mankar, Pitambar, Durgabor and others	
13	Life and literary works of Ram Saraswati	
14	Do	
15	Other Vaishnava poets of the period	
16	Revision	
17	Revision	
18	Revision	

Course: MIL (Assamese)

Class: BA 1st Semester

Name of the paper: History of Assamese Literature and studies on Assamese culture

Paper Code: ASM - 101

Unit Assignes: Unit-2 &3

Marks Assign: 15+12=27

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Indian Bhakti movement and Sankardeva	
3	Sankardeva and Madhadev	
4	Do	
5	Aananta Kandali and other poets	
6	The Panchali literature	
7	Ram Saraswati	
8	Main Characteristics of the period	
9	Do	
10	The Jonaki and its background	

11	Background and characteristics of Romanticism	
12	Romanticism in Assamese	
13	Poetry	
14	Drama	
15	Novel	
16	Short Story	
17	Other literary Genres	
18	Revision	
19	Revision	
20	Revision	

Course: Major

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-1

Marks Assign: 10

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Background of modern Assamse literature from 1826-1889	
3	Modern Assamse literature: pre war period	
4	Modern Assamse literature: post war period	
5	Western influence in modern Assamse literature	
6	revision	
7	Modern Assamse literature: pre war period	
8	Modern Assamse literature: pre war period	
9	Modern Assamse literature: pre war period	
10	Revision	
11	Revision	
12	Revision	

Course: MIL (Assamese)

Class: BA 2nd Semester

Name of the paper: Practices of Assamese Language

Paper Code: ASM - 201

Unit Assignes: Unit-2

Marks Assign: 15

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Definition of translation	
3	Do	
4	Classification of translation	
5	Do	
6	Different field of translation	
7	Do	
8	Translation and modern society	
	Practices Assamse to English	

	Practices English to Assamse	
	Revision	
	Revision	

Course: Major

Class: BA 3rd Semester

Name of the paper: Selection from Assamese Poetry

Paper Code: ASMM - 302

Unit Assignes: Unit-1&5

Marks Assign: 16+16=2

Class	Topic/Unit	Remarks
1	Introduction to the course	
2	Ancient Assamse poetry	
3	Pre Sankardeva period	
4	Assamese poetry : Sankardeva period	
5	Do	
6	Post Sankardeva period	
7	Assamese poetry: beginning of modern age	
8	The Arunudoy	
9	Pre romantic Assamse poetry	
10	The Jonaki	
11	Romanticism in Assamse poetry	
12	Post war assumers poetry	
13	Selected text by Nabakanta Baruah	
14	Selected text by Nilmani Phukan	
15	Selected text by Harekrishna Deka	
16	Selected text by Karabi Deka Hazarika	
17	Revision	
18	Revision	
19	Revision	

Course: Major

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-1 & 5

Marks Assign: 16+16=32

Class	Topic/Unit	Remarks
1	Introduction to the course and related books	
2	Evolution of assumers prose	
3	Early Assamse prose	
4	Do	
5	Background of modern Assamse prose	
6	The Arunudoy period	
7	The Jonaki period	
8	Pre independence period	
9	Post independence period	
10	Brief discussion of Assamse novel	

11	Atulananda Goswami as a novelist	
12	Namghariya : plot construction	
13	Characterisation of the novel	
14	Do	
15	Other aspects of the novel	
16	Namghariya as a social novel	
17	Revision	
18	Revision	

_Course: Major - V

Class: BA 5th Semester

Name of the paper: Comparative Indian Literature

Paper Code: ASMM - 504

Unit Assignes: Unit-All

Marks Assign: 80

Class	Topic/Unit	Remarks
1	Introduction to the Course and related books	
2	Definition of comparative literature	
3	Scope of comparative literature	
4	Development of the idea of comparative literature	
5	Different schools of comparative literature	
6	Contemporary trends	
7	Thematic study	
8	Geology	
9	Influence studies	
10	historiography	
11	The idea of Indian literature	
12	Then idea of comparative Indian literature	
13	Do	
14	Thematic study of Indian literature	
15	Banshi by Rabindranath and Banhi by Bezbaruah	
16	Rabindranath as a poet	
17	Bezbaruah as a poet	
17	Introduction to the painting and Architecture in Assam	
18	Do	
19	Revision	
20	Revision	

_Course: Major

Class: BA 6th Semester

Name of the paper: Introduction to world literature

Paper Code: ASMM - 604

Unit Assignes: Unit-1, 3 & 4

Marks Assign: 10+15+15=40

Class	Topic/Unit	Remarks
1	Introduction to the Course	

2	The idea of world literature	
3	Do	
4	Do	
5	World literature and translation	
6	Definition and characteristics of short story	
7	Selected text by Maupassant	
8	Do	
9	Selected text by Anton Chekhov	
10	Do	
11	Selected text by O Henry	
12	Do	
13	Selected poem by Thomas Hardy	
14	Selected poem by Garcia Lorca	
15	Selected poem by Alexander Blok	
16	Selected poem by Oswald Durant	
17	Selected poem by Countee Cullen	
18	Revision	
19	Revision	
20	Revision	

Course: CBCS (Honours)

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: C-1

Unit Assigns: Uni - 4

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Introduction to the whole course and relevant books and journals	
2	Different periods of early Assamese literature	
3	Sankardeva and his times – social, political and religious aspects.	
4	Sankari Yuga – First golden age of Assamese literature, brief discussion	
5	Discussion of Indian Bhakti Movement	
6	Life and works of Sankardeva	
7	Poetic creation of Sankardeva	
8	Ankiya Nat and other works	
9	Life and literary works of Madhadev	
10	Differences of Ankiya nat and Borgeet of Sankardeva and Madhadev.	
11	Aananta Kandali and Sridhar Kandali	
12	The Manasa Poets, Mankar, Pitambar, Durgabor and others	
13	Life and literary works of Ram Saraswati	
14	Do	
15	Other Vaishnava poets of the period	
16	Revision	
17	Revision	
18	Revision	
1	Introduction to the whole course and relevant books and journals	
2	Different periods of early Assamese literature	

Name of the Teacher:- Simanta Bordoloi

Department of Assamese

Digboi College, Digboi

Course: Major - I

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 101

Unit Assignes: Unit-1 (Asomiya Sahityar Jug Bahaman)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Origin and Development of Assamese language and Literature	
2	Classification of Assamese literature	
3	Controversy about the classification of Assamese literature	
4	Problems in classification of Assamese literature	
5	Revision	
6	Revision	
7	Revision	

_Course: Major - II

Class: BA 2nd Semester

Name of the paper: History of Assamese Literature

Paper Code: ASMM - 201

Unit Assignes: Unit-2 (Adhunik Asomiya Bhasa Sahityar pratishtha)

Marks Assign: 15,

Class	Topic/Unit	Remarks
1	Development of Modern Assamese Literature	
2	Background of modern Assamese Literature	
3	Role of Arunudoy in the development of Assamese language as well as literature	
4	Introduction of Missionaries	
5	Language and prose style used by missionaries	
6	An introduction about Assamese writers of Arunudoy	
7	Literary work of Hemchandra Baruah	
8	Literary work of Gunabhiram Baruah	
9	Role of Hemchandra Baruah and Gunabhiram Baruah in the development of Assamese language, literature and society	
10	Briefing	

Course: Major - III

Class: BA 3rd Semester

Name of the paper: Assamese Poetry

Paper Code: ASMM - 302

Unit Assigns: Unit-3 (Madhav Kandali: Sundarakanda, Madhadev: Khed, Usha Parinoy, Chahapori Upakhyan)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Madhav Kandali and his work	
2	Introduction about the trends of Ramayana	
3	Discussion about the text Sundarakanda	
4	Introduction About Madhadev and his works	
5	Introduction about Namghosha	
6	Analysis of Khed	
7	Discussion about Chahapori Upakhyan	
8	Sufism in Assamese literature	
9	Poetic beauty of the selected poetry	
10	Briefing	

Course: Major -I V

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-3 (Anandaram Dhekial Phukanar jiban Charitra,)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Madhav Kandali and his work	
2	Introduction about the trends of Ramayana	
3	Discussion about the text Sundarakanda	
4	Introduction About Madhadev and his works	
5	Introduction about Namghosha	
6	Analysis of Khed	
7	Discussion about Chahapori Upakhyan	
8	Sufism in Assamese literature	
9	Poetic beauty of the selected poetry	
10	Briefing	

Course: Major - V

Class: BA 4th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 401

Unit Assignes: Unit-4 (Spandan, Dupporiya, Phulpahor Shabdo)

Marks Assign: 16,

Class	Topic/Unit	Remarks
1	Introduction about Sayad Abdul Malik	
2	Characteristics of short story written by Sayad	

	Abdul Malik	
3	Introduction about Saurabh Kumar Chaliha	
4	Characteristics of short story written by	
5	Introduction about Purabi Bormudoi	
6	Characteristics of short story written by Purabi Bormudoi	
7	Revise	
8	Revise	
9	Revise	
10	Revise	

_Course: Major - VI

Class: BA 4th Semester

Name of the paper: Asomor Bhasa aru Lipi

Paper Code: ASMM - 402

Unit Assignes: Unit-4 (Asomiya Bhasar Lipi aru Asomor Anannya Lipi)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Development of Assamese Language	
2	Development of Assamese script	
3	Introduction about the various script of ancient Assam	
4	Controversy about the Development of Assamese script	
5	Revise	
6	Revise	
7	Revise	

_Course: Major - VIII

Class: BA 5th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 502

Unit Assignes: Unit-1 (Assamese Drama and History of Stage)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Development of Assamese Drama in old era	
2	Development of Assamese drama in medieval era	
3	Development of Assamese drama in modern time	
4	Pre war Assamese Drama	
5	Post war Assamese drama	
6	Classification Assamese drama	
7	Types of Assamese Drama	
8	Development of stage in Assam	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - VIII

Class: BA 5th Semester

Name of the paper: Assamese Prose Literature

Paper Code: ASMM - 502

Unit Assignes: Unit-5 (Eta Cholar Kahini)

Marks Assign: 15

Class	Topic/Unit	Remarks
1	History of One Act Play	
2	Introduction about Ali Haidar and his works	
3	Marxism in Assamese Drama	
4	Characteristics of One act play	
5	Trends of one act play in Assam	
6	Discussion about the text	
7	Discussion about the text	

8	Discussion about the text	
9	Discussion about the text	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit-2 (Electronic and Print Media, language of advertisement))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Definition of mass media	
2	Types of media	
3	Types of electronics media	
4	Types of print media	
5	Merits and demerits of electronic media	
6	Merits and demerits of print media	
7	Use of language in advertisement	
8	Revision	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit-3 (Editing of Manuscript: Print and Hand written))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Preparation of manuscript	
2	Various process of manuscript editing	
3	Importance of manuscript editing	
4	Various sources of manuscript editing	
5	Problems in manuscript editing	
6	Revision	
7	Revision	
8	Revision	
9	Revision	

Course: Major - XII

Class: BA 6th Semester

Name of the paper: Bharatiya Arya Bhasha Aru Asomiya Bhasha

Paper Code: ASMM - 602

Unit Assignes: Unit-5 (Asomiya Bhashar Bikash)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Origin of Assamese language	
2	Development of Assamese language	
3	Language in ancient Assam	
4	Language in medieval Assam	
5	Language in modern period of Assam	
6	Language in Arunudoy stage	
7	Language in Jonaki stage	
8	Post war Assamese language	
9	Assamse language in recent time	
10	Revision	
11	Revision	

12	Revision	
13	Revision	

DIGBOI COLLEGE, DIGBOI

COURSE PLAN (Jan'2019-June'2019)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –MIL .

Class/Semester - B A 4th Semester (Old) .

Name of the paper – ASM 401 (Selection from Assamese Literature) .

Units Assigned – Unit – 5

Marks Assigned - 15 Classes : 08

Class .	Topic/ Unit .	Remarks	
1	Novel : “Sansipator Puthi” By Trolokya Bhattacharya		
2	History of Assamese Novel		
3	About Trolokya Bhattacharya		
4	Theme of the Novel-1		
5	Theme of the Novel-2		
6	Characters Of The Novel-1		
7	Characters Of The Novel-2		
8	Language of the Novel		
9	Rivision		

DIGBOI COLLEGE, DIGBOI

COURSE PLAN(Jan'2019-June'2019)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 2nd Semester (Old) .

Name of the paper – ASMM 201 (History of Assamese Literature : From the Arunodoi to Post-War period) .

Units Assigned – Unit – 05 .

Marks Assigned - 25 ; Classes : 15

Class .	Topic/ Unit .	Remarks	
1	Background of Post-War Assamese Literature		

2	What is Modern Assamese Literature		
3	Modernism in Post-War Assamese		
4	Post-War Assamese Poetry -1		
5	Post-War Assamese Poetry -2		
6	Post-War Assamese short-story		
7	The New trends of Assamese short-story		
8	Post-War Assamese Novel -1		
9	Post-War Assamese Novel -2		
10	Modern Assamese Novel and its characters		
11	Post-War Assamese Drama -1		
12	Post-War Assamese Drama -2		
13	Post-War Assamese Criticism		
14	Hiren Gohain & Bhaben Baruah : As a new Critic in Post-War Assamese Literature		
15	Post-War Assamese Travel Literature		
16	Characteristics of Post-War Assamese Travel Literature		
17	Post-War Assamese Science literature		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN (Jan'2019-June'2019)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 4th Semester (old) .

Name of the paper – ASMM 402 (Language and Script of Assam) .

Units Assigned – Unit – 2

Marks Assigned - 16 ; Classes : 08

Class .	Topic/ Unit .	Remarks	
1	Assamese Language : Its Development		
2	Assamese Language : Its Origin-1		
3	Assamese Language : Its Origin-2		
4	Phonological Characters of Assamese Language		
5	Morphological Characters of Assamese Language		
6	Dialect of Assam		
7	Dialect of Assamese Language		
8	Kamrupi Dialect		
9	Gowalporia Dialect		
10	Darangia Dialect		
11	Revision		

COURSE PLAN

2019-20

**DEPARTMENT OF BENGALI,
DIGBOI COLLEGE**

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2019-20
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- I (CBCS)

Name of the Paper :- BANGLA SAHITYER ITIHAS

Units Assigned : 1 & 3

Marks Assigned: 15 & 10

Class	Topic/ Unit	No. of class
B.A SEM I (MIL)	Unit :1 : ADHUNIK YUG	15
	Unit : 2 : EKEI KI BALE SABHYATA	10

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2019-2020
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – GE-1

Class: Semester- I (CBCS)

Name of the Paper :- BYABOHARIK GYAN O PROYOGER SAHITYA

Units Assigned : 2 & 4

Marks Assigned: 20 & 20

Class	Topic/ Unit	No. of class
B.A SEM I (GE -1)	Unit :2 : ANUBAD PROYOG O PADDHATI	15
	Unit : 4 : ASOMER SHILPO UDYOG BISHAYAK SAHITYA	15

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2019-2020
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- II (NCBCS)

Name of the Paper :- BANGLA SAHITYA

Units Assigned : 2 & 4

Marks Assigned: 25 & 15

Class	Topic/ Unit	No. of class
B.A SEM II (MIL)	Unit :1 : EKSHSO SHERA GALPO	25
	Unit : 2: FERARI FAUZ	15

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2019-2020
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- III (NCBCS) COMMERCE

Name of the Paper :- BANGLA BANIJYIK SAHITYA PARICHAY

Units Assigned : 1,3 & 5

Marks Assigned: 20 , 15 &10

Class	Topic/ Unit	No. of class
B.COM SEM III (MIL)	Unit :1 : EKSHSO SHERA GALPO	15
	Unit :3: COMMERCIAL TERMS	10
	Unit :5: PRABANDHA LIKHAN	10

DIGBOI COLLEGE, DIGBOI
Department of Bengali
Session : 2019-2020
Course Plan

Name of the Teacher:- Dipesh Mandal

Course – MIL

Class: Semester- IV (NCBCS)

Name of the Paper :- BANGLA BHASHA O SAHIYO

Units Assigned : 1&3

Marks Assigned: 20 &10

Class	Topic/ Unit	No. of class
B.A. SEM IV (MIL)	Unit :1 : BIBIDHA PRABANDHA	15
	Unit :3: PATRA LIKHAN	10

COURSE PLAN

2019-20

**DEPARTMENT OF BOTANY,
DIGBOI COLLEGE**

Name of Teacher: Dulumoni Das

Course Plan; June 2019 to July 2020

Semester: 1st Semester (Honours)

Name of Paper: BC102T; Biomolecules and Cell Biology

Units Assigned: 3 (unit 1, 2,3)

Marks Assigned: 27

Class	Topic/Unit	Remarks
20	Unit 1: Biomolecules Types and significance of chemical bonds; structure and properties of water, pH and buffers Carbohydrates: nomenclature and classification; monosaccharides; disaccharides; oligosaccharides and polysaccharides. Lipids: Definition and major classes of storage and structural lipids; fatty acids structure and functions; essential fatty acids, triacyl glycerols structure, functions and properties, phosphoglycerides. Proteins: structure of amino acids; levels of protein structure- Primary, secondary, tertiary and quaternary; protein denaturation and biological roles of proteins. Nucleic acids: structure of nitrogenous bases; structure and function of nucleotides, types of nucleic acids, structure of A,B,Z types of DNA; types of RNA; structure of tRNA.	
4	Unit 2: Bioenergetics Laws of thermodynamics, concept of free energy, endergonic and exergonic reactions, coupled reactions, redox reactions, ATP structure, its role as a energy currency molecule.	
6	Unit 3: Enzymes Structure of enzymes, holoenzymes, apoenzymes, cofactors, coenzymes and prosthetic group. Classification of enzymes; features of active site, substrate specificity, mechanism of action (activation energy, lock and key hypothesis, induced-fit theory), Michaelis – Menten equation, enzyme inhibition and factors affecting enzyme activity.	

Semester: 1st Semester (Generic)

Name of Paper: BG101T; Biodiversity

Units Assigned: 2 (Unit 6,7)

Marks Assigned: 15

Class	Topics/Unit	Remarks
10	Unit 6: Bryophytes General characteristics, adaptations to land habit, classification, range of thallus organization. Classification (up to family), morphology, anatomy and reproduction of Marchantia and Funaria. Ecological and economic	Seminar presentation on "Sporophytes of Marchantia and Funaria".

	importance of bryophytes with special mention of Sphagnum.	
8	Unit 7: Pteridophytes General characteristics, classification, Early land plants (Cooksonia and Rhynia). Classification (up to family), morphology, anatomy and reproduction of Selaginella, Equisetum and Pteris. Heterospory and seed habit, stelar evolution. Ecological and economical importance of Pteridophytes.	

Semester: 3rd Semester (Major)

Name of Paper: BOTMT-301; Pteridophytes, Gymnosperms and Palaeobotany

Units Assigned: 5 (Pteridophytes: Unit-1,2,3 and Palaeobotany: Unit- 1 and 2)

Marks Assigned: 40

Class	Topic/Unit	Remarks
4	Pteridophytes Unit 1: General classification, organization and affinities, distribution in India and economic importance.	
4	Unit 2: Stelar organization in Pteridophytes; evolution of sporophytes and sporophylls in Pteridophytes; Homospory and heterospory and its importance in evolution of seed habit.	Seminar presentation on “Stelar evolution in Pteridophytes”.
12	Unit 3: Comparative study of morphology and life history of Psilotum, Lycopodium, Selaginella, Equisetum and Marsilea.	Home assignment on “A comparative account on spore bearing organ of Selaginella and Lycopodium”.
3	Palaeobotany Unit 1: An elementary knowledge of palaeobotany – process and theory of fossilization, geological periods and importance of palaeobotany.	
6	Unit 2: General accounts of anatomy and reproduction of the following types: A. Pteridophytes: Rhynia, Hornea, Psilophyton, Sphenophyllum. B. Gymnosperms: Cycadofilicales (Lyginopteris), Bennettitales (Williamsonia) and Cordaitales (Cordaite)	

Semester: 3rd Semester (General)

Name of Paper: Morphology, taxonomy, development and reproduction of angiosperms.

Units Assigned: 1 (Unit 3)

Marks Assigned:15

Class	Topic/Unit	Remarks
15	Unit 3: Magnoliaceae, Brassicaceae, Malvaceae, Fabaceae, Rosaceae, Apiaceae, Lamiaceae, Euphorbiaceae, Orchidaceae, Musaceae, Liliaceae, Arecaceae and Poaceae.	

Semester: 5th Semester (Major)

Name of Paper: BOTMT 505; Functional and chemical biology

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
10	Unit 1: Concept of biomolecules, polymeric substances in plants- a brief study of polysaccharides, lipids, proteins, nucleic acids, chlorophylls with special reference to their functions	Seminar presentation on "Biomolecules: Polysaccharide – its types and significance".
3	Unit 2: Metabolic concept – anabolism and catabolism	
10	Unit 3: Secondary plant products- Terpenoids, phenols, flavonoids, anthocyanins, alkaloids, non-protein amino acids	
10	Unit 4: General account of – plant hormones and their role (Auxins, gibberellins, cytokinins, florigen, abscisic acid), phytochrome and storage products.	
3	Unit 5: Mechanism of source sink relationship	

Semester: 5th Semester (General)

Name of Paper: BOTGT 501; Cytogenetics, evolution and biostatistics

Units Assigned: 3 (unit 2,3 and 4).

Marks Assigned: 30

Class	Topic/Unit	Remarks
15	Cytogenetics Unit 2: Concept of ploidy and its application, Mendel's laws, linkage, crossing over and chromosome mapping, concept of gene, allele and mutation.	
8	Unit 3: Knowledge of non-chromosomal inheritance, concept of genetic engineering and crop improvement.	
4	Unit 4: Concept of protoplast, cell and organ culture, tissue culture techniques and its application and somatic hybridization.	

Semester: 2nd Semester (Honours)

Name of Paper: Archegoniate

Units Assigned: 2 (Unit 4 and 5)

Marks Assigned: 15

Class	Topic/Unit	Remarks
6	Unit 4: Pteridophytes	

	General characteristics, classification; early land plants (Psilophyton and Rhynia).	
14	Unit 5: Type studies – Pteridophytes Classification (up to family). Morphology, anatomy and reproduction of Psilotum, Selaginella, Equisetum and Ophioglossum, Marselia. Apospory and apogamy, heterospory and seed habit, telome theory, stelar evolution, Ecological and economic importance.	Seminar presentation on “Sporophytes of Homosporous and heterosporous ferns”.

Semester: 2nd Semester (Generic)

Name of Paper: Plant physiology and metabolism

Units Assigned: 2 (Unit 8 and 9)

Marks Assigned: 15

Class	Topic/Unit	Remarks
6	Unit 8: Plant growth regulators Discovery and physiological roles of auxins, gibberellins, cytokinins, ABA, ethylene.	
6	Unit 9: Plant response to light and temperature Photoperiodism (SDP, LDP, Day neutral plants); phytochrome (discovery and structure), red and far red light response on photomorphogenesis; Vernalization.	

Semester: 4th Semester (Major)

Name of Paper: BOTMT- 401; Morphology and Taxonomy of Angiosperms

Units Assigned: Whole Paper

Marks Assigned: 60

Class	Topic/Unit	Remarks
12	Morphology of Angiosperms Unit 1: Detail study of morphological characters: i) Carpel polymorphisim ii) Origin of angiosperms iii) Evolution of inflorescence iv) Role of morphology in the classification of the flowering plants.	
8	Taxonomy of Angiosperms Unit 1: History of plant classification, its aims and objectives, outlines of the main classification (systems of classification)- Artificial, Natural, Phylogenetic and Modern with special reference to Lonnæus, Benth and Hooker, Engler and Prantl, Hutchinson and Takhtajan’s classification.	
8	Unit 2: Generic name, specific epithets, citation and authority, binomial nomenclature, taxonomic keys; typification and priority; importance of herbarium specimens and their preparations; role of herbaria and botanical gardens; documentation (floras, monographs, manuals, journals, abstracts, indices and dictionaries).	Seminar presentation on “Binomial nomenclature and its rules”.
5	Unit 3: Details on cytotaxonomy, Chemotaxonomy,	

	Numerical taxonomy and Biosystematics.	
22	Unit 4: A detailed knowledge of the following families and their phylogenetic affinities and economically important plants: Dicotyledons: Magnoliaceae, Malvaceae, Rubiaceae, Fabaceae, Rosaceae, Solanaceae, Cucurbitaceae, Apiaceae, Asteraceae, Lamiaceae, Theaceae, Apocynaceae and Euphorbiaceae. Monocotyledons: Orchidaceae, Musaceae, Zingiberaceae, Arecaceae, Poaceae, Commelinaceae and Cyperaceae.	

Semester: 4th Semester (General)

Name of Paper: BOTGT- 401; Physiology and Economic Botany

Units Assigned: 1 (Unit 1: a - g)

Marks Assigned: 20

Class	Topic/Unit	Remarks
14	Economic Botany Unit 1: A general knowledge of the following economically important plants with reference to their local names, scientific names and parts used. <ol style="list-style-type: none"> Cereals: Rice, wheat and maize Pulses: Pea and Soyabean Oil seeds: Mustard, Ground Nut, Coconut and Sunflower. Fibre yielding plants: Jute, cotton, ramie. Medicinal plants: Rauvolfia, Swertia, Ocimum and Neem. Timber yielding plants: Sal, Sissoo, Teak and Holokh Non-alcoholic beverages: Tea and Coffee. 	Home assignment on "Timber yielding plants".

Semester: 6th Semester (Major)

Name of Paper: Biophysics and Bioinformatics

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
3	Biophysics Unit 1: Scope and development of biophysics. pH and buffer solution in details.	
4	Unit 2: Laws of thermodynamics, concept of free energy, redox potential and bioenergetics (only high energy compound).	
8	Unit 3: X-ray crystallography (XRD), Chromatography, laser and its biological applications. Florescence and its application, basic concept of NMR and ultra sound.	
3	Unit 4: Isotopes, types, their importance in biological studies, measure of radioactivity.	

4	Bioinformatics Unit 1: Fundamentals of bioinformatics: introduction, history and scope of bioinformatics, sources of information, internet, world wide web and web browsers.	
6	Unit 2: Biological database: introduction, basic concepts of primary and secondary databases; nucleic acid and protein sequence database (NCBI, genbank and SWISS-PROT); data mining and data mining tools (ENTREZ).	
8	Unit 3: Database search and sequence alignment, tools of sequence alignment – FASTA and BLAST; methods of sequence alignment.	Seminar presentation on “Sequence alignment – Dynamic programming”.
5	Unit 4: Phylogenetic analysis: basic concept, steps in evaluation of phylogeny and constructing phylogenetic trees.	

Semester: 6th Semester (General)

Name of Paper: BOTGT 601; Biochemistry, plant ecology and plant geography

Units Assigned: 2 (Unit 1 and 2)

Marks Assigned: 16

Class	Topic/Unit	Remarks
8	Biochemistry Unit 1: Basic principles of biochemistry, acid, base, pH and buffer (inorganic and organic) enzymes, (physiological properties), vitamins and coenzymes and their importance.	
12	Unit 2: General account of carbohydrates, fats, proteins, nucleic acids and their importance.	

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Course Plan:- 2019-20

Name of the Teacher- Dulu Moni Das

Department: Botany

Course –Honours/Generic:Honours

Class/Semester- 1st semester (H)

Paper code:-BC101T

Name of the Paper- Microbiology & Phycology

Units Assigned- 1, 2, 3, 4

Marks Assigned- 33

Class	Topic/ Unit	Remarks
1.	Introduction to virus & discovery of virus.	Explanations
2.	Physiochemical & biological Character of virus.	Explanations
3.	Classification of virus.	Explanations
4.	Replication in virus, Lytic cycle.	Explanations
5.	Lysogenic cycle & TMV.	Explanations
6.	Viroids & Prions.	Explanations
7.	Economic importance of virus with reference to vaccine production.	Notes
8.	Role of virus in research & medicine diseases diagnosis.	Notes
9.	Discovery of bacteria & history of bacteriology.	Explanations
10.	Classification of bacteria.	Explanations
11.	Cell structure & Cell wall of bacteria.	Explanations
12.	Nutrition & growth of bacteria.	Explanations
13.	Economic importance of bacteria with reference to role in agriculture.	Notes
14.	Economic importance of bacteria with reference to role in industry medicine.	Notes
15.	General characters, ecology & distribution of Algae.	Explanations
16.	Cell structure of Algae.	Explanations
17.	Pigmentation, reserved food material & flagellation in algae.	Explanations
18.	Range of thallus structure in Algae.	Notes
19.	Classification in Algae.	Explanations
20.	Classification in Algae.	Explanations
21.	Classification in Algae.	Explanations
22.	Role of Algae in environment.	Notes
23.	Role of Algae in agriculture.	Notes
24.	Role of Algae in biotechnology.	Notes
25.	Role of Algae in industry.	Notes

Course –Honours / Generic – Honours

Class/Semester- 1st semester (H)

Paper Code: BC101P.

Name of the Paper- Microbiology & Phycology

Units Assigned- Practical

Marks Assigned- 24

Class	Topic/ Unit	Remarks
1.	Study about Photograph of T- Phage virus & TMV.	Practical
2.	Line drawing of Lytic & Lysogenic cycle.	Practical
3.	Study about Permanent slides of binary fission, endospore & conjugation in bacteria.	Practical
4.	Study about nodule bacteria by gram stain method.	Practical
5.	Study about nodule bacteria by gram stain method.	Practical

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Course Plan

Name of the Teacher- Dulu Moni

Course –Honours / Generic – Generic

Class/Semester- 1st semester (G)

Paper code:-BNC101T

Name of the Paper- Biodiversity

Units Assigned- 1, 3.

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	History, General account on virus.	Explanations
2.	Living & non living characters of virus.	Notes
3.	Replication of virus.	Explanations
4.	Lytic & Lysogenic cycle in virus.	Explanations
5.	Discovery, history and general account on Bacteria.	Explanations
6.	Reproduction in bacteria.	Explanations
7.	Vegetative & asexual reproduction in bacteria.	Explanations
8.	Sexual reproduction in bacteria.	Explanations
9.	Economic importance of bacteria.	Explanations
10.	General characters on fungi.	Explanations
11.	Ecology & significance of fungi.	Explanations
12.	Range of thallus organization in fungi.	Explanations
13.	Cell structure of fungi.	Explanations
14.	Nutrition in fungi.	Explanations
15.	Classification in fungi.	Explanations
16.	Vegetative & asexual reproduction in fungi.	Explanations
17.	Sexual reproduction in fungi	Explanations
18.	General account on Zygomycetes, Life history of <i>Rhizopus</i> sp.	Notes
19.	General account on Ascomycetes	Explanations
20.	Life cycle of <i>Penicillium</i> sp.	Explanations
21.	General account on Basidiomycetes	Explanations
22.	Life history of <i>Puccinia</i> sp.	Explanations
23.	Life history of <i>Agaricus</i> sp.	Explanations
24.	General account on Lichen.	Notes
25.	General account on Mycorrhiza.	Notes
26.	Economic importance of Mycorrhiza.	Notes

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Course Plan

Name of the Teacher- Dulu Moni

Course –Honours / Generic – Generic

Class/Semester- 1st semester (G).

Paper code:- BNC101P.

Name of the Paper- Biodiversity

Units Assigned- Practical

Marks Assigned- 12

Class	Topic/ Unit	Remarks
1.	Study about Photograph of T- Phage virus & TMV.	Practical
2.	Line drawing of Lytic & Lysogenic cycle.	Practical
3.	Study about Permanent slides of binary fission, endospore & conjugation in bacteria.	Practical
4	Study about nodule bacteria by gram stain method.	Practical
5	Study about nodule bacteria by gram stain method.	Practical
6	Study about fungi	4 Specimen

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Name of the Teacher- Dulu Moni

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Course Plan

Name of the Teacher- Dulu Moni

Course –Honours / Generic – Honours

Class/Semester- 2nd semester (H)

Paper code:-203 T

Name of the Paper- Mycology & Phytopathology

Units Assigned- 1, 2, 3, 4, 5, 6.

Marks Assigned- 53

Class	Topic/ Unit	Remarks
1.	General Characters of fungi & affinity with plants & animals.	Explanations
2.	Thallus organization & cell wall composition of fungi.	Notes
3.	Nutrition & Classification of fungi.	Explanations
4.	General characters of Chytridiomycetes	Explanations
5.	Zygomycetes, reproduction & life cycle of <i>Rhizopus</i> sp.	Explanations
6.	Ascomycetes , life cycle of <i>Saccharomycetes</i> sp.	Explanations
7.	Life cycle of <i>Aspergillus</i> sp., <i>Penicillium</i> sp.	Explanations
8.	Life cycle of <i>Neurospora</i> sp. & <i>Peziza</i> sp.	Explanations
9.	General character of Basidiomycetes.	Explanations
10.	Life cycle of <i>Puccinia</i> sp.	Explanations
11.	Life cycle of <i>Ustilago</i> sp.	Explanations
12.	Life cycle of <i>Agaricus</i> .	Explanations
13.	Bioluminescence & Mushroom Cultivation.	Notes
14.	General characters of Oomycetes	Explanations
15.	Life cycle of <i>Phytophthora</i> sp.	Explanations
16.	Life cycle of <i>Albugo</i> sp.	Explanations
17.	General account & classification of Mycorrhiza.	Explanations
18.	Mycorrhiza; use & economic importance	Notes
19.	General account & classification of Lichen	Explanations
20.	economic importance of Lichen	Notes
21.	Applied mycology.	Explanations
22.	Applied mycology	Explanations
23.	Introduction & terms used in phytopathology	Explanations
24.	Host parasite interaction.	Notes
25.	Methods to control plant diseases.	Notes
26.	Viral diseases of plants	Explanations
27.	Bacterial diseases of plants	Explanations
28.	Fungal diseases of plants	Explanations
29.	Fungal diseases of plants	Explanations
30.	Fungal diseases of plants	Explanations

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Name of the Teacher- Dulu Moni

Course –Honours / Generic:– Honours

Class/Semester:- 2nd semester (H).

Paper code:-203 T

Name of the Paper- Mycology & Phytopathology

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/Unit	Remarks
1.	Practical on Fungi.	5 Specimens
2.	Lichen morphology	3 Specimens
3.	Phytopathology	5 Specimens

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Name of the Teacher- Dulu Moni

Course –Honours / Generic – Generic

Class/Semester- 2nd semester (G)

Paper code:-BNC202T

Name of the Paper- Plant Physiology & Metabolism

Units Assigned- 1, 2, 5.

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Water in relation to plant.	Explanations
2.	Water potential & its components.	Explanations
3.	Transpiration.	Explanations
4.	Signification of Transpiration.	Notes
5.	Root pressure & Guttation.	Explanations
6.	Factors affecting transpiration.	Explanations
7.	Mineral nutrition.	Explanations
8.	Macro & micro elements.	Explanations
9.	Role of essential elements.	Explanations
10.	Transport of ions across cell membrane.	Explanations
11.	Active & Passive transport.	Explanations
12.	Carrier molecules, channels & pumps.	Explanations
13.	Respiration, Glycolysis .	Explanations
14.	Anaerobic respiration.	Explanations
15.	TCA cycle.	Explanations
16.	Oxidative phosphorylation	Explanations
17.	Pentose Phosphate Pathway	Explanations

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Course Plan

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Course –Honours / Generic – Generic

Paper code:- BNC202P Name of the Paper- Plant Physiology & Metabolism

Units Assigned- Practical

Marks Assigned- 12

Class	Topic/ Unit	Remarks
1.	Experiment on Plasmolysis	Practical
2.	Demonstration on Hill reaction	Practical
3.	Experiment on CO ₂ evolution during photosynthesis	Practical
4	Compare in rate of respiration in different plants	Practical

Course – Major/ General:-Major

Paper Code:-302

Class/Semester- 3rd semester (M)

Name of the Paper- Microbiology & Biotechnology (Theory)

Units Assigned- 1, 2, 3, 4, 5

Marks Assigned-: 32+8=40

Class	Topic/ Unit	Remarks
1.	History of Microbiology	Explanations
2.	Life & work of some notable Microbiologists	Notes
3.	Classification of Microorganism	Explanation
4.	Brief Knowledge about Cyanobacteria	Explanation
5.	Brief Knowledge about Virus	Explanation, Oral Assessment
6.	Brief Knowledge about Bacteriophage	Explanation Oral Assessment
7.	Brief Knowledge about Mycoplasma	Explanation Oral Assessment
8.	Principles of cultivation of Microorganisms	Notes
9.	Pure Culture Concept	Notes
10.	General Ecology of Soil Microorganism	Explanation
11.	Mycorrhiza	Explanation
12.	Bacteriorrhiza	Explanation
13.	Microbiology of Food and milk	Explanation & Notes
14.	Microbiology of water	Explanation & Notes
15.	Medical microbiology	Explanation

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Name of the Teacher- Dulu Moni

16.	Microbes related to Plant diseases	Explanation, & Notes
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Course – Major/ General:-Major

Paper Code:- 302

Class/Semester- 3rd semester (M)

Name of the Paper- Microbiology (Practical)

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	Instruments used in Microbiology	Demonstration
2.	Culture Media preparation	Practical
3.	Serial dilution technique	Practical
4.	Pure Culture Technique	Practical
5.	Gram Staining method of bacteria	Practical
6.	Study about Curd bacteria	Practical
7.	Study about nodule bacteria	Practical

Course – Major/ General:-General

Paper Code:-301

Class/Semester- 3rd semester (G)

Name of the Paper- Morphology, Taxonomy and Reproduction of Angiosperm (Theory)

Units Assigned- 1 & 2

Marks Assigned- 12+3=15

Class	Topic/ Unit	Remarks
1.	Principals of Classification of Angiosperms	Explanations
2.	Linnaeus System of Classification	Explanations & Notes
3.	Bentham & Hooker's System of Classification	Explanations & Notes
4.	Engler & Prantal's System of Classification	Explanations & Notes
5.	Binomial Nomenclature	Explanation, Oral Assessment
6.	Identification & Classifications rules & norms	Explanation
7.	Morphological detail of Stem & Leaf	Explanation
8.	Morphological detail of Flower	Explanation
9.	Concept on Floral formula	Explanation, Oral Assessment
10.	Concept on Floral diagram	Explanation Oral

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Name of the Teacher- Dulu Moni

	Assessment
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Course – Major/ General:- Major

Paper Code:-403

Class/Semester- 4th semester (M)

Name of the Paper- Cell Biology & Modern Laboratory Technique (Theory)

Units Assigned- 1

Marks Assigned- 16+4=20

Class	Topic/ Unit	Remarks
1.	Concept on Microscopy	Explanations, Oral Assessment
2.	Types of Microscopes, Working principals & Use	Explanations
3.	Separation techniques of Biomolecules	Explanation
4.	Chromatography types,	Explanation
5.	Centrifugation & Gel filtration	Explanation
6.	Spectrophotometry	Explanation
7.	Colorimetry	Explanation
8.	pH meter, BOD incubator, Autoclave, LAF Chamber, Hot Air Oven	Explanation
9.	Knowledge & Application of Computer in Biological science	Notes

Course – Major/ General:-Major

Paper Code:-404

Class/Semester- 4th semester (M)

Name of the Paper- Cell Biology & Modern Laboratory Technique (Practical)

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1.	Description of Instruments used in Biological Science	Demonstration
2.	Separation of Chlorophyll by Paper Chromatography	Practical
3.	Separation of amino acids by Paper Chromatography	Practical

Course – Major/ General:- Major

Paper Code:-401

Class/Semester- 4th semester (G)

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Course Plan

Name of the Teacher- Dulu Moni

Name of the Paper- Plant Physiology & Economic Botany (Theory)

Units Assigned- 1, 2, 3, 4, 5, 6

Marks Assigned-: 32+8=40

Class	Topic/ Unit	Remarks
1.	Water relation to Plant, Diffusion, Osmosis & imbibitions.	Explanations, Oral Assessment
2.	Absorption of Water	Explanation & Notes
3.	Ascent of Sap	Explanation & Notes
4.	Transpiration	Explanation & Notes
5.	Mineral nutrition	Explanation & Notes
6.	Translocation of Solute	Explanation
7.	Photosynthesis	Explanation, Oral Assessment
8.	Photosynthesis	Explanation
9.	Photosynthesis	Notes
10	Respiration in Plants	Explanation
11	Respiration in Plants	Notes
12	Phytohormones	Explanation & Notes
13	Phytohormones	Explanation & Notes
14	Physiology of Flowering	Explanation
15	Physiology of Flowering	Notes
16	Plant movement	Explanation
17	Plant movement	Notes

Paper Code:-402

Class/Semester- 4th semester (G)

Name of the Paper- Plant Physiology & Economic Botany (Theory)

Marks Assigned- 20=4=24

Class	Topic/ Unit	Remarks
1.	Experiment on Imbibitions	Practical
2.	Experiment on Plasmolysis	Practical
3.	Experiment on Transpiration	Practical
4.	Experiment on Transpiration	Practical
5.	Experiment on Photosynthesis	Practical
6.	Experiment on Photosynthesis	Demonstration

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Course Plan

Name of the Teacher- Dulu Moni

Class/Semester- 5th semester (M)

Paper code:-506

Name of the Paper- Ecology & phytogeography

Units Assigned- 1, 2, 3, 4, 5

Marks Assigned- 48

Class s	Topic/ Unit	Remarks
1.	Basic concept & introduction to ecology	Explanations
2.	Biotic & abiotic factors & interactions	Explanations
3.	Components of ecosystem	Explanations
4.	Pedology, Physical, chemical & biological structure of soil.	Explanations
5.	Soil profile	Explanations
6.	Role of soil in development of vegetation.	Explanations
7.	Water quality & characters.	Explanations
8.	Hydrological cycle	Explanations
9.	Water in development of vegetation & climate.	Explanations
10.	Light & temperature in development of vegetation	Explanations
11.	Fire in development of vegetation	Explanations
12.	Biotic interaction	Explanations
13.	Biotic interaction	Explanations
14.	Biotic interaction	Explanations
15.	Plant community	Explanations
16.	Synthetic characters of Plant community	Explanations
17.	Analytical characters of Plant community	Explanations
18.	Plant Succession	Explanations
19.	Plant Succession	Explanations
20.	Plant Succession	Explanations
21.	Biogeochemical cycle	Notes
22.	Biogeochemical cycle	Notes
23.	Biogeochemical cycle	Notes
24.	Adaptation in Hydrophytes	Explanations
25.	Adaptation in Xerophytes	Explanations
26.	Adaptation in Epiphytes & Halophytes	Explanations
27.	Ecosystem	Explanations
28.	Structure of Ecosystem	Explanations
29.	Function of Ecosystem	Explanations
30.	Energy flow in Ecosystem	Explanations
31.	Habitat degradation	Explanations
32.	Ecological issues & problems.	Explanations
33.	Global ecological problems.	Explanations
34.	Concept on EIA	Explanations
35.	Conservation Biology, Ex situ & in situ conservation.	Explanations
36.	WWC, IUCN, NBWL, NBA	Explanations
37.	Concept on Biodiversity.	Explanations
38.	Flagship, Keystone & Endemic Species	Explanations
39.	Introduction to biodiversity.	Explanations
40.	Importance & conservation of biodiversity	Explanations

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41	Introduction to Phytogeography, Static & Dynamic Phytogeography	Explanations
42	Phytogeographical regions of the world	PPT
43	Phytogeographical regions of India	PPT
44	Theories to explain distribution of Plants	Notes
45	Origin of Life	Explanations
46	Chemical origin of Life	Explanations
47	Theories of organic Evolution	Explanations
48	Theories of organic Evolution	Explanations
49	Theories of organic Evolution	Explanations

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Name of the Teacher- Dulu Moni

Course :- Honors/ Generic Major

Class/Semester- 5th semester (M)

Paper code:-507

Name of the Paper- Ecology & phytogeography

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Instruments used in Plant ecology.	
2.	Practical related to plant ecology.	5 practicals
3.	Practical related to ecological adaptation.	4 Specimens
4.	Practical related to phytogeography.	Model submission

Course:-Honors/Generic –Generic

Class/Semester- 5th semester (G)

Paper code:-501

Name of the Paper- Cytogenetics, Evolution & Biostatistics

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Origin of Life	Explanations
2.	Chemical origin of Life	Explanations
3.	Theories of organic Evolution	Explanations
4.	Theories of organic Evolution	Explanations
5	Theories of organic Evolution	Explanations

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Course Plan

Name of the Teacher- Dulu Moni

Course –Honours/ Generic:- Generic

Class/Semester- 5th semester (G)

Paper code:-502

Name of the Paper- Cytogenetics, Evolution & Biostatistics

Class	Topic/ Unit	Remarks
1	Study about plant fossil	Demonstration
2.	Study about plant fossil	Demonstration

Course –Honours / Generic –Major

Class/Semester- 6th semester (M)

Paper code:- 606 Name of the Paper- Agrotechnology & Sustainable utilization of Plants.

Units Assigned- 1, 2, 3, 4, 5, 6.

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Centre of origin, Vavilov's concept.	Explanations
2.	Ethnobotany and its importance in Indian context.	Explanations
3.	Indigenous Knowledge System.	Explanations
4.	Agrotechnology & economic importance of cereals.	Notes
5.	Agrotechnology & economic importance of oil yielding plants.	Notes
6.	Agrotechnology & economic importance of Pulses.	Notes
7.	Agrotechnology & economic importance of beverages.	Notes
8.	Agrotechnology & economic importance of Vegetables.	Notes
9.	Agrotechnology & economic importance of Spices & condiments.	Notes
10.	Agrotechnology & economic importance of Spices & condiments.	Notes
11.	Agrotechnology & economic importance of timber yielding plants.	Notes
12.	Agrotechnology & economic importance of Aromatic & petrocrops.	Notes
13.	Agrotechnology & economic importance of Aromatic & petrocrops	Notes
14.	Domestication of Plants.	Explanations
15.	Germplasm & gene bank	Explanations
16.	Biofertilizer & biopesticides.	Explanations
17.	Organic farming.	Explanations
18.	Use of lower group of Plants.	Explanations
19.	Use of lower group of Plants.	Explanations

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Course Plan

Name of the Teacher- Dulu Moni

Course –Honours / Generic –Major

Class/Semester- 5th semester (M)

Paper code:-607

Name of Paper- Agrotechnology & Sustainable utilization of Plants.

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Determination of pH of soil.	Practical
2.	Determination of WHC of soil.	Practical
3.	Determination of soil moisture.	Practical
4.	Determination of protein, fat & starch content of plant sample.	Practical
5.	Study of botanical character of useful plants.	15 nos.

Course –Honours / Generic –Major

Class/ Semester- 6th semester (M)

Paper code:-601

Name of the Paper- Ecology & phytogeography

Units Assigned- 1, 2, 3, 4, 5, 6

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Basic concept & introduction to ecology	Explanations
2.	Biotic & abiotic factors & interactions	Explanations
3.	Structure of Ecosystem	Explanations
4.	Function of Ecosystem	Explanations
5.	Succession in plants	Explanations
6.	Adaptation in plants	Explanations
7.	Pollution of air, water & soil	Explanations
8.	Green house effect	Explanations

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9.	Ozone layer depletion	Explanations
10.	Deforestation, its cause & effects	Explanations
11.	Natural resource management	Explanations
12.	IUCN red list category	Explanations
13.	WWC, IUCN, NBWL, NBA	Explanations
14.	Concept on Biodiversity	Explanations
15.	Conservation Biology, Ex situ & in situ conservation	Explanations

Course –Honours / Generic –General

Class/Semester- 6th semester (M) Paper code:-602 Name of

the Paper- Ecology & phytogeography

Units Assigned- Practical

Marks Assigned- 32

Class	Topic/ Unit	Remarks
1	Instruments used in Plant ecology.	Demonstration
2.	Practical related to plant ecology.	2practicals

Course plan August to Dec.2019

Course: Honours

Class:1st Semester

Name of paper:

Units Assigned:

Marks assigned:

Class	Unit/Course	
1 st Sem.Honours	Unit4: The cell, Cell wall and plasma membrane Cell as a unit of structure and function; Cell theory and its exception; Characteristics of prokaryotic and eukaryotic cells; Origin of eukaryotic cell (End symbiotic theory); Chromosome (types, structure and function). Chemistry, structure and function of Plant	

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Name of the Teacher:

cell wall. Overview of membrane function; Fluid mosaic model; Chemical composition of membranes; Membrane transport – Passive, active and facilitated transport, endocytosis and exocytosis.

Unit 5: Cell organelles

Nucleus: Structure-nuclear envelope, nuclear pore complex, nuclear lamina, molecular organization of chromatin; nucleolus.

Cytoskeleton: Role and structure of microtubules, microfilaments and intermediary filament.

Chloroplast, mitochondria and peroxisomes: Structural organization; Function; Semiautonomous nature of mitochondria and chloroplast.

Endomembrane system: Endoplasmic Reticulum – Structure, targeting and insertion of proteins in the ER, protein folding, processing; Smooth ER and lipid synthesis, export of proteins and lipids; Golgi Apparatus – organization, protein glycosylation, protein sorting and export from Golgi Apparatus; Lysosomes

Unit 6: Cell division

Phases of eukaryotic cell cycle, mitosis and meiosis; Regulation of cell cycle-checkpoints, role of protein kinases.

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Class: 1st Semester

Name of the Teacher- Dulu Moni

Name of the paper: Generic elective-101

Units Assigned: Unit 2&4

Marks Assigned:10

Class	Unit/Course	
1 st Sem(GE)	Unit 2: Algae (10 lectures) General characteristics; Ecology and distribution; Range of thallus organization and reproduction; Classification of algae; Morphology and life-cycles of the following: <i>Nostoc</i> , <i>Chlamydomonas</i> , <i>Oedogonium</i> , <i>Vaucheria</i> , <i>Fucus</i> , <i>Polysiphonia</i> . Economic importance of algae. Unit 4: Lichen (2 lectures) General account, types and importance	

Class: 3rd Semester Major

Name of Paper: Microbiology and Biotechnology

Unit assigned: Unit-1&2

Marks assigned:10

Class	Unit/Course	Remark
1	Unit-1 Introduction to Biotechnology	Total 9 classes

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2	Scope of Biotechnology	
3	Recent advances in Biotechnology	
4	Application of Biotechnology in agriculture	
5	Application of Biotechnology in Industry	
6	Biofertilizers	
	Unit-2	
7	Genetic Engineering	
8	Scope and applications	
9	Merits and demerits	

Class:3rd Semester General

Name of paper: Morphology, Taxonomy, Development and reproduction of Angiosperms

Unit assigned: 1&2

Marks assigned:

Class	Unit/Course	Remark
	Development and Reproduction	Total 10 classes
	Unit-1	
1	Meristems	
2	Root and Shoot apices	
3	Tissue	
4	Tissue systems	
5	Primary Body	
6	Stelar structure	
	Unit-2	
7	The secondary growth	

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8	Cambium and its Derivatives	
9	Anomalous tissues	
10	Periderm	

Class: 5th Semester Major

Name of Paper: Genetics, Plant breeding and Biostatistics

Unit assigned: Genetics Unit-1,2,3,4,5;Plant Breeding: 1,2;Biostatistics1,2,3

Marks assigned: 60

Class	Unit/Course	Remarks
	Genetics:	Total 38 classes
1	Unit-1	
2	Mendel's Laws	
3	Critical appreciations of Mendel's Laws	
4	Gene interactions	
5	Alleles and multiple alleles	
6	Multiple genes	
	Linkage and crossing over	
7	Unit-2	
8	Sex determinations	
9	Sex linkage	
10	Sex limited traits	
11	Cytoplasmic inheritance	
12	Plastid and kappa particle inheritance	
	Unit-3	
13	Chromosomal mutation and gene mutation	
14	Biochemical Mutations	

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15	Unit-4 Basic concept of gene	
16	Fine structure of gene	
17	Genetic engineering, Gene Cloning	
18	Concept of Trans gene	
	Unit-5	
20	Human genetics	
21	Karyotypes	
22	Genetic disorders	
	Plant Breeding	
	Unit-1	
23	Plant introduction	
24	Selection	
25	Hybridization	
26	Mutation breeding	
	Unit-2	
27	Invitro culture	
28	Techniques	
29	Applications of tissue culture	
	Biostatistics	
	Unit-1	
30	Applications of Biostatistics	
31	Collection, classification of data	
32	Frequency distribution	
	Unit-2	
33	Measure of central tendency	
34	Mean, Median and Mode	

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35	Standard error and standard deviation	
36	Test of significance	
37	Chi square test	
38	Probability test	

Class: 5th Semester General:

Name of paper: Cytogenetics, evolution and Biostatistics

Unit assigned: Cytogenetics Unit-2 & Biostatistics Unit-1

Marks assigned:

Class	Unit/Course	Remarks
	Cytogenetics Unit-2	Total 15 class
1	Concept of polyploidy	
2	Application of polyploidy	
3	Mendel's Laws	
4	Linkage and Crossing over	
5	Chromosome mapping of genes	
6	Allele	
7	Mutation	
	Biostatistics, Unit-1	
8	Importance of Biostatistics	
9	Mean	
10	Median	
11	Mode	
12	Mean deviation	
13	Standard deviation	

DIGBOI COLLEGE.

Course Plan

Name of the Teacher- Dulu Moni

14	Standard error	
15	Test of Significance	

Course plan January to June,2020

Course: Honours

Class:2nd Semester

Name of paper:

Units Assigned:

Marks Assigned:

Class	Unit/Course	Remark
2 nd Sem.Major		

4th Sem. Major

Name of paper: Cell Biology and Modern Laboratory technique

Units Assigned: Unit 4,5

Marks assigned: 8

Class	Unit/Course	Marks
1 2 &4 5&6	Unit- 4: Nucleoproteins nature of genetic material. Unit-5: Cell adhesion,	10 classes needed to complete the course.

DIGBOI COLLEGE.

Course Plan

Name of the Teacher- Dulu Moni

7&8 9&10	Membrane transport, Signal transduction(G-Protein)	
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Class: 4th Sem. General

Name of paper: Physiology and Economic Botany

Unit Assigned: 1

Marks Assigned: 20

Class	Unit/Course	Remarks
1 &2	Unit-1: A general knowledge of the following economically important plants with reference to their local names and plant parts used.	A total of 22 classes
3,4&5	Cereals: Rice, Wheat and Maize	
6,7	Pulses: Pea and Soyabean	
8,9,10	Oil Seeds: Mustard, Ground Nut, Coconut and Sunflower.	
11,12,13,14	Fibre Yielding Plants: Jute, Cotton, Ramie	
15,16,17,18	Medicinal Plants: Rawolfia, Swertia, Ocimum and Neem.	
19,20	Timber yielding Plants: Sal, Sisso, Teak, Holokh	
21,22	Non alcoholic beverages: Tea and Coffee.	

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Course Plan

Name of the Teacher- Dulu Moni

Class: 6th Sem. Major

Name of paper: Molecular Biology and Immunology

Units assigned: Molecular Biology: Unit: 1,2,3,4,5 and Immunology Unit: 1,2,3

Marks Assigned: 60

Class	Unit/Course	Marks
1	Molecular Biology: Unit-1: Nucleic Acids,	27 Classes needed
2	DNA as Genetic material,	
3	structure and functions of DNA	
4	Structure and functions of RNA.	
5	Watson and Crick Model of DNA,	
6	other forms of DNA(A-Z),	
7	Genome organization in prokaryotes	
8	Genome organization in eukaryotes.	
	Unit -2:	
9	Replication of DNA-Prokaryotes and eukaryotes,	
10	Transcriptions in prokaryotes and eukaryotes.	
	Unit-3:	
11	Features of genetic code,	
12	Wobble hypothesis,	

DIGBOI COLLEGE.

Course Plan

Name of the Teacher- Dulu Moni

13	protein biosynthesis in prokaryotes	
14	Protein biosynthesis in eukaryotes .	
	Unit-4:	
15	Recombination in Prokaryotes,	
16	Transformation,	
17	Conjugation and Transduction,	
18	Concept of Transposons and Plasmids.	
	Unit-5:	
19	Regulation of gene expression in prokaryotes-	
20	Operon concept(Lac)	
	Immunology:	
	Unit-1:	
21	Plant health Management	
	Unit-2:	
22	Immunity and resistant in mammals,	
23	principles of antigens and antibodies reaction.	
	Unit-3:	
24	Interaction of plant with bacteria,	
25	Interaction of plants with Virus and Fungi;	
26	breeding for disease resistance,	
27	environment and immunity from infectious diseases in plants.	

DIGBOI COLLEGE.

Course Plan

Class: 6th Sem. General

Name of the Teacher- Dulu Moni

Name of paper: Plant Ecology and Plant Geography

Units assigned: Unit- Plant ecology4

Marks Assigned:

Class	Unit/Course	Marks
	Plant Ecology:	Total-9classes
	Ecology: Unit-4:	
1	Pollution; Air,	
2	Pollution ;Water,	
3	Pollution; Soil,	
4	Global Climate change ;	
5	Green House effect, Ozone Depletion,	
6	Acid Rain,	
7	Deforestation and consequences of Deforestation.	
	Plant Geography	
8	Unit-2: Endemism and endemic flora-	
9	A general account of endemic flora.	

COURSE PLAN

2019-20

DEPARTMENT OF CHEMISTRY

DIGBOI COLLEGE

NAME OF THE TEACHER-MRS. JONALI DUTTA

(June 2019 – Dec 2019)

Name of the Teacher-MRS. JONALI DUTTA

Course –MAJOR

Class/Semester-FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-II &III

Marks Assigned-16

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06 L -4
2	Vapourpressure,surfacetension,	
3	viscosity, parachor-determination and application	
4	Newtonian and nonNewtonian liquid,	
5.	liquid crystals ,discussion	
Unit III – Solids		
1	crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 10 L-5
2	packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introductionto powder and single crystal methods of structureanalysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors, semiconductors and insulators from band theory.	

(June 2019 – Dec 2019)

Name of the Teacher- MRS. JONALI DUTTA

Course – Non MAJOR

Class/Semester- FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-IV & V

Marks Assigned-6 +6

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06
2	Vapour pressure, surface tension, determination	
3	viscosity, parachor-determination and application	
4	Newtonian and non-Newtonian liquid,	
5.	liquid crystals, discussion	
Unit III – Solids		
1	Crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 06
2	packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introduction to powder and single crystal methods of structure analysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors, semiconductors and insulators from band theory.	

NAME OF THE TEACHER:MRS.JONALI DUTTA

CLASS/SEM-FIFTH SEMESTER

PAPER-501 MM (Physical Chemistry)

MARKS ASSIGNED:18

Unit III: System of variable composition		
Class	Topic	Remarks
1	thermodynamics Partial Molar quantities, chemical thermodynamics, chemical	Marks 10
2	Gibbs Duhemequation ,Effect of temperature and pressure,Activity	
3	fugacity, Concept of equilibrium state, derivation of expression of equilibrium constant,	
4	temperature pressure and concentration dependence of equilibrium constant-Van't Hoff equationLe-chetelierprinciple, effect of temperature ,pressure and concentration, examples(qualitative treatment). 6. Question -Answer discussion	
Unit:II Solution		Marks:08
1	Introduction to dilute solutions, vapour pressure, lowering of vapour pressure, Roul't's and Henry's Law	
2	immiscible liquids, Nernst's Distribution law, derivation	
3	Solvent extraction	
4	Colligative properties, definition, examples	
5	Thermodynamic derivation of lowering of	
6	Vapour pressure ,chemical potential	
7	Elevation of boiling point	
8	Depression of freezing point	
9	Osmotic pressure	
10	Question answer discussion and revision	

(June 2019 – Dec2019)

Name of the Teacher- MrsJonali Dutta

Course – Major

Class/Semester- Fifth

Name of the Paper- 507 (QM and Chemical bonding)

Units Assigned- II& III(2018)

Marks :33

Unit – II :Quantum Chemistry		
Class	TOPIC/UNIT	REMARKS
1	Black body radiation – Planck's hypothesis, photoelectric effect, de Broglie hypothesis	MARKS 15
2	Heisenberg's uncertainty principle. Schrodinger Wave Equation	
3	Operators, Postulates of quantum mechanics Normalization of wave functions- expectation values	
4	Interpretation of the wave function – orthogonal and orthonormal wave functions. Schrodinger equation and its application	
5	particle in a box. One dimension, Three dimension	
6	Energy levels, probability distribution functions. Nodal properties, degeneracy	
7	Qualitative treatment of hydrogen atom, Energy levels and quantum numbers	
8	The radial and angular part of wave functions, two dimensional plots of probability density.	
9	Stern Gerlach experiment, electron spin and spin quantum numbers,	
10	Pauli's exclusion principle – Helium Atom	
11	(i) rigid rotator	
12	ii) harmonic oscillator	
13	Revision	
Unit:III:Chemical Bonding		MARKS:08
1	Valence bond and molecular orbital, comparison With examples	
2	LCAO – MO treatment of H ₂	
3	MO Method of H ₂ molecules ion, Valence bond treatment of H ₂	
4	Localized and non localized molecular orbitals of Homonuclear and heteronuclear diatomic molecules	
5	MO diagram of H ₂ , N ₂ , NO, CO, HF, CN	

(June 2019 – Dec2019)

Name of the Teacher- Mrs Jonali Dutta

Course –Non Major

Class/Semester- Fifth Semester

Name of the Paper- 501,PHYSICAL CHEMISTRY

Units Assigned- II& IV

Marks :13

Unit –II Electrochemistry		
class	UNIT/TOPIC	
1	Reversible and irreversible cells, Concept of EMF of a cell.	Marks -6
2	Measurement of EMF of a cell. Nernst equation and its importance.	
3	Types of electrodes. Standard electrode potential and salt bridge	
4	pH determination using hydrogen electrode and quinhydrone electrode	
5	Commercial applications of galvanic cell, dry cell, lead storage battery,	
6	fuel cell	
7	NUMERICALS,DISCUSSION	
Unit IV Photochemistry		
Class	UNIT/TOPIC	REMARKS
1	Adsorption of light, Laws of photochemistry	Marks -5
2	Lambert Beer's law,	
3	Quantum yield, Quantum efficiency,	
4	Fluorescence, phosphorescence	
5	Chemiluminescence, phosphoresensitized reaction	
	UNIT:ICONDUCTANCE (50pc)	
1	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, water,	MARKS:2
2	Solubility and solubility products of sparingly soluble salts, ionic product of	
3	Hydrolysis constant of a salt. Conductmetric titrations (only acid-base).	

JAN 2019 – MAY 2019

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- SECOND semester

Name of the Paper- 201 MM, (PHYSICAL CHEMISTRY)

Units Assigned- II

Marks :12

Unit II – Ionic equilibrium		
Class	Unit/topic	Remarks
1	Strong and weak electrolyte with modern classification of electrolytes (true and potential electrolyte	Marks: 12
2	Factors affecting degree of ionization, ionization constant, ionic product of water,	
3	Degree of ionization, ionization of weak acids and bases, pH scale, common ion effect.	
4	Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis	
5	pH for different salts	
6	Buffer solution, derivation of Henderson equation and its applications	
7	Buffer capacity, buffer range, buffer action.	
8	Solubility and solubility product of sparingly soluble salts	
9	Application of solubility product principle	
10	Selection of indicators and their limitations.	
11	Qualitative treatment of acid-base titration curves. Theory of acids	
12	DISCUSSION&REVISION	

(June 2019 – Dec2019)

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- IV Semester

Name of the Paper- 401 MM(Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 15 + 6

Unit I: Unit III- Electrochemical cells		Marks:15
Class	Name of the Topic	Remarks
1	Quantitative aspects of Faraday's laws of electrolysis	potentials
2	Concept of oxidation/reduction of half cells,	Numericals
3	application of electrolysis in metallurgy and industry, electrolytic and galvanic cells,	
4	standard electrode potential, Nernst Equation types of electrodes-	
5	Hydrogen, calomel, quinhydrone and Glass electrodes	
6	E.M.F of a cell and its measurement, free energy, entropy and enthalpy of cell reactions,	
7	pH determination using hydrogen, SbO/Sb ₂ O ₃ electrode, glass, quinhydrone electrodes,	
8	Concentration cell with and without transference-	
9	liquid junction potential	
10	Potentiometric titration	
11	storage cells- Lead storage cell, mechanism of charging and	
12	fuel cells- hydrogen-oxygen cell	
UNIT:II Conductance		Marks: 6
1	application of conductance measurement: i) degree of dissociation of weak electrolytes	
2	ii) ionic product of water iii) solubility and solubility product of	
3	slightly soluble salts iv) Hydrolysis constant of aniline hydrochloride,	
4	Conductometric(Acid Base and precipitation).	

(June 2019 – Dec2019)

Name of the Teacher- Mrs Jonali Dutta

Course – Non major (Non CBCS)

Class/Semester- IV Semester

Name of the Paper- 401 NM (Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 21

Unit –I : Solution		
Class	Topic/unit	Remarks
1	Types of solutions, concentration units	Marks:8
2	Solution of gases in liquids-Henry's law. Solution of liquids in liquids	
3	Ideal solution-Raoult's law- Non ideal solution.	
4	Distillation of solutions, Lever rule, Azeotropes,	
5	Partial miscibility of liquids. Critical solution temperature.	
6	Immiscibility of liquids TheNernst distribution law and its applications	
7	Principle of steam distillation	
8	Solvent extraction	
9	Solutions of solids in liquids the solubility curves,discussion	
Unit – II Ionic Equilibrium		
1	Ionization,Strong and weak electrolytes, degree of ionization,	8Marks: 8
2	Factors affecting degree of ionization constant and ionic product of water.	
3	Ionization of weak acids and weak bases. pH and its determination	
4	pH scale, common ion effect.	
5	Salt hydrolysis – calculation of hydrolysis constant, degree of hydrolysis	
6	pH for differentsalts.	
7	Solubility and solubility product of sparingly soluble salts-	
8	Applications of solubility product	
9	Buffer solutions	
UNIT-Second law of thermodynamics		
1	Second law of thermodynamics, Spontaneous and Non-Spontaneous processes cyclic process	Marks: 5
2	Carnot cycle,	
3	Entropy, Entropy change in reversible and irreversible processes and for ideal gas,	
4	Concept of work function and free energy	
5	Q/ANS	

(June 2019 – Dec 2019)

Name of the Teacher-Mrs. Jonali Dutta

Course —MAJOR

Class/Semester-VI Semester

Name of the Paper- 601 (M) (Physical Chemistry)

Units Assigned-I&V

Marks :I & V:20

UNIT :1:Photochemistry		
class	TOPIC/UNIT	Remarks
1	Absorption of light,Photochemicalreaction,Laws of photochemistr	
2	Beer lambert's Law,EinsteinLaw,Numericals	
3	Quantum Yield,Determination,Reasons for high and low quantum yield	
4	Photodimerisation,Quenching,Combination of hydrogen and chlorine,H ₂ and Br ₂ Dissociation of HI,photosensitizedreaction,spin multiplicity	
5	Fluorescence and phosphorescence	
6	Chemiluminescence,Bioiluminescence	
7	Photoelectric effect,Photovoltaic cell	
8	Lasers,Numericals	
UNIT: V :Statistical Thermodynamics		
1	Statistical methods,Microand macro states,Ensembles	
2	Relation between entropy and thermodynamic probality,Stirling approximation ,	
3	Boltzman distribution law	
4	Partition Function,Internalenergy,Entropy Heat capacity	
5	M.B.Statistics	
6	Bose –Einstein Statistics	
7	Fermi-Dirac Statistics Thermodynamic functions and molar partition function	
8	Translational Partition function function from particle in one dimensional box	
9	Vibrational Partition Rotational Partition function	

Name of the Teacher-Mrs. Jonali Dutta

Course —Major

Class/Semester-VI Semester

Name of the paper:607(M) (Quantum Chemistry)

UNIT:I,II,III,IV:

Marks:26

UNIT:I&II:General Principle and Microwave Spectroscopy		
CLASS	UNIT/TOPIC	REMARKS
Unit IV Electronic spectroscopy		
Class	Electromagnetic radiation,Different types of spectra,and spectroscopy-An introduction	Marks 8+2=10
1	The Beer – Lambert Law, molar absorption	
2	coefficient MO energy level Marks 8	
3	Selection rules for electronic transitions	
4	Franck-Condon principle,	
5	Solvent effect ,bathochromic andhypsochromic shift.	
6	Chromophores, auxochromes	
7	Vibrational structures	
8	Revision	
9	Microwave spectroscopy,rigid diatomic atomic molecule,	
10	transitions between rotational energy levels,rotational constant	
11	Intensities of spectral lines	
12	Calculation of bond length of diatomic molecule	
13	Isotropic substitution	
14	Numericals and discussion	
UNIT:III:Raman Spectroscopy		
1	Raman Effect,Stokes and antistokes lines	Marks-8
2	Classical and quantum mechanical theories	
3	Polarizability tensor	
4	structure elucidation by Ramanspectroscopy (AB, A2B, and AB3)	
5	stretching frequencies of bonds and functional groups	
6	Q/ANS. DISCUSSION	

NAME OF THE TEACHER- NEELAKSHI HAZARIKA

Course Plan Jun-Dec, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 1st semester, Non-CBCS

Name of the Paper-MM-101, Inorganic Chemistry

Units Assigned- All

Marks assigned- 34

Class	Topic/ Unit	Remarks
1	Section II Inorganic Chemistry	
2	Periodic properties: - Effective nuclear charge (screening constant – Slater's rule only),	
3	Ionic and covalent radii	
4	Ionization potential and periodic variation	
5	Electron affinity and periodic variation	
6	Electro negativity (Pauling-Mulliken's and Allred-Rochow scales).	
7	Bonding and structure: Electrovalent bond, covalent bond	
8	Covalent ionic resonance	
9	Partial ionic character in covalent bonds	
10	lattice energy, bond length	
11	bond angle and bond energy.	
12	Valence Bond Theory for H ₂ molecule	
13	Valence Bond Theory for H ₂ molecular ion	
14	Molecular orbital theory and its application	
15	Drawbacks of Valence Bond Theory	
16	MOT for hydrogen molecule	
17	LCAO and MO diagram of homo diatomic molecules	
18	LCAO and MO diagram of hetero diatomic molecules	
19	VSEPR theory and its applications	
20	VSEPR theory and its applications	

Course Plan Jun-Dec, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – NonMajor

Class/Semester- 1st semester, Non-CBCS

Name of the Paper-NM-101, Section Inorganic Chemistry

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	Atomic Structure: Electronic configuration of elements based upon electronic configuration in the periodic table	
2	Effective nuclear charge,	
3	Ionization energy,	
4	Electron affinity,	
5	Electronegativity,	
6	Redox potential.	
7	Unit II: Chemical Bonding and Molecular Structure: Ionic Bonding: Energy consideration in ionic bonding,	
8	Lattice Energy and Solvation Energy	
9	importance of Lattice energy and Solvation energy in the context of Stability and Solubility of ionic compounds.	
10	Polarizing power and polarizability.	
11	Fajan's rule	
12	dipole moment and percentage ionic character.	
13	Hydrogen Bonding.	
14	Covalent Bonding: VB Approach	
15	Concept of hybridization, sp, sp ² , sp ³ , sp ³ d, sp ³ d ² and dsp ²	
16	VSEPR Theory. Resonance and Resonance energy	
17	Study of some inorganic and organic compounds (O ₃ , NO ₃ ⁻ , CO ₃ ²⁻)	
18	Study of some inorganic and organic compounds(SO ₄ ²⁻ , RCOO ⁻ , C ₆ H ₆).	
19	Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals,	
20	non-bonding combination of orbitals,	
21	MO treatment of homonuclear diatomic molecules	
22	MO treatment of and heteronuclear diatomic molecules such as CO, NO and NO ⁺	

Course Plan Jan-May, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 3rd semester,

Name of the Paper-MM-301, Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	Coordination compounds: Types of ligands: monodentate, bidentate, ambidentate,	
2	Polydentate and macro cyclic ligand.	
3	Nomenclature of complex compounds, Isomerism in 4- and 6-coordinate compounds	
4	Inner complex and chelates.	
5	Effective atomic number rule	
6	Valence Bond Theory	
7	Application of Valence Bond Theory in tetrahedral complexes	
8	Application of Valence Bond Theory in octahedral complexes	
9	Drawbacks of Valence Bond Theory	
10	Crystal field splitting in Octahedral complexes	
11	Crystal field splitting in tetrahedral complexes	
12	Crystal field splitting in tetragonal and square complexes	
13	MO and introduction to ligand field theories and their applications.	
14	Spectroscopic terms,	
15	RS coupling,	
16	Mullikan's symbol (A, B, E, T)	
17	Spectrochemical and nephelauxetic series	
18	Electronic spectra of simple Td and Oh complexes	
19	Selection rules and Orgel diagram (d1 to d9 system).	
20	Magnetic properties: Paramagnetism, diamagnetism, magnetic properties of octahedral complexes	
21	Antiferromagnetism.	
22	Inorganic reaction mechanism	
23	Introduction to inorganic reaction mechanism	
24	Inert and labile complexes	
25	Association mechanism	
26	Dissociation and concerted paths mechanism	
27	Acid hydrolysis (with reference to cobalt complexes only).	
28	Base hydrolysis (with reference to cobalt complexes only).	
29	Substitution reaction in octahedral and square planar complexes.	
30	Substitution reaction in square planar complexes.	
31	Trans effect, Irving-William Series	
32	Chemistry of d- and f- block elements, Electronic structure, oxidation state, ionic radii	
33	Lanthanide and Actinide contraction	
34	Separation of lanthanides	

Course Plan (Session Jun-Dec, 2019)

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Non-Major

Class/Semester- 5th Sem (Non-CBCS)

Name of the Paper- NM 501, Inorganic Chemistry-II + Physical Chemistry-II

Units Assigned- I

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit–I Nuclear Chemistry: Mass defect and binding energy, packing fraction	
2.	Stability of nucleus, neutron-proton ratio	
3.	Artificial radioactivity, nuclear fission	
4.	Nuclear reactors, separation of isotopes	
5.	Detection and measurement of radioactivity by GM counter.	
6.	Application of radio-isotopes in agriculture, medicine and industry.	
7.	Radiocarbon dating.	
8.	Unit-II Preparative Chemistry Preparation, properties and uses of the following compounds : Lithium aluminium hydride	
9.	potassium ferro and ferricyanide	
10.	sodium cobaltinitrite	
11.	Sodium thiosulphate, Nessler's reagent,	
12.	Sodium borohydride, silica gel,	
13.	Pb containing paints	
14.	Zn containing paints	
15.	Unit-III Bioinorganic Chemistry:Role of zinc	
16.	Role of iron	
17.	Role of cobalt	
18.	Role molybdenum	
19.	Sodium, potassium in biological system.	
20.	Role of Mg^{++} in chlorophyll.	
21.	Role of Ca in blood clotting	
22.	Poisoning due to heavy metal ion -Mercury	
23.	Cadmium poisoning	

Course Plan Session Jun-Dec, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Sem, Non-CBCS

Name of the Paper-MM 503, Inorganic Chemistry II

Units Assigned- All

Marks Assigned-48

Class	Topic/ Unit	Remarks
1.	UNIT –I: Organometallic compounds: Definition, electron count, 18 electron rule	
2.	Isolobal analogy	
3.	Compounds in catalysis ,Wilkinson's catalyst	
4.	Vaska's compound	
5.	HCo(CO) ₄	
6.	Metal carbonyls: Structure, bonding	
7.	IR spectral studies of terminal and bridged carbonyls.	
8.	Structure and bonding in some Metal –Olefins compound,	
9.	Structure and bonding in metal – ligand σ -bonded compounds	
10.	Structure and bonding in ferrocene	
11.	Oxidative addition	
12.	Reductive elimination reaction.	
13.	Uses of some organometallic	
14.	UNIT – II: Transition metal clusters: Definition of cluster, metal – metal bond in cluster,	
15.	Synthesis of metal carbonyl cluster of Cr, Fe and Mo (only low nuclearity clusters up to 4 metal atoms).	
16.	Closed shell electronic requirement for cluster compounds – rules for Polyhedral Skeletal Electron Pair Theory.	
17.	Nitrosyl compounds: Synthesis, properties and structures of nitrosyls of Fe, Co and Ni.	
18.	UNIT – III: Error in quantitative analysis: Accuracy, precession	
19.	Deviation, standard deviation, Numericals	
20.	Classification of errors, minimization of errors,	
21.	Significant figures.	
22.	Indicators: Choice of indicators in neutralization reactions.	
23.	Redox, adsorption and complexometric	
24.	Adsorption indicator	
25.	Complexometric indicator	
26.	UNIT – IV: Organic reagents in inorganic analysis :- Cupferron, dithizone oxine	
27.	benzoin- α - oxime,	
28.	1- nitroso-2- naphthol, diphenyl carbazide,	
29.	Diphenyl carbazone, salicylaldehyde,	
30.	1,10- phenanthroline, murexide,	
31.	thiourea, zinc uranyl acetate,	

Course Plan Session JUN- DEC, 2019

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Semester, NON-CBCS

Name of the Paper- MM 507, Symmetry and Quantum Chemistry

Units Assigned- Unit I

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Unit – I: Symmetry and Group theory: Symmetry elements and symmetry operations	
2.	Definition of group, symmetry group	
3.	point group and space group.	
4.	Perspective sketch and point group of some common molecules, H ₂ , HF,	
5.	CO ₂ , C ₂ H ₂ ,	
6.	C ₂ H ₄ , CHCl ₃ ,	
7.	PCl ₅ , NH ₃	
8.	BF ₃ , [PtCl ₄] ²⁻ , BrF ₅	
9.	symmetry and mathematical tools, matrix algebra,	
10.	reducible and irreducible representation, great orthogonality theorem	
11.	Character table for C _{2v}	
12.	Character table for C _{3v}	
13.	Determination of Γ_i for C _{2v}	
14.	Determination of Γ_i C _{3v} point groups.	

Course Plan Jan-May, 2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Non Major

Class/Semester- 2nd semester, Non-CBCS

Name of the Paper-NM-201, Section Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	Unit-I Coordination Chemistry: Review of Werner's theory. Types of ligands, monodentate, bidentate	
2	ambidentate and polydentate ligands, PiAcceptor and macrocyclic ligands.	
3	IUPAC Nomenclature of Co-ordination compounds.	
4	IUPAC Nomenclature of Co-ordination compounds.	
5	Isomerism of 4-and 6- coordinate compounds.	
6	Isomerism of 4-and 6- coordinate compounds.	
7	Introduction to Valence Bond	
8	Application of VBT	
9	Introduction to Crystal Field theory.	
10	CFT in octahedral complexes	
11	CFT in tetrahedral complexes	
12	Application of dimethyl glyoxime, EDTA, 8-hydroxy quinoline,	
13	Use 2,2-bipyridyl, and ethylenediamine in analysis.	
14	Unit-II Chemistry of non-metals Boron: Preparation, structure and bonding of diborane	
15	Silicon: Structure, properties and use of silicon carbide and silicon polymers (linear).	
16/17	Structure, properties and use of silicon polymers (linear)	
18	Nitrogen: Hydroxylamine, Hydrazine, preparation, properties, uses and electronic structure.	
19	Hydrazoic acid; preparation, properties, uses and electronic structure.	

20	Rare gases- Xenon compounds.	
21	Preparation and properties of xenon compounds	
22	Preparation and properties of xenon compounds	
23	Structure determination of xenon compounds with the help of VSEPR	
24	Phosphorous: Structures of oxides and oxyacids.	
25	<u>Unit-III Inorganic Material Chemistry</u> <u>Zeolites, it's structure and properties</u>	
26	Ceramics and its preparation	
27	Manufacturing of glass and its types	
28	Silicate minerals, it's properties and uses	
29	Cement – composition, raw materials, manufacturing process	
30	Setting of cement	
31	Types of Inorganic metal oxides	
32	Superconductor	
33	Synthesis, Structure and Application of Fullerenes	
34	Unit-IV General principles of metallurgy Physico-Chemical methods involved in metallurgy	
35	Concentration, calcinations, reduction	
36	roasting, zone refining, solvent extraction	
37	hydrometallurgy and electrochemical methods	
38	Metallurgy of gold,	
39	Metallurgy of nickel	
40	Metallurgy of thorium	
41	Metallurgy uranium and manganese	
42	Metallurgy of manganese	

Course Plan Jan-May, 2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic –Major

Class/Semester- 2nd semester, Non-CBCS

Name of the Paper-MM-201, Section II (Inorganic Chemistry)

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	UNIT – I: Non Transition elements: Electronic structure, general Properties and comparative study of group of non transition elements.	
2	Noble Gas : Compounds of Xenon only	
3	Boron: Wade's rule, Nomenclature of closo, nido and arachno boranes,	
4	Structure of boron hydrides (B_2H_6), metalloborane and metallocarboranes.	
5	Preparation, structure and use of Borazine	
6	Preparation, structure and use of phosphazine	
7	Preparation, structure and use of S_4N_4	
8	Preparation, structure and use of $(SN)_x$	
9	Carbon : Fullerenes (C_{60}) preparation and properties	
10	Silicon: Silicones, classifications and structure of silicates.	
11	Zeolites, use of Zeolites as catalyst and molecular sieve	
12	Aluminosilicates	
13	Nitrogen: Preparation and properties of hydroxylamine	
14	Preparation and properties of Hydrazine	
15	Preparation and properties of hydrazoic acid.	
16	Phosphorus: Phosphines,	
17	oxy acids of phosphorus,	
18	organophosphorus compounds.	
19	UNIT – II : Metals Theory of reduction (Thermodynamic approach), role of carbon and other reducing agents,	
20	Electrolytic reduction, roasting and calcinations.	
21	Method of purification and refining of metals, zone refining	
22	Vacuum arc process, ion exchange,	
23	Solvent extraction and electrolytic method,	
24	Van – Arkel process and hydrometallurgy.	
25	Extraction of and study of some important compounds : Cr, chromyl chloride, lead chromate, potassium dichromate	
26	Extraction of the following metals and study of some of their important compounds : Mn, manganese dioxide, $KMnO_4$	
27	Extraction of and study of some of some important compounds : Mo, Ammonium molybdate	
28	Extraction of and study of some important compounds : Co, sodium cobaltinitrite, cobalt nitrate	
29	Extraction of and study of some important compounds : Ni, Ni-DMG	
30	Extraction of and study of some of compounds : V, vanadium pentoxide	

Course Plan, JAN-MAY, 2020

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic –Major

Class/Semester- 6th SEMESTER, NON-CBCS

Name of the Paper- MM 603, Inorganic Chemistry III

Units Assigned- All

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	UNIT-I: Bio inorganic Chemistry Metal ion in biological system	
2.	Biological role of iron	
3.	Biological role of copper	
4.	Biological role of cobalt	
5.	Biological role of zinc	
6.	Biological role of molybdenum.	
7.	Metalloprotein and metalloenzymes, therapy.	
8.	Physiology of hemoglobin & myoglobin,	
9.	Plastocyanin, it's structure and function	
10.	Vitamin B12, it's structure and function.	
11.	Carbonic anhydrase, it's structure and function	
12.	Nitrogenase it's structure and function,	
13.	Metal ion in medicine -- cisplatin and carboplatin.	
14.	Use of EDTA in chelation	
15.	Role of alkali and alkaline earth metals	
16.	UNIT-II: Introduction to material chemistry	
17.	Idea about supra molecular interaction.	
18.	Solid state reactions	
19.	Nano materials – synthesis and characterization.	
20.	C – C composite	
21.	Polymer and nanocomposite	
22.	Introduction of chemistry of clay (Kaolinite, Montmorillonite and Laponite)	
23.	UNIT – III: Chromatographic Methods Paper chromatography	
24.	Thin layer chromatography	
25.	Column chromatography	
26.	Gas chromatography – separation of compounds, development and Rf values	
27.	HPLC – principle only.	
28.	UNIT IV: Industrial chemistry: Industrial water treatment: Demineralized (DM) water and effluent treatment.	
29.	Various types of cements, their composition,	
30.	Manufacturing of cement	
31.	Setting of cement	
32.	Ceramics	
33.	Paints: Constituents, role of binder and solvent	
34.	lead and zinc containing paints.	
35.	Introduction to Chemical Toxicology: Metal poisoning due to Pb	
36.	Metal poisoning of Cd	
37.	Metal poisoning of Hg	
38.	hazard from radioactive fallout	

Course Plan Jan-May, 2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 6th semester, Non-CBCS

Name of the Paper-MM 607, Molecular Spectroscopy

Units Assigned- I, III, V

Marks Assigned- 22

Class	Topic/ Unit	Remarks
1.	Unit-I General Principles Interaction of electromagnetic radiation with molecules and various types of spectra, Selection rules.	
2.	Unit-III Infrared spectroscopy Classical equation of vibration, vibrational energies of diatomic molecules	
3.	zero point energy, Concepts of normal vibration	
4.	force constant, effect of isotopic substitution,	
5.	Vibrational frequency, Fundamental frequencies, overtones	
6.	hot bands	
7.	Degree of freedom of polyatomic molecules,	
8.	concept of group frequencies.	
10.	Numericals of IR	
11.	Unit V: Spin resonance spectroscopy Principle of NMR,	
12.	Larmour precession,	
13.	chemical shift and low resolutions spectra	
14.	Numericals of NMR	
15.	Different scales, spin-spin coupling and high resolution spectra	
16.	Interpretation of PMR spectra of ethanol,	
17.	1- and 2-chloropropane, acetaldehyde,	
18.	cyanohydrin and 1,2 & 1,3-dichloropropane.	
19.	Electron spin resonance (ESR) spectroscopy and its principle	
20.	hyperfine structure	
21.	ESR of simple free radicals methyl, Deuterated methyl	
22.	ESR of simple free radicals propyl, ethyl	
23.	ESR of copper (II) compounds. L-12, Marks: 10	
24.	Difference between NMR and ESR	
25.	Numericals of ESR	

NAME OF THE TEACHER- DR NAYAN JYOTI KHOUND**June 2019 to May 2020**

Course –Major (Non CBCS)

Class/Semester- 1st Semester

Name of the Paper-101 (Physical Chemistry)

Units Assigned- I +II

Marks Assigned- 10 + 6

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	
Unit II: Liquid		Marks Assigned- 06
1	Qualitative treatment of structure of liquids, physical properties of liquids	
2	vapour pressure, surface tension, viscosity,	
3	Newtonian liquid, qualitative discussion of structure of water	
4	parachor-determination and application	
5	liquid crystals,	
6	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – NonMajor (Non CBCS)

Class/Semester- 1st Semester

Name of the Paper- 101 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 10

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 2nd Semester

Name of the Paper- 201 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 14

Unit I: Chemical Thermodynamics –I		Marks Assigned- 14
Class	Topic	Remarks
1.	Extensive and intensive properties of a system,	
2.	thermodynamic processes: cyclic, reversible, irreversible processes,	
3.	Thermodynamic function, complete differential, Zeroth law of thermodynamics.	
4.	First law of thermodynamics-internal energy, enthalpy, molar heat capacities,	
5.	relation between C_p and C_v , work of expansion in reversible and irreversible process, adiabatic	
6.	Joule Thomson effect, calculation of Joule Thomson co-efficient for ideal and Vander Waal's gas.	
7.	Thermo chemistry- Hess's law,	
8.	Kirchhoff's law relation of reaction enthalpy with internal energy,	
9.	Bond energy and Bond dissociation energy	
10.	Bond energy Calculation from thermo chemical data.	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course – Major (Non CBCS)
 Class/Semester- 3rd Semester
 Name of the Paper- 301 (Organic Chemistry)
 Units Assigned- I
 Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms	
3.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution vs elimination.	
5.	Haloform reaction	
6.	Aryl halides: Preparation from diazonium salts	
7.	Nucleophilic Aromatic Substitution SNAr intermediates.	
8.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
9.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
10.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
11.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
12.	Organometallic Compounds of Mg Use in synthesis of organic compounds.	
13.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
14.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course – NonMajor (Non CBCS)
 Class/Semester- 3rd Semester
 Name of the Paper- 301 (Organic Chemistry)
 Units Assigned- I
 Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation	
2.	Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
3.	Nucleophilic substitution reactions: SN1 Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution reactions: SN2 Mechanisms with stereochemical aspects	
5.	Nucleophilic substitution reactions: SNi Mechanisms with stereochemical aspects	
6.	Nucleophilic substitution vs elimination	
7.	Haloform reaction	
8.	Aryl halides: Preparation from diazonium salts	
9.	Nucleophilic Aromatic Substitution SNAr intermediates.	
10.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
11.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
12.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
13.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
14.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
15.	Previous year Question paper discussion	
16.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course –Major (Non CBCS)
 Class/Semester- 4th Semester
 Name of the Paper- 401 (Physical Chemistry)
 Units Assigned- I + II
 Marks Assigned- 20 + 6

Unit II: Conductance		Marks Assigned- 20
Class	Topic	Remarks
1.	Arrhenius theory of electrolytic dissociation	
2.	conductivity, equivalent and molar conductivity	
3.	conductivity, equivalent and molar conductivity and their variation with dilution strong electrolytes	
4.	conductivity, equivalent and molar conductivity and their variation with dilution for weak electrolytes	
5.	molar conductivity at infinite dilution	
6.	kohlrausch law of independent migration of ions	
7.	Debye-Huckel – Onsagar equation,	
8.	Wien effect, Debye –Falkenhagen effect,Walden’s rules.	
9.	Ionic velocities,	
10.	mobilities and their determinations	
11.	Transference numbers and their relation to ionic mobilities,	
12.	determination of transference numbers using Hittorf	
13.	determination of transference numbers using moving boundary methods	
14.	determination of transference numbers using Hittorf and moving boundary methods, ,	
15.	anomalous transference number	
16.	application of conductance measurement: i) degree of dissociation of weak electrolytes,	
17.	ii) ionic product of water	
18.	iii)solubility and solubility product of sparingly soluble salts	
19.	iv) Hydrolysis constant of aniline hydrochloride	
20.	v) Conductometric titration (Acid Base and precipitation)	
21.	Previous year Question paper discussion	
Unit I : Chemical Thermodynamics		Marks Assigned- 06
1	Second law of thermodynamics,	
2	Carnot’s theorem	
3	Carnot cycle, efficiency of heat engines,	
4	thermodynamic scale of temperature	
5	Nernst heat theorem, consequence of the theorem,	
6	third law of thermodynamics,	
7	Determination of absolute entropies of pure substance	
8	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 4th Semester

Name of the Paper- 401 (Physical Chemistry)

Units Assigned- III + IV(a)

Marks Assigned- 10 + 12

Unit II: Chemical Kinetics		Marks Assigned- 10
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
10.	Collision theory of bimolecular reactions, its limitation,	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	
Unit IV(a) : Chemical Thermodynamics		Marks Assigned- 12
1	Thermal equilibrium and zeroth law of thermodynamics- concept of temperature	
2	Mechanical work, SI sign convention. 1st law of thermodynamics, internal energy, enthalpy, reversible and irreversible processes	
3	calculation of W, Q, ΔU , ΔH for expansion of ideal gas, isothermal work and enthalpy	
4	relation between enthalpy change, and entropy change,	
5	molar heat capacities, relation between C_p and C_v ,	
6	adiabatic processes- relation between P, V and T	
7	Joule-Thomson effect	
8	liquefaction of gases, conversion of heat into work, efficiency of heat engine	
9	Enthalpy of reaction,	
10	Types of Enthalpy of reaction,	
11	Thermodynamical equation	
12	variation of enthalpy of reaction with temperature-Kirchhoff's equation	
13	enthalpy of different processes	
14	Hess law, calculations based on Hess law.	
15	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I +IV + V

Marks Assigned- 15 + 07 + 08

Unit I: Chemical Kinetics		Marks Assigned- 15
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Evaluation of rate constant by integrated equation method & graphical method, Guggenheim method (1st order reaction),	
10.	Rate laws and mechanism, steady state approximation.	
11.	Rate equation of first order, opposite, parallel, consecutive reaction,	
12.	Rate equation of chain reactions, chain branching, explosion limit, hydrogen – bromine thermal reaction,	
13.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
14.	Collision theory of bimolecular reactions, its limitation,	
15.	Activated complex theory, Eyring equation, Lindeman's theory of unimolecular gas phase reaction.	
16.	Question paper discussion	
Unit IV: Surface Chemistry		Marks Assigned- 07
1	Adsorption and types of adsorption	
2	Physical and chemical adsorption of gases on solid surface	
3	Adsorption isotherms & types of adsorption isotherm	
4	Freundlich equation, Langmuir adsorption equation.	
5	Gibbs adsorption equation	
6	Determination of surface area of an adsorbent	
7	application of adsorption in chemical analysis and in industry,	
Unit V: Colloidal State		Marks Assigned- 08
1	Colloid and types of colloids	
2	Physical and electrical properties of colloids	
3	Electro kinetic phenomenon- electrophoresis, electro-osmosis,	
4	Electrical double layer and zeta potential, theory of stabilities of colloids,	
5	Protective action of Lyophillic sol-gold number,	
6	Determination of Avogadro's number	
7	Coagulation of colloids, Schultz – Hardy rule, association of colloids, emulsions	
8	Micelles and their structure, critical micelles concentration,	
9	Donnan membrane equilibria	
10	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I + III + IV

Marks Assigned- 05 + 05 + 04

Unit I: Conductance		Marks Assigned- 05
Class	Topic	Remarks
1.	Conductivity, equivalent and molar conductivity	
2.	Their variation with dilution for weak and strong electrolytes.	
3.	Kohlrausch law of independent migration of ions.	
4.	Transference number and its experimental determination using Hittorf and Moving boundary methods.	
5.	Ionic mobility.	
6.	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts,	
7.	Applications of conductance measurements: determination of degree of ionic product of water, hydrolysis constant of a salt.	
8.	Conductometric titrations of acid - base	
Unit III: Adsorption & Catalysts		Marks Assigned- 05
1	Adsorption & types of adsorption.	
2	Differences between chemisorptions and Physical adsorption	
3	Freundlich adsorption isotherm and Langmuir adsorption isotherm, application of adsorption.	
4	Catalysis & Types of catalysis	
5	Homogeneous heterogeneous catalysis, acid-base catalysis, catalytic promoter, poisoning, negative catalysis ,	
6	enzyme catalysis characteristics of enzyme catalysis ,Theories of catalysis.	
7	Question discussion	
Unit IV: Phase rule		Marks Assigned- 04
1	Statement of phase rule, definition of phase, components and degrees of freedom with examples	
2	Application of phase rule	
3	Phase diagram of water and sulphur system.	
4	Phase diagram of Pb –Ag system.	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 6th Semester

Name of the Paper- 601 (Physical Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 08 + 08 + 12

Unit II: Macromolecules		Marks Assigned- 08
Class	Topic	Remarks
1.	Polymer and their classification	
2.	Step reaction polymerization & Addition polymerization,	
3.	Mechanism and kinetics of free radical polymerization,	
4.	Mechanism and kinetics anionic polymerization	
5.	Mechanism and kinetics of cationic polymerization	
6.	Weight and Number average molecular weight,	
7.	Viscometric and Osmometric methods of molecular weight determination,	
8.	Degree of polymerization & Carother equation,.	
9.	Zeigler Natta catalysts, Co-polymerisation	
10.	Question paper discussion	
Unit III: Catalysis		Marks Assigned- 08
1	Catalysis and its types	
2	Criteria of catalysis,	
3	Homogeneous and heterogeneous catalysis,.	
4	Acid – Base catalysis	
5	Effect of temperature on surface reactions	
6	Effect of particle size and efficiency of nano particles as catalysts,	
7	Autocatalysis & catalytic poison,	
8	Enzyme catalysis-mechanism	
9	Michaelis-Menten equation	
10	Question discussion	
Unit IV: Phase Equilibria		Marks Assigned- 12
1	Definition of phase components, degree of freedom	
2	Thermodynamic derivation of phase rule,	
3	application of phase rule to one component-water and sulphur,	
4	Phase diagram of simple eutic Pb-Ag, & KI-H ₂ O system	
5	Phase diagram of two component systems with congruent melting point (Zn-Mg) system	
6	Phase diagram of two component systems incongruent melting point (Na ₂ SO ₄ -H ₂ O) system	
7	Interpretation of vapour pressure composition and temperature-composition phase diagram	
8	Distillation of liquid mixtures and azeotropic mixture.	
9	Clapeyron equation, Clausius - Clapeyron equation, their derivation and application	
10	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 6th Semester

Name of the Paper- 601 (Organic Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 05 + 06

Unit II: Organic Chemistry of Life		Marks Assigned- 05
Class	Topic	Remarks
1.	classification, preparation and properties of Amino acids	
2.	Glycine, Alanine and Phenylalanine	
3.	(Strecker synthesis and Gabriel phthalimide method).	
4.	Elementary ideas of peptides and proteins.	
5.	Elementary ideas of nucleoside, nucleotide,	
6.	Elementary ideas of nucleic acid (DNA, RNA	
7.	nucleic acid (DNA, RNA	
8.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
9.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
10.	Reactions of amino acids	
Unit III: Polymers		Marks Assigned- 06
1	Polymer and their classification	
2	Step reaction polymerization & Addition polymerization,	
3	Weight and Number average molecular weight,	
4	Viscometric and Osmometric methods of molecular weight determination,	
5	Question Paper discussion	

NAME OF THE TEACHER: DR. BISHWAJIT SAIKIA

Course: **Major**

Class/Semester: **1stSemester**

Name of the Paper: **MM-101 (Section -III Organic Chemistry)**

Units Assigned: **I + II**

Marks Assigned: **15 + 12**

Class	Topic	Remarks
Unit I: Basics of Organic Chemistry		
1.	Organic Compounds: Natural sources, classification and Nomenclature	
2.	Hybridization: Shape of molecules, Influence of hybridization on bond properties	
3.	Electronic displacements: Inductive, Electromeric, Resonance, Mesomeric effects and Hyperconjugation and their applications. Dipole moment.	
4.	Organic acids and bases: Their relative strength, hard and soft acids and bases.	
5.	(Homolytic and Heterolytic fission, Electrophiles and Nucleophiles: Nucleophilicity and basicity.	
6.	Reactive intermediates: Carbocations, carbanions, free radicals, arbenes, nitrenes, benzyne, Types, Shape and their relative Stability.	
7.	Energy profile diagrams of one step, two steps and three steps reactions, Rate limiting steps. Activation Energy. Kinetically and thermodynamically controlled reactions.	
Unit II: Stereochemistry		
1.	Elements of symmetry and their application in simple organic molecules.	
2.	Definition and classification of stereoisomerism	
3.	Representation of organic molecules in three & two dimension: Fischer Projection, Newman projection, Saw horse and flying wedge projection formula and their interconversions.	
4.	Optical isomerism: Concepts of asymmetry, dissymmetry, optical activity, Specific rotation, Chirality, enantiomers, Diastereomers, racemic mixture, racemization and Resolution,	
5.	Erythro forms, Meso structures & Epimers. Relative and absolute configuration: D/L and R/S designations. Walden inversion and asymmetric synthesis.	
6.	Geometrical Isomerism: Restricted rotation about C=C bonds, physical and chemical properties of diastereoisomers, determination of configuration of geometrical isomers: cis-trans isomerism, syn-anti and E/Z notation with CIP rules.	
7.	Geometrical isomerism in oximes and alicyclic compounds.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **1stSemester**

Name of the Paper: **NM-101 (Section C: Organic Chemistry)**

Units Assigned: **VI + VII + VIII**

Marks Assigned: **10 + 12 + 5**

Class	Topic	Remarks
Unit VI: Introduction to Organic Chemistry		
1.	Importance of Organic Chemistry & organic systems to human beings & society. Electronic displacements: Inductive effect, Electrometric effect, Resonance and hyperconjugation.	
2.	Mechanism of organic reactions: Cleavage of Bonds- Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules- Nucleophiles and electrophiles.	
3.	Reactive Intermediates- Carbocations, carbanions, free radicals, carbenes & nitrenes.	
4.	Strength of organic acids and bases: comparative study with emphasis on factors affecting pka values.	
Unit VII: Stereochemistry		
1.	Conformations w.r.t. ethane, butane and cyclohexane (axial and equatorial bonds). Interconversion of wedge formula, Newman, Sawhorse and Fischer projection representation.	
2.	Concept of symmetry: Elements of symmetry (Centre of inversion, axis of rotation, plane of reflection and improper axis of rotation) applied to organic molecules.	
3.	Optical isomerism: Concept of chirality (with two stereogenic centres) diastereomers, threo and erythro, meso compounds, enantiomerism, CIP Rules, R/S Nomenclature (up-to two chiral carbon atoms) Resolution of enantiomers and Racemisation.	
4.	Geometrical isomerism: □-diastereoisomerism, Determination of configuration of geometric isomers. E&Z system of Nomenclature.	
Unit VIII: Aliphatic Hydrocarbons		
1.	Alkanes (upto 5 carbons) Preparation:- Catalytic hydrogenation, Wurtz reaction, Kolbe's Synthesis, from Grignard reagent.	
2.	Corey-House Synthesis. Reactions: Free radical Substitution: Halogenations	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **2ndSemester**

Name of the Paper: **MM-201 (Section–III Organic Chemistry)**

Units Assigned: **I + II + III**

Marks Assigned: **8 + 6 + 8**

Class	Topic	Remarks
Unit I: Carbon- Carbon sigma bonds		
1.	Chemistry of Alkanes: Formation of alkanes with special emphasis on Corey House Synthesis	
2.	Wurtz reaction, Wurtz-Fittig reaction. Reactions of alkanes: Free Radical substitution:- Halogenations-relative reactivities and selectivity.	
3.	Formation of alkenes and alkynes by Elimination: Mechanism of E1., E2, E1cB reactions. Saytzeff and Hoffmann elimination	
4.	Special emphasis on preparation of alkenes by syn- elimination:- pyrolysis of esters, Chugaev, Wittig, Heck reaction.	
5.	Reaction of alkenes: Addition Reaction- Electrophilic and free radical additions, their mechanisms. (Markonikoff/ Anti Markonikoff addition)	
6.	Regioselectivity (directional selectivity), and stereoselective of addition reactions. Mechanism of oxymercuration–demercuration, Hydroboration-Oxidation, Ozonolysis, reduction (catalytic and chemical).	
7	Syn and Anti hydroxylation (oxidation), simple effect of stereo selectivity and stereo specificity.	
8	Reactions of Alkynes: Acidity, Electrophilic and Nucleophilic additions, Hydration to form carbonyl compounds. Alkylation of terminal alkynes.	
Unit II: Cycloalkanes and conformational analysis		
1.	Synthesis and reactions of three, four, five and six membered cycloalkanes, Their relativestability, Baeyer strain theory. Sache-Mohr theory.	
2.	Conformational analysis of Alkanes: (ethane & butane) Relative stability, Energy diagram.	
3.	Cyclohexane: Chair, Boat and Twist boat forms, Relative stability with energy diagram, axial and equatorial bonds including perspective representation and Newman projections.Conformation& conformational analysis of monosubstituted cyclohexane derivative.	
Unit III: Aromatic Hydrocarbons		
1.	Aromaticity: Huckel’s rule, aromatic characters of arenes, benzenoid, non-benzenoid- aromatic compounds and heterocyclic and polynuclear hydrocarbons with suitable examples.Antiaromaticity and nonaromaticity	
2.	Electrophilic Aromatic Substitution: Halogenation, nitration,sulphonation and Friedel-craft’s alkylation / acylation with their mechanism. Activation /deactivation of aromatic ring and directing effects of groups. Partial rate factor (O/P ratio)	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **3rdSemester**

Name of the Paper: **MM-303 (Organic Chemistry-I)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Chemistry of Halogenated Hydrocarbons		
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid).	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects and effect of solvent. Nucleophilic substitution vs elimination. Haloform reaction.	
3.	Aryl halides: Preparation from diazonium salts. Nucleophilic aromatic Substitution S _N Ar, Benzyne intermediates.	
4.	Relative reactivity of alkyl, allyl /benzyl, vinyl and aryl halides towards nucleophilic substitution reactions. Organometallic Compounds of Mg and Li - Use in synthesis of organic compounds.	
Unit II: Chemistry of C-O Bond		
1.	Alcohols: Preparation, properties and relative reactivity of 1°, 2°, 3° alcohols. Bouveault Blanc Reduction and Baeyer-Villiger Oxidation Preparation and properties of Glycol: Oxidation by OsO ₄ , alkaline, KMnO ₄ , periodic acid and lead tetracetate. Pinacol Pinacolone rearrangement with mechanism	
2.	Trihydric alcohol: Glycerol: preparation & properties. Phenols: preparation and properties: acidity- comparison with alcohol. Substitution reaction, Reimer-Tiemann and Kolbe-Schmidt reaction, Fries rearrangement with mechanism.	
3.	Other aromatic Hydroxy compounds: Cresol, nitrophenols, picric acid, benzyl alcohol, dihydric phenols. Ethers and Epoxides: Preparation and reactions with acids.	
Unit III: Carbonyl Compounds: Aldehydes and ketones (aliphatic and aromatic)		
1.	Structure, Preparation and Reactions, Relative reactivity of aldehydes, ketones. Nucleophilic addition reactions.	
2.	Mechanism of Aldol, Benzoin, Stobbe, Darzens glycidic ester condensation, Perkin, Cannizzaro reaction. Beckmann and Benzil-Benzilic acid rearrangement, substitution, oxidation and reduction (Clemmensen, Wolf-Kishner and M P V reduction) Addition reactions of unsaturated carbonyl Compound: Michael addition.	
3.	Unsaturated aldehydes (Acrolein, Crotonaldehyde, Cinnamaldehyde) Unsaturated ketone (MVK).	
Unit III: Carboxylic acid and their derivatives		
1.	Preparation and properties and reactions of, monocarboxylic acids: effect of substituent on acidity, HVZ reaction and Schmidt reaction. Typical reactions and uses of dicarboxylic acids, Hydroxy acids, Unsaturated acids: Succinic, phthalic, lactic, malic, tartaric,	

	citric, maleic and fumaric acids.	
2.	Preparation and reactions of acid chlorides, anhydrides, esters, amides: Mechanism of acidic and alkaline hydrolysis of esters.	
3.	Claisen Ester Condensation, Dieckmann and Reformatsky Reaction, Hofmann bromamide degradation, Curtius rearrangement.	
Unit III:		
1	Sulphur containing compounds: Preparation and reactions of Thiols, Thioethers and sulphonic acids.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **3rd Semester**

Name of the Paper: **NM-301 (Organic Chemistry-I)**

Units Assigned: **I + II + III**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Aliphatic Hydrocarbons: Alkenes & Alkynes		
1.	Alkenes (upto 5 carbons) Preparation- Elimination reaction- Mechanism of E1, E2, E1cB.	
2.	Dehydration of alcohols and dehydrohalogenation of alkyl halides— Saytzeff's & Hoffmann's rule.	
3.	Reactions: cis-addition (alk. KMnO ₄) and trans addition (bromine). Addition of HX (Markownikoff's and anti-Markownikoff's addition). Hydration, Hydroxylation by Osmium tetroxide, Hydroxylation via epoxydation, Ozonolysis. Oxymercuration-demercuration, hydroboration-oxidation.	
4.	Alkynes (up-to 5 carbons) Preparation: Acetylene from CaC ₂ and conversion into higher alkynes: by dehydrohalogenation of tetra halides, dehydrohalogenation of vicinal-dihalides. Reactions- Formation of metal acetylides, addition of bromine and alkaline KMnO ₄ , ozonolysis and oxidation with hot alk. KMnO ₄ .	
Unit II: Aromatic Hydrocarbons		
1.	Preparation (only benzene) from phenol by decarboxylation, from acetylene, from benzenesulphonic acid.	
2.	Reactions-Electrophilic substitution in benzene- nitration, halogenations, sulphonation, Friedel-Craft alkylation and acylation with mechanism.	
Unit III: Alkyl and Aryl halides		
1.	Alkyl halides- Nucleophilic Substitution Reactions (S _N 2, S _N 1, & S _N i) Preparation: from alkenes and alcohols	
2.	Reactions:: Hydrolysis, nitrite and nitro formation, nitrile and isonitrile formation. Williamson's Synthesis: elimination vs Substitution	
3.	Aryl halides Preparation (chloro, bromo, iodo benzene only): From phenol, Sandmeyer & Gattermann reaction.	
4	Reactions (chlorobenzene): Aromatic nucleophilic substitution (replacement by -OH) and effect of nitro substituent. Reactivity and relative strength of carbon-halogen bond in alkyl, allyl, benzyl and vinyl and Aryl halide.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **4thSemester**

Name of the Paper: **MM-403 (Organic Chemistry-II)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **6 + 10 + 8 + 6 + 10 + 8**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Keto-enol tautomerism, Preparation and properties of Acetoacetic ester and diethyl malonate.	
2.	Knoevenagel Condensation	
Unit II: Nitrogen containing functional groups		
1.	Effect of substituent and solvent on basicity. Preparation and properties: Gabriel Phthalimide synthesis and Hoffmann bromamide degradation, carbylamines reaction, Mannich Reaction, Hoffmann's Exhaustive methylation, Hoffmann-Elimination Reaction.	
2.	Distinction between 1°, 2° and 3° amines with Hinsberg reagent and nitrous acid. Nitro and nitroso compounds, Nitriles and isonitriles, cyanates and isocyanates: Preparation and important reactions.	
3.	Diazomethane and diazoacetic ester with synthetic application. Diazonium salts: Preparation and their synthetic applications.	
Unit III: Amino acids and proteins		
1.	Amino Acids and their classification, synthesis and Ionic properties, Reactions, Zwitter ions, pKa values, isoelectric point & electrophoresis. Study of peptides: Determination of their primary structure: end group analysis, Principles of peptide synthesis.	
2.	Proteins: Their classification and biological importance. Elementary idea on Primary, Secondary, Tertiary and Quaternary structure of proteins, α-helix and β-pleated sheet structure, tertiary structure of proteins.	
Unit IV: Polynuclear Aromatic Hydrocarbons		
1.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbons: naphthalene, anthracene and phenanthrene.	
2.	Important derivatives of Naphthalene and Anthracene.	
Unit V: Heterocyclic Compounds		
1.	Classification, Nomenclature and structure. Aromaticity in 5-membered and 6-membered rings containing one heteroatom.	
2.	Synthesis, reactions, properties of furan, pyrrole (Paal-Knorr synthesis), thiophene, pyridine (Hantzsch synthesis), quinoline (Skraup synthesis, Knorr quinoline synthesis, Pfitzinger reaction) and isoquinoline (Bischler-Napieralski reaction).	
Unit VI: Heterocyclic Compounds		
1.	Natural occurrence, General structural features, Isolation and their physiological action.	
2.	Hoffmann's Exhaustive Methylation with special reference to coniine, nicotine.	
3.	Emde's modification. Medicinal importance of Nicotine, Hygrine, Quinine, Morphine, Cocaine and Reserpine.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **5thSemester**

Name of the Paper: **MM-505 (Organic Chemistry-III)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **8 + 12 + 10 + 10 + 8**

Class	Topic	Remarks
Unit I: Pericyclic reactions		
1.	Definition. The conservation of orbital symmetry, Woodward-Hofmann Rules, HOMO-LUMO approach.	
2.	Cyclo addition reactions: (2+2) and (2+4) cycloadditions. Diels Alder Reaction, 1,3- dipolar cycloaddition, Sigma tropic rearrangements- Cope and Claisen rearrangement, electrocyclic reactions.	
Unit II: Bio-molecules		
1.	Carbohydrates- Occurrence, classification and biological importance, General properties of glucose and fructose (open and cyclic structure).	
2.	Monosaccharides: Constitution and absolute configuration of glucose and fructose, Epimerization, Mutarotation	
3.	Determination of ring size of glucose. Haworth projections and conformational structures. Ascending and descending in monosaccharides, Interconversions of Aldoses and Ketoses.	
Unit III: Nucleic acids & Enzymes		
1.	Components of Nucleic acids, Nucleosides and Nucleotides. Structure Synthesis and Reactions of Adenine, Guanine, Cytosine, Uracil & Thymine. Polynucleotides: Structure of DNA (Watson – Crick Model) and RNA, Genetic code. Biological roles of DNA and RNA, Replication. Transcription and Translation (elementary idea only)	
2.	Enzymes and their functions as catalyst – Classification- Active site, Specificity, Mechanism of Enzyme action, Co-enzyme, Application of Enzymes.	
Unit IV: Pharmaceutical compounds: Structure and Importance		
1.	Introduction to natural and synthetic medicinal compounds: Azadirachtin (neem), Curcumin(haldi), Vitamin C- their medicinal values, Drug action. Classification, structure, preparation and therapeutic uses of Antipyretics: Paracetamol.	
2.	Analgesic: Aspirin, Ibuprofens (with green synthesis)	
3	Antimalerials: Chloroquine. Antacids: Ranitidine, Antibacterial: povidone –Iodine solutions, Sulphanilamide and other sulphadrugs. An elementary treatment of Antibiotics and detailed study of chloramphenicol.	
Unit V: Terpenes		
1.	Occurrence, classification Isoprene Rule. Elucidations of structure and synthesis of Citral, Neral and α -Terpineol).	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **6thSemester**

Name of the Paper: **MM-605 (Organic Chemistry IV)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **10 + 10 + 4 + 8 + 10 + 6**

Class	Topic	Remarks
Unit I: Disconnection approach in organic synthesis		
1.	Elementary idea about disconnection, functional group interchange (FGI), functional group addition (FGA).	
2.	Synthon and synthetic equivalent, simple examples of reaction leading to C-C bond formation (Corey-House, Wittig & aldol condensation)	
3	Retrosynthesis of monofunctionalised compounds.	
Unit II: Spectroscopy		
1.	UV-visible Spectroscopy: Application of Woodward rules for calculation of λ_{\max} for the following system: α,β -unsaturated aldehydes, ketones.	
2.	IR Spectroscopy: Application in functional group analysis.	
3.	NMR Spectroscopy: Anisotropic Effects in Alkenes, Alkynes, carbonyl compounds and benzene. Study of simple NMR spectra. Applications of IR, NMR and UV in Structural Identification of Simple Organic Molecules.	
Unit III: Lipids		
1.	Classification of Oils and Fats and their vegetable origin, structure of common fatty acid present. Structure, properties and biological importance of triglycerides and phosphoglycerides.	
2.	Change of flavor of oils, Reversion and Rancidity, Saponification value and Iodine number.	
Unit IV: Dyes		
1.	Classification, elementary idea of color and constitution, Chemistry of Dying. Synthesis and application of- Azo dyes-Methyl Orange and Congo red Triphenyl Methane Dyes-Malachite Green.	
2.	Rosaniline and Crystal Violet. Phthalein Dyes- Phnolphthalein and Fluorescein. Vat Dyes: Alizarin and Indigotin.	
Unit V: Polymers		
1.	Types of polymers- Isotactic, syndiotactic and atactic polymers.	
2.	Preparation and applications of plastics- Thermo-setting (Urea-formaldehyde, Phenol-formaldehyde, polyurethanes and thermo softening (PVC, Polythene) polymer additives.	
3	Synthetic fibers: Rayon, Nylon-6, terylene, Fabrics- natural and synthetic (acrylic, polyamido, polyester).	
4	Rubbers-natural and synthetic: Buna-S, chloroprene and neoprene, vulcanization.	
Unit VI: Green Chemistry		
1	Introduction to the principles of green chemistry – Twelve Principles.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **6thSemester**

Name of the Paper: **NM-601 (Organic Chemistry-II)**

Units Assigned: **I + II + III**

Marks Assigned: **4 + 5 + 7**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Synthesis of ethylacetoacetate (Claisen ester condensation), Diethylmalonate .Synthetic uses of ethylacetoacetate and diethylmalonate. Keto – enol Tautomerism.	
Unit II: Compounds containing more than one functional group		
1.	Hydroxy acid - Lactic and Tartaric acidsDicarboxylic acids- (Oxalic, Malonic, Succinic and Pthalic acid) and Citric acid.	
2.	Acrolein, Crotonaldehyde, Cinnamaldehyde,Acrylic acid, Crotonic acid, Maleic acid and Fumaric acid	
Unit III: Preparation, properties and reaction of the following Organic Compounds		
1.	Aromatic Sulphonic acids- Benzene sulphonic acid, nitro sulphonic acid, amino sulphonic acid, sulphuryl chloride, saccharin, chloramines-T.	
2.	Aromatic nitro compounds- Nitrobenzene, Dinitrobenzene, Nitro toluene, TNT, Reduction of nitro compounds in different conditions.	
3	Heterocyclic compounds- preparation and properties of five and six membered heterocyclic compounds: pyrrole, thiophene, furan, pyridine.	
4	Polynuclear Hydrocarbon : preparation and properties of apNhtalene and anthracene	

CBCS COURSE**Session-Jan 2020 to May 2020****NAME OF THE TEACHER-DR ABHIJIT MAHANTA**

Course –Honours / Generic – Generic

Class/Semester-2st sem

Name of the Paper-Chemistry GE 201

Units Assigned- Unit 4

Marks Assigned- 12

Class	Topic/ Unit	Remarks
1.	Unit 4: Alcohols, Phenols and Ethers: <i>Alcohols</i> : Preparation: Preparation of 1o, 2o and 3o alcohols: using Grignard reagent, Ester hydrolysis, Reduction of aldehydes, ketones, carboxylic acid and esters.	
2.	Unit 4: Alcohols, Phenols and Ethers: Reactions: With sodium, HX (Lucas test), esterification, oxidation (with PCC, <i>alk.</i> KMnO ₄ , acidic dichromate, conc. HNO ₃).	
3.	Unit 4: Alcohols, Phenols and Ethers: Diols: (Up to 6 Carbons) oxidation of diols. Pinacol-Pinacolone rearrangement.	
4.	Unit 4: Alcohols, Phenols and Ethers: Unit 4: Phenols: (Phenol case): Preparation: Cumene hydroperoxide method, from diazonium salts.	
5.	Unit 4: Alcohols, Phenols and Ethers: Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation. Reimer-Tiemann Reaction, Schotten – Baumann Reaction.	
6.	Unit 4: Alcohols, Phenols and Ethers: Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation. Reimer-Tiemann Reaction, Schotten – Baumann Reaction.	
7.	Unit 4: Alcohols, Phenols and Ethers: <i>Ethers (aliphatic and aromatic)</i> : Cleavage of ethers with HI.	
8.	Unit 4: Alcohols, Phenols and Ethers: <i>Aldehydes and ketones (aliphatic and aromatic)</i> : (Formaldehyde, acetaldehyde, acetone and benzaldehyde): Preparation: from acid chlorides and from nitriles. Reactions – Reaction with HCN, ROH, NaHSO ₃ , NH ₂ -G derivatives.	
9.	Unit 4: Alcohols, Phenols and Ethers: Iodoform test. Aldol Condensation, Cannizzaro's Reaction, Wittig Reaction, Benzoin Condensation. Clemensen Reduction and Wolff Kishner Reduction. Meerwein-Ponndorf Verley Reduction.	

Name of the Teacher-Dr Abhijit Mahanta

Course –Honours / Generic – Core

Class/Semester-2st sem

Name of the Paper-Chemistry C 201

Units Assigned- Unit III and IV

Marks Assigned- 26

Class	Topic/ Unit	Remarks
Unit III		
1.	Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz-Fittig Reactions, CoreyHouse Reaction,	
2.	Free radical substitutions: Halogenation -relative reactivity and selectivity.	
3.	Formation of alkenes and alkynes by elimination reactions, Mechanism of E1, E2, E1cbreactions. Saytzeff and Hofmann eliminations.	
4.	Special emphasis on preparation of alkenes by syn elimination – Pyrolysis of esters, Chugaev, Wittig and Heck Reaction.	
5.	Electrophilic additions and their mechanisms (Markownikoff/ AntiMarkownikoff addition),	
6.	Regioselective (directional selectivity) and Streoselective additionreactions. Mechanism of oxymercuration-demercuration, hydroboration-oxidation, ozonolysis, reduction (catalytic and chemical),	
7.	syn and anti-hydroxylation (oxidation), Simple effect of Streoselectivity & Streospecificity;	
8.	1,2-and 1,4-addition reactions in conjugated dienes and, Diels-Alder reaction.	
9.	Allylic and benzylic bromination and mechanism, e.g. propene, 1-butene, toluene, ethyl benzene.	
10	Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.	
11	Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.	
12	Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.	
Unit V		
1.	<i>Aromaticity</i> : Hückel's rule, aromatic character of arenes, cyclic carbocations/carbanions and heterocyclic compounds with suitable examples.	
2.	Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism.	
3	Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism.	
4	Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism.	
5	Directing effects of the groups.	
6	Directing effects of the groups.	

Name of the Teacher-Dr Abhijit Mahanta
 Course –Honours / Generic– Core
 Class/Semester-4st sem
 Name of the Paper-Chemistry MM 403
 Units Assigned- Unit IV, V, VI
 Marks Assigned- 24

Class	Topic/ Unit	Remarks
Unit IV		
1.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbones: naphthalene,	
2.	Important methods of synthesis and reactions of polynuclear Aromatic- hydrocarbones: arthracene	
3.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbones: arthracene and phenanthrene. Important derivatives of Naphthalene and Anthracene.	
Unit V		
4.	Classification, Nomenclature and structure. Aromaticity in 5-membered and 6-membered rings containing one heteroatom.	
5.	Synthesis, reactions, properties of furan, pyrrole (Paal-knorr synthesis)	
6.	thiophene, pyridine (Hantzsch synthesis),	
7.	quinoline (Skraup synthesis, Knorr quinoline synthesis, Pfitzinger reaction)	
8.	isoquinoline (Bischler-Napieralski reaction).	
Unit VI		
9.	Natural occurrence, General structural features, Isolation and their physiological action of alkaloids	
10.	Hoffmann's Exhaustive Methylation with special reference to coniine, nicotine. Emde' modification.	
11.	Medicinal importance of Nicotine, Hygrine, Quinine, Morphine, Cocaine and Reserpine.	

Non CBCS COURSE
Session-Jan 2020 to May 2020

Name of the Teacher-Dr Abhijit Mahanta

Course –Non Major

Class/Semester-4st sem

Name of the Paper-Chemistry NM 401

Units Assigned- Unit II

Marks Assigned- 8

Class	Topic/ Unit	Remarks
Unit II		
1.	Strong and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water.	
2.	Ionization of weak acids and weak bases. pH and its determination, pH scale, common ion effect.	
3.	Salt hydrolysis – calculation of hydrolysis constant, degree of hydrolysis and pH for different salts.	
4.	Buffer solutions.Solubility and solubility product of sparingly soluble salts- applications of solubility product (stress to be given to numerical problems).	
5.	Buffer solutions.Solubility and solubility product of sparingly soluble salts- applications of solubility product (stress to be given to numerical problems).	
6.	Buffer solutions.Solubility and solubility product of sparingly soluble salts- applications of solubility product (stress to be given to numerical problems).	

Non CBCS COURSE
Session-Jan 2020 to May 2020

Name of the Teacher-Dr Abhijit Mahanta

Course –Honours / Generic– Core

Class/Semester-6st sem

Name of the Paper-Chemistry MM 605

Units Assigned- Unit IV, V, VI

Marks Assigned- 24

Class	Topic/ Unit	Remarks
Unit IV		
1.	Classification, elementary idea of color and constitution	
2.	Chemistry of Dying. Synthesis and application of- Azo dyes- Methyl Orange and Congo red	
3.	Triphenyl Methane Dyes-Malachite Green, Rosaniline and Crystal Violet.	
4.	Phthalein Dyes- Phnolphthalein and Fluorescein.	
5.	Vat Dyes: Alizarin and Indigotin.	
Unit V		
6.	Types of polymers- Isotactic, syndiotactic and atactic polymers	
7.	Preparation and applications of plastics- Thermo-setting (Urea– formaldehyde, Phenol-formaldehyde,	
8.	polyurethanes and thermo softening (PVC, Polythene) polymer additives. Synthetic fibers: Rayon,	
9.	Nylon-6, terylene, Fabrics- natural and synthetic (acrylic, polyamido, polyester)	
10.	Rubbers-natural and synthetic: Buna-S, chloroprene and neoprene, vulcanization	
Unit VI		
11.	Introduction to the principles of green chemistry – Twelve Principles.	
12.	Introduction to the principles of green chemistry – Twelve Principles.	
13.	Introduction to the principles of green chemistry – Twelve Principles.	

Non CBCS COURSE
Session-Jan 2020 to May 2020

Name of the Teacher-Dr Abhijit Mahanta

Course –Non Major

Class/Semester-6st sem

Name of the Paper-Chemistry NM 601

Units Assigned- Unit IV, V, VI

Marks Assigned- 18

Class	Topic/ Unit	Remarks
Unit IV		
1.	Study of the following reactions– Rosenmund reduction, Stephen’s reduction, Aldol condensation	
2.	Claisen condensation, Cannizzaro’s reaction, Wittig reaction, Benzoin condensation,	
3.	Clemmensen reduction and Wolf Kishner reduction, Meerwein–Pondorf – Verley reduction and Haloform reaction	
4.	Aromatic aldehydes & Ketones – Preparation and reactions, Benzaldehyde, Salicylaldehyde, Cinnamaldehyde, acetophenone, benzophenone.	
5	Carboxylic acid derivatives – preparation of Acid chloride, Anhydrides, Esters & Amides from acids and their interconversions Reactions – Reformatsky reaction & Perkin condensation.	
6	Carboxylic acid derivatives – preparation of Acid chloride, Anhydrides, Esters & Amides from acids and their interconversions Reactions – Reformatsky reaction & Perkin condensation.	
7	Aromatic Carboxylic acid – Benzoic acid, Cinnamic acid, Phthalic acid.	
8	Aliphatic carboxylic Acids – Relative reactivity, strength of acids, general methods of preparation & properties. Hell-Volhard-Zelinsky Reaction.	
Unit V		
9.	Carbohydrates :Classification and General properties	
10.	Amino Acids : classification, preparation and properties Glycine, Alanine and Phenylalanine (Strecker synthesis and Gabriel phthalimide method).	
11.	Reactions of amino acids.	
12.	Elementary ideas of peptides and proteins.	
13.	Elementary ideas of nucleoside, nucleotide, nucleic acid (DNA, RNA). Elementary ideas of enzyme and co-enzyme, lipids and fatty acids.	
Unit VI		
11.	Classification of polymers, Addition or chain growth polymerization (free radical vinyl polymerization only)	
12.	Condensation (step growth) polymerization	

COURSE PLAN

2019-20

DEPARTMENT OF CHEMISTRY

DIGBOI COLLEGE

NAME OF THE TEACHER-MRS. JONALI DUTTA

(June 2019 – Dec 2019)

Name of the Teacher-MRS. JONALI DUTTA

Course –MAJOR

Class/Semester-FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-II &III

Marks Assigned-16

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06 L -4
2	Vapourpressure,surfacetension,	
3	viscosity, parachor-determination and application	
4	Newtonian and nonNewtonian liquid,	
5.	liquid crystals ,discussion	
Unit III – Solids		
1	crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 10 L-5
2	packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introductionto powder and single crystal methods of structureanalysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors, semiconductors and insulators from band theory.	

(June 2019 – Dec 2019)

Name of the Teacher- MRS. JONALI DUTTA

Course – Non MAJOR

Class/Semester- FIRST SEMESTER

Name of the Paper-101 MM

Units Assigned-IV & V

Marks Assigned-6 +6

Unit II- Liquid		
class	Topic/unit	
1	Qualitative treatment of structure of liquids, physical properties of liquids,	Marks: 06
2	Vapour pressure, surface tension, determination	
3	viscosity, parachor-determination and application	
4	Newtonian and non-Newtonian liquid,	
5.	liquid crystals, discussion	
Unit III – Solids		
1	Crystal system, crystal lattice, , and simple face centered and body centered cubic lattice, number of points in a unit cell.	Marks: 06
2	packing of crystals, closed packed structure, radius ratio, crystal defect-point defects,	
3	Basic laws of crystallography	
4	Miller indices	
5.	X-Ray diffraction study of crystals, Bragg's law	
6.	Introduction to powder and single crystal methods of structure analysis,	
7.	determination of crystal structure crystal structure of NaCl and KCl,	
8.	conductors, semiconductors and insulators from band theory.	

NAME OF THE TEACHER:MRS.JONALI DUTTA

CLASS/SEM-FIFTH SEMESTER

PAPER-501 MM (Physical Chemistry)

MARKS ASSIGNED:18

Unit III: System of variable composition		
Class	Topic	Remarks
1	thermodynamics Partial Molar quantities, chemical thermodynamics, chemical	Marks 10
2	Gibbs Duhemequation ,Effect of temperature and pressure,Activity	
3	fugacity, Concept of equilibrium state, derivation of expression of equilibrium constant,	
4	temperature pressure and concentration dependence of equilibrium constant-Van't Hoff equationLe-chetelierprinciple, effect of temperature ,pressure and concentration, examples(qualitative treatment). 6. Question -Answer discussion	
Unit:II Solution		Marks:08
1	Introduction to dilute solutions, vapour pressure, lowering of vapour pressure, Roul't's and Henry's Law	
2	immiscible liquids, Nernst's Distribution law, derivation	
3	Solvent extraction	
4	Colligative properties, definition, examples	
5	Thermodynamic derivation of lowering of	
6	Vapour pressure ,chemical potential	
7	Elevation of boiling point	
8	Depression of freezing point	
9	Osmotic pressure	
10	Question answer discussion and revision	

(June 2019 – Dec2019)

Name of the Teacher- MrsJonali Dutta

Course – Major

Class/Semester- Fifth

Name of the Paper- 507 (QM and Chemical bonding)

Units Assigned- II& III(2018)

Marks :33

Unit – II :Quantum Chemistry		
Class	TOPIC/UNIT	REMARKS
1	Black body radiation – Planck’s hypothesis, photoelectric effect, de Broglie hypothesis	MARKS 15
2	Heisenberg’s uncertainty principle. Schrodinger Wave Equation	
3	Operators, Postulates of quantum mechanics Normalization of wave functions- expectation values	
4	Interpretation of the wave function – orthogonal and orthonormal wave functions. Schrodinger equation and its application	
5	particle in a box. One dimension, Three dimension	
6	Energy levels, probability distribution functions. Nodal properties, degeneracy	
7	Qualitative treatment of hydrogen atom, Energy levels and quantum numbers	
8	The radial and angular part of wave functions, two dimensional plots of probability density.	
9	Stern Gerlach experiment, electron spin and spin quantum numbers,	
10	Pauli’s exclusion principle – Helium Atom	
11	(i) rigid rotator	
12	ii) harmonic oscillator	
13	Revision	
Unit:III:Chemical Bonding		MARKS:08
1	Valence bond and molecular orbital, comparison With examples	
2	LCAO – MO treatment of H ₂	
3	MO Method of H ₂ molecules ion, Valence bond treatment of H ₂	
4	Localized and non localized molecular orbitals of Homonuclear and heteronuclear diatomic molecules	
5	MO diagram of H ₂ , N ₂ , NO, CO, HF, CN	

(June 2019 – Dec2019)

Name of the Teacher- Mrs Jonali Dutta

Course –Non Major

Class/Semester- Fifth Semester

Name of the Paper- 501,PHYSICAL CHEMISTRY

Units Assigned- II& IV

Marks :13

Unit –II Electrochemistry		
class	UNIT/TOPIC	
1	Reversible and irreversible cells, Concept of EMF of a cell.	Marks -6
2	Measurement of EMF of a cell. Nernst equation and its importance.	
3	Types of electrodes. Standard electrode potential and salt bridge	
4	pH determination using hydrogen electrode and quinhydrone electrode	
5	Commercial applications of galvanic cell, dry cell, lead storage battery,	
6	fuel cell	
7	NUMERICALS,DISCUSSION	
Unit IV Photochemistry		
Class	UNIT/TOPIC	REMARKS
1	Adsorption of light, Laws of photochemistry	Marks -5
2	Lambert Beer's law,	
3	Quantum yield, Quantum efficiency,	
4	Fluorescence, phosphorescence	
5	Chemiluminescence, phosphoresensitized reaction	
	UNIT:ICONDUCTANCE (50pc)	
1	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, water,	MARKS:2
2	Solubility and solubility products of sparingly soluble salts, ionic product of	
3	Hydrolysis constant of a salt. Conductmetric titrations (only acid-base).	

JAN 2019 – MAY 2019

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- SECOND semester

Name of the Paper- 201 MM, (PHYSICAL CHEMISTRY)

Units Assigned- II

Marks :12

Unit II – Ionic equilibrium		
Class	Unit/topic	Remarks
1	Strong and weak electrolyte with modern classification of electrolytes (true and potential electrolyte	Marks: 12
2	Factors affecting degree of ionization, ionization constant, ionic product of water,	
3	Degree of ionization, ionization of weak acids and bases, pH scale, common ion effect.	
4	Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis	
5	pH for different salts	
6	Buffer solution, derivation of Henderson equation and its applications	
7	Buffer capacity, buffer range, buffer action.	
8	Solubility and solubility product of sparingly soluble salts	
9	Application of solubility product principle	
10	Selection of indicators and their limitations.	
11	Qualitative treatment of acid-base titration curves. Theory of acids	
12	DISCUSSION&REVISION	

(June 2019 – Dec2019)

Name of the Teacher- Mrs Jonali Dutta

Course – Major

Class/Semester- IV Semester

Name of the Paper- 401 MM(Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 15 + 6

Unit I: Unit III- Electrochemical cells		Marks:15
Class	Name of the Topic	Remarks
1	Quantitative aspects of Faraday's laws of electrolysis	potentials
2	Concept of oxidation/reduction of half cells,	Numericals
3	application of electrolysis in metallurgy and industry, electrolytic and galvanic cells,	
4	standard electrode potential, Nernst Equation types of electrodes-	
5	Hydrogen, calomel, quinhydrone and Glass electrodes	
6	E.M.F of a cell and its measurement, free energy, entropy and enthalpy of cell reactions,	
7	pH determination using hydrogen, SbO/Sb ₂ O ₃ electrode, glass, quinhydrone electrodes,	
8	Concentration cell with and without transference-	
9	liquid junction potential	
10	Potentiometric titration	
11	storage cells- Lead storage cell, mechanism of charging and	
12	fuel cells- hydrogen-oxygen cell	
UNIT:II Conductance		Marks: 6
1	application of conductance measurement: i) degree of dissociation of weak electrolytes	
2	ii) ionic product of water iii) solubility and solubility product of	
3	sparingly soluble salts iv) Hydrolysis constant of aniline hydrochloride,	
4	Conductometric (Acid Base and precipitation).	

(June 2019 – Dec2019)

Name of the Teacher- Mrs Jonali Dutta

Course – Non major (Non CBCS)

Class/Semester- IV Semester

Name of the Paper- 401 NM (Physical Chemistry)

Units Assigned- II& III

Marks Assigned- 21

Unit –I : Solution		
Class	Topic/unit	Remarks
1	Types of solutions, concentration units	Marks:8
2	Solution of gases in liquids-Henry's law. Solution of liquids in liquids	
3	Ideal solution-Raoult's law- Non ideal solution.	
4	Distillation of solutions, Lever rule, Azeotropes,	
5	Partial miscibility of liquids. Critical solution temperature.	
6	Immiscibility of liquids TheNernst distribution law and its applications	
7	Principle of steam distillation	
8	Solvent extraction	
9	Solutions of solids in liquids the solubility curves,discussion	
Unit – II Ionic Equilibrium		
1	Ionization,Strong and weak electrolytes, degree of ionization,	8Marks: 8
2	Factors affecting degree of ionization constant and ionic product of water.	
3	Ionization of weak acids and weak bases. pH and its determination	
4	pH scale, common ion effect.	
5	Salt hydrolysis – calculation of hydrolysis constant, degree of hydrolysis	
6	pH for differentsalts.	
7	Solubility and solubility product of sparingly soluble salts-	
8	Applications of solubility product	
9	Buffer solutions	
UNIT-Second law of thermodynamics		
1	Second law of thermodynamics, Spontaneous and Non-Spontaneous processes cyclic process	Marks: 5
2	Carnot cycle,	
3	Entropy, Entropy change in reversible and irreversible processes and for ideal gas,	
4	Concept of work function and free energy	
5	Q/ANS	

(June 2019 – Dec 2019)

Name of the Teacher-Mrs. Jonali Dutta

Course —MAJOR

Class/Semester-VI Semester

Name of the Paper- 601 (M) (Physical Chemistry)

Units Assigned-I&V

Marks :I & V:20

UNIT :1:Photochemistry		
class	TOPIC/UNIT	Remarks
1	Absorption of light,Photochemicalreaction,Laws of photochemistr	
2	Beer lambert's Law,EinsteinLaw,Numericals	
3	Quantum Yield,Determination,Reasons for high and low quantum yield	
4	Photodimerisation,Quenching,Combination of hydrogen and chlorine,H ₂ and Br ₂ Dissociation of HI,photosensitizedreaction,spin multiplicity	
5	Fluorescence and phosphorescence	
6	Chemiluminescence,Bioiluminescence	
7	Photoelectric effect,Photovoltaic cell	
8	Lasers,Numericals	
UNIT: V :Statistical Thermodynamics		
1	Statistical methods,Microand macro states,Ensembles	
2	Relation between entropy and thermodynamic probality,Stirling approximation ,	
3	Boltzman distribution law	
4	Partition Function,Internalenergy,Entropy Heat capacity	
5	M.B.Statistics	
6	Bose –Einstein Statistics	
7	Fermi-Dirac Statistics Thermodynamic functions and molar partition function	
8	Translational Partition function function from particle in one dimensional box	
9	Vibrational Partition Rotational Partition function	

Name of the Teacher-Mrs. Jonali Dutta

Course —Major

Class/Semester-VI Semester

Name of the paper:607(M) (Quantum Chemistry)

UNIT:I,II,III,IV:

Marks:26

UNIT:I&II:General Principle and Microwave Spectroscopy		
CLASS	UNIT/TOPIC	REMARKS
Unit IV Electronic spectroscopy		
Class	Electromagnetic radiation,Different types of spectra,and spectroscopy-An introduction	Marks 8+2=10
1	The Beer – Lambert Law, molar absorption	
2	coefficient MO energy level Marks 8	
3	Selection rules for electronic transitions	
4	Franck-Condon principle,	
5	Solvent effect ,bathochromic andhypsochromic shift.	
6	Chromophores, auxochromes	
7	Vibrational structures	
8	Revision	
9	Microwave spectroscopy,rigid diatomic atomic molecule,	
10	transitions between rotational energy levels,rotational constant	
11	Intensities of spectral lines	
12	Calculation of bond length of diatomic molecule	
13	Isotropic substitution	
14	Numericals and discussion	
UNIT:III:Raman Spectroscopy		
1	Raman Effect,Stokes and antistokes lines	Marks-8
2	Classical and quantum mechanical theories	
3	Polarizability tensor	
4	structure elucidation by Ramanspectroscopy (AB, A2B, and AB3)	
5	stretching frequencies of bonds and functional groups	
6	Q/ANS. DISCUSSION	

NAME OF THE TEACHER- NEELAKSHI HAZARIKA

Course Plan Jun-Dec, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 1st semester, Non-CBCS

Name of the Paper-MM-101, Inorganic Chemistry

Units Assigned- All

Marks assigned- 34

Class	Topic/ Unit	Remarks
1	Section II Inorganic Chemistry	
2	Periodic properties: - Effective nuclear charge (screening constant – Slater's rule only),	
3	Ionic and covalent radii	
4	Ionization potential and periodic variation	
5	Electron affinity and periodic variation	
6	Electro negativity (Pauling-Mulliken's and Allred-Rochow scales).	
7	Bonding and structure: Electrovalent bond, covalent bond	
8	Covalent ionic resonance	
9	Partial ionic character in covalent bonds	
10	lattice energy, bond length	
11	bond angle and bond energy.	
12	Valence Bond Theory for H ₂ molecule	
13	Valence Bond Theory for H ₂ molecular ion	
14	Molecular orbital theory and its application	
15	Drawbacks of Valence Bond Theory	
16	MOT for hydrogen molecule	
17	LCAO and MO diagram of homo diatomic molecules	
18	LCAO and MO diagram of hetero diatomic molecules	
19	VSEPR theory and its applications	
20	VSEPR theory and its applications	

Course Plan Jun-Dec, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – NonMajor

Class/Semester- 1st semester, Non-CBCS

Name of the Paper-NM-101, Section Inorganic Chemistry

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	Atomic Structure: Electronic configuration of elements based upon electronic configuration in the periodic table	
2	Effective nuclear charge,	
3	Ionization energy,	
4	Electron affinity,	
5	Electronegativity,	
6	Redox potential.	
7	Unit II: Chemical Bonding and Molecular Structure: Ionic Bonding: Energy consideration in ionic bonding,	
8	Lattice Energy and Solvation Energy	
9	importance of Lattice energy and Solvation energy in the context of Stability and Solubility of ionic compounds.	
10	Polarizing power and polarizability.	
11	Fajan's rule	
12	dipole moment and percentage ionic character.	
13	Hydrogen Bonding.	
14	Covalent Bonding: VB Approach	
15	Concept of hybridization, sp, sp ² , sp ³ , sp ³ d, sp ³ d ² and dsp ²	
16	VSEPR Theory. Resonance and Resonance energy	
17	Study of some inorganic and organic compounds (O ₃ , NO ₃ ⁻ , CO ₃ ²⁻)	
18	Study of some inorganic and organic compounds(SO ₄ ²⁻ , RCOO ⁻ , C ₆ H ₆).	
19	Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals,	
20	non-bonding combination of orbitals,	
21	MO treatment of homonuclear diatomic molecules	
22	MO treatment of and heteronuclear diatomic molecules such as CO, NO and NO ⁺	

Course Plan Jan-May, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 3rd semester,

Name of the Paper-MM-301, Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	Coordination compounds: Types of ligands: monodentate, bidentate, ambidentate,	
2	Polydentate and macro cyclic ligand.	
3	Nomenclature of complex compounds, Isomerism in 4- and 6-coordinate compounds	
4	Inner complex and chelates.	
5	Effective atomic number rule	
6	Valence Bond Theory	
7	Application of Valence Bond Theory in tetrahedral complexes	
8	Application of Valence Bond Theory in octahedral complexes	
9	Drawbacks of Valence Bond Theory	
10	Crystal field splitting in Octahedral complexes	
11	Crystal field splitting in tetrahedral complexes	
12	Crystal field splitting in tetragonal and square complexes	
13	MO and introduction to ligand field theories and their applications.	
14	Spectroscopic terms,	
15	RS coupling,	
16	Mullikan's symbol (A, B, E, T)	
17	Spectrochemical and nephelauxetic series	
18	Electronic spectra of simple Td and Oh complexes	
19	Selection rules and Orgel diagram (d1 to d9 system).	
20	Magnetic properties: Paramagnetism, diamagnetism, magnetic properties of octahedral complexes	
21	Antiferromagnetism.	
22	Inorganic reaction mechanism	
23	Introduction to inorganic reaction mechanism	
24	Inert and labile complexes	
25	Association mechanism	
26	Dissociation and concerted paths mechanism	
27	Acid hydrolysis (with reference to cobalt complexes only).	
28	Base hydrolysis (with reference to cobalt complexes only).	
29	Substitution reaction in octahedral and square planar complexes.	
30	Substitution reaction in square planar complexes.	
31	Trans effect, Irving-William Series	
32	Chemistry of d- and f- block elements, Electronic structure, oxidation state, ionic radii	
33	Lanthanide and Actinide contraction	
34	Separation of lanthanides	

Course Plan (Session Jun-Dec, 2019)

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Non-Major

Class/Semester- 5th Sem (Non-CBCS)

Name of the Paper- NM 501, Inorganic Chemistry-II + Physical Chemistry-II

Units Assigned- I

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit–I Nuclear Chemistry: Mass defect and binding energy, packing fraction	
2.	Stability of nucleus, neutron-proton ratio	
3.	Artificial radioactivity, nuclear fission	
4.	Nuclear reactors, separation of isotopes	
5.	Detection and measurement of radioactivity by GM counter.	
6.	Application of radio-isotopes in agriculture, medicine and industry.	
7.	Radiocarbon dating.	
8.	Unit-II Preparative Chemistry Preparation, properties and uses of the following compounds : Lithium aluminium hydride	
9.	potassium ferro and ferricyanide	
10.	sodium cobaltinitrite	
11.	Sodium thiosulphate, Nessler's reagent,	
12.	Sodium borohydride, silica gel,	
13.	Pb containing paints	
14.	Zn containing paints	
15.	Unit-III Bioinorganic Chemistry:Role of zinc	
16.	Role of iron	
17.	Role of cobalt	
18.	Role molybdenum	
19.	Sodium, potassium in biological system.	
20.	Role of Mg^{++} in chlorophyll.	
21.	Role of Ca in blood clotting	
22.	Poisoning due to heavy metal ion -Mercury	
23.	Cadmium poisoning	

Course Plan Session Jun-Dec, 2019

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Sem, Non-CBCS

Name of the Paper-MM 503, Inorganic Chemistry II

Units Assigned- All

Marks Assigned-48

Class	Topic/ Unit	Remarks
1.	UNIT –I: Organometallic compounds: Definition, electron count, 18 electron rule	
2.	Isolobal analogy	
3.	Compounds in catalysis ,Wilkinson's catalyst	
4.	Vaska's compound	
5.	HCo(CO) ₄	
6.	Metal carbonyls: Structure, bonding	
7.	IR spectral studies of terminal and bridged carbonyls.	
8.	Structure and bonding in some Metal –Olefins compound,	
9.	Structure and bonding in metal – ligand σ -bonded compounds	
10.	Structure and bonding in ferrocene	
11.	Oxidative addition	
12.	Reductive elimination reaction.	
13.	Uses of some organometallic	
14.	UNIT – II: Transition metal clusters: Definition of cluster, metal – metal bond in cluster,	
15.	Synthesis of metal carbonyl cluster of Cr, Fe and Mo (only low nuclearity clusters up to 4 metal atoms).	
16.	Closed shell electronic requirement for cluster compounds – rules for Polyhedral Skeletal Electron Pair Theory.	
17.	Nitrosyl compounds: Synthesis, properties and structures of nitrosyls of Fe, Co and Ni.	
18.	UNIT – III: Error in quantitative analysis: Accuracy, precession	
19.	Deviation, standard deviation, Numericals	
20.	Classification of errors, minimization of errors,	
21.	Significant figures.	
22.	Indicators: Choice of indicators in neutralization reactions.	
23.	Redox, adsorption and complexometric	
24.	Adsorption indicator	
25.	Complexometric indicator	
26.	UNIT – IV: Organic reagents in inorganic analysis :- Cupferron, dithizone oxine	
27.	benzoin- α - oxime,	
28.	1- nitroso-2- naphthol, diphenyl carbazide,	
29.	Diphenyl carbazone, salicylaldehyde,	
30.	1,10- phenanthroline, murexide,	
31.	thiourea, zinc uranyl acetate,	

Course Plan Session JUN- DEC, 2019

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Semester, NON-CBCS

Name of the Paper- MM 507, Symmetry and Quantum Chemistry

Units Assigned- Unit I

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Unit – I: Symmetry and Group theory: Symmetry elements and symmetry operations	
2.	Definition of group, symmetry group	
3.	point group and space group.	
4.	Perspective sketch and point group of some common molecules, H ₂ , HF,	
5.	CO ₂ , C ₂ H ₂ ,	
6.	C ₂ H ₄ , CHCl ₃ ,	
7.	PCl ₅ , NH ₃	
8.	BF ₃ , [PtCl ₄] ²⁻ , BrF ₅	
9.	symmetry and mathematical tools, matrix algebra,	
10.	reducible and irreducible representation, great orthogonality theorem	
11.	Character table for C _{2v}	
12.	Character table for C _{3v}	
13.	Determination of Γ_i for C _{2v}	
14.	Determination of Γ_i C _{3v} point groups.	

Course Plan Jan-May, 2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Non Major

Class/Semester- 2nd semester, Non-CBCS

Name of the Paper-NM-201, Section Inorganic Chemistry

Units Assigned- All

Marks assigned- 48

Class	Topic/ Unit	Remarks
1	Unit-I Coordination Chemistry: Review of Werner's theory. Types of ligands, monodentate, bidentate	
2	ambidentate and polydentate ligands, PiAcceptor and macrocyclic ligands.	
3	IUPAC Nomenclature of Co-ordination compounds.	
4	IUPAC Nomenclature of Co-ordination compounds.	
5	Isomerism of 4-and 6- coordinate compounds.	
6	Isomerism of 4-and 6- coordinate compounds.	
7	Introduction to Valence Bond	
8	Application of VBT	
9	Introduction to Crystal Field theory.	
10	CFT in octahedral complexes	
11	CFT in tetrahedral complexes	
12	Application of dimethyl glyoxime, EDTA, 8-hydroxy quinoline,	
13	Use 2,2-bipyridyl, and ethylenediamine in analysis.	
14	Unit-II Chemistry of non-metals Boron: Preparation, structure and bonding of diborane	
15	Silicon: Structure, properties and use of silicon carbide and silicon polymers (linear).	
16/17	Structure, properties and use of silicon polymers (linear)	
18	Nitrogen: Hydroxylamine, Hydrazine, preparation, properties, uses and electronic structure.	
19	Hydrazoic acid; preparation, properties, uses and electronic structure.	

20	Rare gases- Xenon compounds.	
21	Preparation and properties of xenon compounds	
22	Preparation and properties of xenon compounds	
23	Structure determination of xenon compounds with the help of VSEPR	
24	Phosphorous: Structures of oxides and oxyacids.	
25	<u>Unit-III Inorganic Material Chemistry</u> <u>Zeolites, it's structure and properties</u>	
26	Ceramics and its preparation	
27	Manufacturing of glass and its types	
28	Silicate minerals, it's properties and uses	
29	Cement – composition, raw materials, manufacturing process	
30	Setting of cement	
31	Types of Inorganic metal oxides	
32	Superconductor	
33	Synthesis, Structure and Application of Fullerenes	
34	Unit-IV General principles of metallurgy Physico-Chemical methods involved in metallurgy	
35	Concentration, calcinations, reduction	
36	roasting, zone refining, solvent extraction	
37	hydrometallurgy and electrochemical methods	
38	Metallurgy of gold,	
39	Metallurgy of nickel	
40	Metallurgy of thorium	
41	Metallurgy uranium and manganese	
42	Metallurgy of manganese	

Course Plan Jan-May, 2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic –Major

Class/Semester- 2nd semester, Non-CBCS

Name of the Paper-MM-201, Section II (Inorganic Chemistry)

Units Assigned- I, II

Marks assigned- 27

Class	Topic/ Unit	Remarks
1	UNIT – I: Non Transition elements: Electronic structure, general Properties and comparative study of group of non transition elements.	
2	Noble Gas : Compounds of Xenon only	
3	Boron: Wade's rule, Nomenclature of closo, nido and arachno boranes,	
4	Structure of boron hydrides (B_2H_6), metalloborane and metallocarboranes.	
5	Preparation, structure and use of Borazine	
6	Preparation, structure and use of phosphazine	
7	Preparation, structure and use of S_4N_4	
8	Preparation, structure and use of $(SN)_x$	
9	Carbon : Fullerenes (C_{60}) preparation and properties	
10	Silicon: Silicones, classifications and structure of silicates.	
11	Zeolites, use of Zeolites as catalyst and molecular sieve	
12	Aluminosilicates	
13	Nitrogen: Preparation and properties of hydroxylamine	
14	Preparation and properties of Hydrazine	
15	Preparation and properties of hydrazoic acid.	
16	Phosphorus: Phosphines,	
17	oxy acids of phosphorus,	
18	organophosphorus compounds.	
19	UNIT – II : Metals Theory of reduction (Thermodynamic approach), role of carbon and other reducing agents,	
20	Electrolytic reduction, roasting and calcinations.	
21	Method of purification and refining of metals, zone refining	
22	Vacuum arc process, ion exchange,	
23	Solvent extraction and electrolytic method,	
24	Van – Arkel process and hydrometallurgy.	
25	Extraction of and study of some important compounds : Cr, chromyl chloride, lead chromate, potassium dichromate	
26	Extraction of the following metals and study of some of their important compounds : Mn, manganese dioxide, $KMnO_4$	
27	Extraction of and study of some of some important compounds : Mo, Ammonium molybdate	
28	Extraction of and study of some important compounds : Co, sodium cobaltinitrite, cobalt nitrate	
29	Extraction of and study of some important compounds : Ni, Ni-DMG	
30	Extraction of and study of some of compounds : V, vanadium pentoxide	

Course Plan, JAN-MAY, 2020

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic –Major

Class/Semester- 6th SEMESTER, NON-CBCS

Name of the Paper- MM 603, Inorganic Chemistry III

Units Assigned- All

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	UNIT-I: Bio inorganic Chemistry Metal ion in biological system	
2.	Biological role of iron	
3.	Biological role of copper	
4.	Biological role of cobalt	
5.	Biological role of zinc	
6.	Biological role of molybdenum.	
7.	Metalloprotein and metalloenzymes, therapy.	
8.	Physiology of hemoglobin & myoglobin,	
9.	Plastocyanin, it's structure and function	
10.	Vitamin B12, it's structure and function.	
11.	Carbonic anhydrase, it's structure and function	
12.	Nitrogenase it's structure and function,	
13.	Metal ion in medicine -- cisplatin and carboplatin.	
14.	Use of EDTA in chelation	
15.	Role of alkali and alkaline earth metals	
16.	UNIT-II: Introduction to material chemistry	
17.	Idea about supra molecular interaction.	
18.	Solid state reactions	
19.	Nano materials – synthesis and characterization.	
20.	C – C composite	
21.	Polymer and nanocomposite	
22.	Introduction of chemistry of clay (Kaolinite, Montmorillonite and Laponite)	
23.	UNIT – III: Chromatographic Methods Paper chromatography	
24.	Thin layer chromatography	
25.	Column chromatography	
26.	Gas chromatography – separation of compounds, development and Rf values	
27.	HPLC – principle only.	
28.	UNIT IV: Industrial chemistry: Industrial water treatment: Demineralized (DM) water and effluent treatment.	
29.	Various types of cements, their composition,	
30.	Manufacturing of cement	
31.	Setting of cement	
32.	Ceramics	
33.	Paints: Constituents, role of binder and solvent	
34.	lead and zinc containing paints.	
35.	Introduction to Chemical Toxicology: Metal poisoning due to Pb	
36.	Metal poisoning of Cd	
37.	Metal poisoning of Hg	
38.	hazard from radioactive fallout	

Course Plan Jan-May, 2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 6th semester, Non-CBCS

Name of the Paper-MM 607, Molecular Spectroscopy

Units Assigned- I, III, V

Marks Assigned- 22

Class	Topic/ Unit	Remarks
1.	Unit-I General Principles Interaction of electromagnetic radiation with molecules and various types of spectra, Selection rules.	
2.	Unit-III Infrared spectroscopy Classical equation of vibration, vibrational energies of diatomic molecules	
3.	zero point energy, Concepts of normal vibration	
4.	force constant, effect of isotopic substitution,	
5.	Vibrational frequency, Fundamental frequencies, overtones	
6.	hot bands	
7.	Degree of freedom of polyatomic molecules,	
8.	concept of group frequencies.	
10.	Numericals of IR	
11.	Unit V: Spin resonance spectroscopy Principle of NMR,	
12.	Larmour precession,	
13.	chemical shift and low resolutions spectra	
14.	Numericals of NMR	
15.	Different scales, spin-spin coupling and high resolution spectra	
16.	Interpretation of PMR spectra of ethanol,	
17.	1- and 2-chloropropane, acetaldehyde,	
18.	cyanohydrin and 1,2 & 1,3-dichloropropane.	
19.	Electron spin resonance (ESR) spectroscopy and its principle	
20.	hyperfine structure	
21.	ESR of simple free radicals methyl, Deuterated methyl	
22.	ESR of simple free radicals propyl, ethyl	
23.	ESR of copper (II) compounds. L-12, Marks: 10	
24.	Difference between NMR and ESR	
25.	Numericals of ESR	

NAME OF THE TEACHER- DR NAYAN JYOTI KHOUND**June 2019 to May 2020**

Course –Major (Non CBCS)

Class/Semester- 1st Semester

Name of the Paper-101 (Physical Chemistry)

Units Assigned- I +II

Marks Assigned- 10 + 6

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	
Unit II: Liquid		Marks Assigned- 06
1	Qualitative treatment of structure of liquids, physical properties of liquids	
2	vapour pressure, surface tension, viscosity,	
3	Newtonian liquid, qualitative discussion of structure of water	
4	parachor-determination and application	
5	liquid crystals,	
6	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – NonMajor (Non CBCS)

Class/Semester- 1st Semester

Name of the Paper- 101 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 10

Unit I: Kinetic Theory of Gases		Marks Assigned- 10
Class	Topic	Remarks
1.	Derivation of kinetic gas equation, Maxwell distribution of molecular speed	
2.	different types of average speeds, collision properties,	
3.	Mean free path, determination of collision diameter,	
4.	transport phenomenon in gases-viscosity, coefficient of viscosity, law of equipartition of energy,	
5.	degrees of freedom and average energy of a molecule	
6.	molecular basis of heat capacity, barometric formula and its uses for determination of Avogadro number	
7.	Deviation from ideal behavior, van der Waals and Dieterici's, Virial equation of state,	
8.	Boyle's temperature, Critical constants	
9.	Reduced equation of state, co-efficient of compressibility and thermal expansion.	
10.	Numericals discussion	
11.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 2nd Semester

Name of the Paper- 201 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 14

Unit I: Chemical Thermodynamics –I		Marks Assigned- 14
Class	Topic	Remarks
1.	Extensive and intensive properties of a system,	
2.	thermodynamic processes: cyclic, reversible, irreversible processes,	
3.	Thermodynamic function, complete differential, Zeroth law of thermodynamics.	
4.	First law of thermodynamics-internal energy, enthalpy, molar heat capacities,	
5.	relation between C_p and C_v , work of expansion in reversible and irreversible process, adiabatic	
6.	Joule Thomson effect, calculation of Joule Thomson co-efficient for ideal and Vander Waal's gas.	
7.	Thermo chemistry- Hess's law,	
8.	Kirchhoff's law relation of reaction enthalpy with internal energy,	
9.	Bond energy and Bond dissociation energy	
10.	Bond energy Calculation from thermo chemical data.	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course – Major (Non CBCS)
 Class/Semester- 3rd Semester
 Name of the Paper- 301 (Organic Chemistry)
 Units Assigned- I
 Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms	
3.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution vs elimination.	
5.	Haloform reaction	
6.	Aryl halides: Preparation from diazonium salts	
7.	Nucleophilic Aromatic Substitution SNAr intermediates.	
8.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
9.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
10.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
11.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
12.	Organometallic Compounds of Mg Use in synthesis of organic compounds.	
13.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
14.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course – NonMajor (Non CBCS)
 Class/Semester- 3rd Semester
 Name of the Paper- 301 (Organic Chemistry)
 Units Assigned- I
 Marks Assigned- 12

Unit I: Chemistry of Halogenated Hydrocarbons		Marks Assigned- 12
Class	Topic	Remarks
1.	Alkyl halides: Methods of preparation	
2.	Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid)	
3.	Nucleophilic substitution reactions: SN1 Mechanisms with stereochemical aspects	
4.	Nucleophilic substitution reactions: SN2 Mechanisms with stereochemical aspects	
5.	Nucleophilic substitution reactions: SNi Mechanisms with stereochemical aspects	
6.	Nucleophilic substitution vs elimination	
7.	Haloform reaction	
8.	Aryl halides: Preparation from diazonium salts	
9.	Nucleophilic Aromatic Substitution SNAr intermediates.	
10.	Nucleophilic Aromatic Substitution Benzyne intermediates.	
11.	Relative reactivity of alkyl, allyl /benzyl, halides towards nucleophilic substitution reactions.	
12.	Relative reactivity of vinyl halides towards nucleophilic substitution reactions.	
13.	Relative reactivity of aryl halides towards nucleophilic substitution reactions.	
14.	Organometallic Compounds of Li - Use in synthesis of organic compounds.	
15.	Previous year Question paper discussion	
16.	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND
 Course –Major (Non CBCS)
 Class/Semester- 4th Semester
 Name of the Paper- 401 (Physical Chemistry)
 Units Assigned- I + II
 Marks Assigned- 20 + 6

Unit II: Conductance		Marks Assigned- 20
Class	Topic	Remarks
1.	Arrhenius theory of electrolytic dissociation	
2.	conductivity, equivalent and molar conductivity	
3.	conductivity, equivalent and molar conductivity and their variation with dilution strong electrolytes	
4.	conductivity, equivalent and molar conductivity and their variation with dilution for weak electrolytes	
5.	molar conductivity at infinite dilution	
6.	kohlrausch law of independent migration of ions	
7.	Debye-Huckel – Onsagar equation,	
8.	Wien effect, Debye –Falkenhagen effect,Walden’s rules.	
9.	Ionic velocities,	
10.	mobilities and their determinations	
11.	Transference numbers and their relation to ionic mobilities,	
12.	determination of transference numbers using Hittorf	
13.	determination of transference numbers using moving boundary methods	
14.	determination of transference numbers using Hittorf and moving boundary methods, ,	
15.	anomalous transference number	
16.	application of conductance measurement: i) degree of dissociation of weak electrolytes,	
17.	ii) ionic product of water	
18.	iii)solubility and solubility product of sparingly soluble salts	
19.	iv) Hydrolysis constant of aniline hydrochloride	
20.	v) Conductometric titration (Acid Base and precipitation)	
21.	Previous year Question paper discussion	
Unit I : Chemical Thermodynamics		Marks Assigned- 06
1	Second law of thermodynamics,	
2	Carnot’s theorem	
3	Carnot cycle, efficiency of heat engines,	
4	thermodynamic scale of temperature	
5	Nernst heat theorem, consequence of the theorem,	
6	third law of thermodynamics,	
7	Determination of absolute entropies of pure substance	
8	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 4th Semester

Name of the Paper- 401 (Physical Chemistry)

Units Assigned- III + IV(a)

Marks Assigned- 10 + 12

Unit II: Chemical Kinetics		Marks Assigned- 10
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
10.	Collision theory of bimolecular reactions, its limitation,	
11.	Numericals Discussion	
12.	Previous year Question paper discussion	
Unit IV(a) : Chemical Thermodynamics		Marks Assigned- 12
1	Thermal equilibrium and zeroth law of thermodynamics- concept of temperature	
2	Mechanical work, SI sign convention. 1st law of thermodynamics, internal energy, enthalpy, reversible and irreversible processes	
3	calculation of W, Q, ΔU , ΔH for expansion of ideal gas, isothermal work and enthalpy	
4	relation between enthalpy change, and entropy change,	
5	molar heat capacities, relation between C_p and C_v ,	
6	adiabatic processes- relation between P, V and T	
7	Joule-Thomson effect	
8	liquefaction of gases, conversion of heat into work, efficiency of heat engine	
9	Enthalpy of reaction,	
10	Types of Enthalpy of reaction,	
11	Thermodynamical equation	
12	variation of enthalpy of reaction with temperature-Kirchhoff's equation	
13	enthalpy of different processes	
14	Hess law, calculations based on Hess law.	
15	Previous year Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I +IV + V

Marks Assigned- 15 + 07 + 08

Unit I: Chemical Kinetics		Marks Assigned- 15
Class	Topic	Remarks
1.	Rate and unit of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order reactions, & half life periods	
5.	differential and integral forms of rate equations of 1 st order reaction & half life periods	
6.	differential and integral forms of rate equations of 2nd order reactions & half life periods	
7.	Numericals and applications of different order reactions	
8.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
9.	Evaluation of rate constant by integrated equation method & graphical method, Guggenheim method (1st order reaction),	
10.	Rate laws and mechanism, steady state approximation.	
11.	Rate equation of first order, opposite, parallel, consecutive reaction,	
12.	Rate equation of chain reactions, chain branching, explosion limit, hydrogen – bromine thermal reaction,	
13.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
14.	Collision theory of bimolecular reactions, its limitation,	
15.	Activated complex theory, Eyring equation, Lindeman's theory of unimolecular gas phase reaction.	
16.	Question paper discussion	
Unit IV: Surface Chemistry		Marks Assigned- 07
1	Adsorption and types of adsorption	
2	Physical and chemical adsorption of gases on solid surface	
3	Adsorption isotherms & types of adsorption isotherm	
4	Freundlich equation, Langmuir adsorption equation.	
5	Gibbs adsorption equation	
6	Determination of surface area of an adsorbent	
7	application of adsorption in chemical analysis and in industry,	
Unit V: Colloidal State		Marks Assigned- 08
1	Colloid and types of colloids	
2	Physical and electrical properties of colloids	
3	Electro kinetic phenomenon- electrophoresis, electro-osmosis,	
4	Electrical double layer and zeta potential, theory of stabilities of colloids,	
5	Protective action of Lyophillic sol-gold number,	
6	Determination of Avogadro's number	
7	Coagulation of colloids, Schultz – Hardy rule, association of colloids, emulsions	
8	Micelles and their structure, critical micelles concentration,	
9	Donnan membrane equilibria	
10	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I + III + IV

Marks Assigned- 05 + 05 + 04

Unit I: Conductance		Marks Assigned- 05
Class	Topic	Remarks
1.	Conductivity, equivalent and molar conductivity	
2.	Their variation with dilution for weak and strong electrolytes.	
3.	Kohlrausch law of independent migration of ions.	
4.	Transference number and its experimental determination using Hittorf and Moving boundary methods.	
5.	Ionic mobility.	
6.	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts,	
7.	Applications of conductance measurements: determination of degree of ionic product of water, hydrolysis constant of a salt.	
8.	Conductometric titrations of acid - base	
Unit III: Adsorption & Catalysts		Marks Assigned- 05
1	Adsorption & types of adsorption.	
2	Differences between chemisorptions and Physical adsorption	
3	Freundlich adsorption isotherm and Langmuir adsorption isotherm, application of adsorption.	
4	Catalysis & Types of catalysis	
5	Homogeneous heterogeneous catalysis, acid-base catalysis, catalytic promoter, poisoning, negative catalysis ,	
6	enzyme catalysis characteristics of enzyme catalysis ,Theories of catalysis.	
7	Question discussion	
Unit IV: Phase rule		Marks Assigned- 04
1	Statement of phase rule, definition of phase, components and degrees of freedom with examples	
2	Application of phase rule	
3	Phase diagram of water and sulphur system.	
4	Phase diagram of Pb –Ag system.	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 6th Semester

Name of the Paper- 601 (Physical Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 08 + 08 + 12

Unit II: Macromolecules		Marks Assigned- 08
Class	Topic	Remarks
1.	Polymer and their classification	
2.	Step reaction polymerization & Addition polymerization,	
3.	Mechanism and kinetics of free radical polymerization,	
4.	Mechanism and kinetics anionic polymerization	
5.	Mechanism and kinetics of cationic polymerization	
6.	Weight and Number average molecular weight,	
7.	Viscometric and Osmometric methods of molecular weight determination,	
8.	Degree of polymerization & Carother equation,.	
9.	Zeigler Natta catalysts, Co-polymerisation	
10.	Question paper discussion	
Unit III: Catalysis		Marks Assigned- 08
1	Catalysis and its types	
2	Criteria of catalysis,	
3	Homogeneous and heterogeneous catalysis,.	
4	Acid – Base catalysis	
5	Effect of temperature on surface reactions	
6	Effect of particle size and efficiency of nano particles as catalysts,	
7	Autocatalysis & catalytic poison,	
8	Enzyme catalysis-mechanism	
9	Michaelis-Menten equation	
10	Question discussion	
Unit IV: Phase Equilibria		Marks Assigned- 12
1	Definition of phase components, degree of freedom	
2	Thermodynamic derivation of phase rule,	
3	application of phase rule to one component-water and sulphur,	
4	Phase diagram of simple eutic Pb-Ag, & KI-H ₂ O system	
5	Phase diagram of two component systems with congruent melting point (Zn-Mg) system	
6	Phase diagram of two component systems incongruent melting point (Na ₂ SO ₄ -H ₂ O) system	
7	Interpretation of vapour pressure composition and temperature-composition phase diagram	
8	Distillation of liquid mixtures and azeotropic mixture.	
9	Clapeyron equation, Clausius - Clapeyron equation, their derivation and application	
10	Question paper discussion	

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)

Class/Semester- 6th Semester

Name of the Paper- 601 (Organic Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 05 + 06

Unit II: Organic Chemistry of Life		Marks Assigned- 05
Class	Topic	Remarks
1.	classification, preparation and properties of Amino acids	
2.	Glycine, Alanine and Phenylalanine	
3.	(Strecker synthesis and Gabriel phthalimide method).	
4.	Elementary ideas of peptides and proteins.	
5.	Elementary ideas of nucleoside, nucleotide,	
6.	Elementary ideas of nucleic acid (DNA, RNA	
7.	nucleic acid (DNA, RNA	
8.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
9.	Elementary ideas of enzyme and co-enzyme, lipids and fatty acids	
10.	Reactions of amino acids	
Unit III: Polymers		Marks Assigned- 06
1	Polymer and their classification	
2	Step reaction polymerization & Addition polymerization,	
3	Weight and Number average molecular weight,	
4	Viscometric and Osmometric methods of molecular weight determination,	
5	Question Paper discussion	

NAME OF THE TEACHER: DR. BISHWAJIT SAIKIA

Course: **Major**

Class/Semester: **1stSemester**

Name of the Paper: **MM-101 (Section -III Organic Chemistry)**

Units Assigned: **I + II**

Marks Assigned: **15 + 12**

Class	Topic	Remarks
Unit I: Basics of Organic Chemistry		
1.	Organic Compounds: Natural sources, classification and Nomenclature	
2.	Hybridization: Shape of molecules, Influence of hybridization on bond properties	
3.	Electronic displacements: Inductive, Electromeric, Resonance, Mesomeric effects and Hyperconjugation and their applications. Dipole moment.	
4.	Organic acids and bases: Their relative strength, hard and soft acids and bases.	
5.	(Homolytic and Heterolytic fission, Electrophiles and Nucleophiles: Nucleophilicity and basicity.	
6.	Reactive intermediates: Carbocations, carbanions, free radicals, arbenes, nitrenes, benzyne, Types, Shape and their relative Stability.	
7.	Energy profile diagrams of one step, two steps and three steps reactions, Rate limiting steps. Activation Energy. Kinetically and thermodynamically controlled reactions.	
Unit II: Stereochemistry		
1.	Elements of symmetry and their application in simple organic molecules.	
2.	Definition and classification of stereoisomerism	
3.	Representation of organic molecules in three & two dimension: Fischer Projection, Newman projection, Saw horse and flying wedge projection formula and their interconversions.	
4.	Optical isomerism: Concepts of asymmetry, dissymmetry, optical activity, Specific rotation, Chirality, enantiomers, Diastereomers, racemic mixture, racemization and Resolution,	
5.	Erythro forms, Meso structures & Epimers. Relative and absolute configuration: D/L and R/S designations. Walden inversion and asymmetric synthesis.	
6.	Geometrical Isomerism: Restricted rotation about C=C bonds, physical and chemical properties of diastereoisomers, determination of configuration of geometrical isomers: cis-trans isomerism, syn-anti and E/Z notation with CIP rules.	
7.	Geometrical isomerism in oximes and alicyclic compounds.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **1stSemester**

Name of the Paper: **NM-101 (Section C: Organic Chemistry)**

Units Assigned: **VI + VII + VIII**

Marks Assigned: **10 + 12 + 5**

Class	Topic	Remarks
Unit VI: Introduction to Organic Chemistry		
1.	Importance of Organic Chemistry & organic systems to human beings & society. Electronic displacements: Inductive effect, Electrometric effect, Resonance and hyperconjugation.	
2.	Mechanism of organic reactions: Cleavage of Bonds- Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules- Nucleophiles and electrophiles.	
3.	Reactive Intermediates- Carbocations, carbanions, free radicals, carbenes & nitrenes.	
4.	Strength of organic acids and bases: comparative study with emphasis on factors affecting pka values.	
Unit VII: Stereochemistry		
1.	Conformations w.r.t. ethane, butane and cyclohexane (axial and equatorial bonds). Interconversion of wedge formula, Newman, Sawhorse and Fischer projection representation.	
2.	Concept of symmetry: Elements of symmetry (Centre of inversion, axis of rotation, plane of reflection and improper axis of rotation) applied to organic molecules.	
3.	Optical isomerism: Concept of chirality (with two stereogenic centres) diastereomers, threo and erythro, meso compounds, enantiomerism, CIP Rules, R/S Nomenclature (up-to two chiral carbon atoms) Resolution of enantiomers and Racemisation.	
4.	Geometrical isomerism: □-diastereoisomerism, Determination of configuration of geometric isomers. E&Z system of Nomenclature.	
Unit VIII: Aliphatic Hydrocarbons		
1.	Alkanes (upto 5 carbons) Preparation:- Catalytic hydrogenation, Wurtz reaction, Kolbe's Synthesis, from Grignard reagent.	
2.	Corey-House Synthesis. Reactions: Free radical Substitution: Halogenations	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **2ndSemester**

Name of the Paper: **MM-201 (Section–III Organic Chemistry)**

Units Assigned: **I + II + III**

Marks Assigned: **8 + 6 + 8**

Class	Topic	Remarks
Unit I: Carbon- Carbon sigma bonds		
1.	Chemistry of Alkanes: Formation of alkanes with special emphasis on Corey House Synthesis	
2.	Wurtz reaction, Wurtz-Fittig reaction. Reactions of alkanes: Free Radical substitution:- Halogenations-relative reactivities and selectivity.	
3.	Formation of alkenes and alkynes by Elimination: Mechanism of E1., E2, E1cB reactions. Saytzeff and Hoffmann elimination	
4.	Special emphasis on preparation of alkenes by syn- elimination:- pyrolysis of esters, Chugaev, Wittig, Heck reaction.	
5.	Reaction of alkenes: Addition Reaction- Electrophilic and free radical additions, their mechanisms. (Markonikoff/ Anti Markonikoff addition)	
6.	Regioselectivity (directional selectivity), and stereoselective of addition reactions. Mechanism of oxymercuration–demercuration, Hydroboration-Oxidation, Ozonolysis, reduction (catalytic and chemical).	
7	Syn and Anti hydroxylation (oxidation), simple effect of stereo selectivity and stereo specificity.	
8	Reactions of Alkynes: Acidity, Electrophilic and Nucleophilic additions, Hydration to form carbonyl compounds. Alkylation of terminal alkynes.	
Unit II: Cycloalkanes and conformational analysis		
1.	Synthesis and reactions of three, four, five and six membered cycloalkanes, Their relativestability, Baeyer strain theory. Sache-Mohr theory.	
2.	Conformational analysis of Alkanes: (ethane & butane) Relative stability, Energy diagram.	
3.	Cyclohexane: Chair, Boat and Twist boat forms, Relative stability with energy diagram, axial and equatorial bonds including perspective representation and Newman projections.Conformation& conformational analysis of monosubstituted cyclohexane derivative.	
Unit III: Aromatic Hydrocarbons		
1.	Aromaticity: Huckel’s rule, aromatic characters of arenes, benzenoid, non-benzenoid- aromatic compounds and heterocyclic and polynuclear hydrocarbons with suitable examples.Antiaromaticity and nonaromaticity	
2.	Electrophilic Aromatic Substitution: Halogenation, nitration,sulphonation and Friedel-craft’s alkylation / acylation with their mechanism. Activation /deactivation of aromatic ring and directing effects of groups. Partial rate factor (O/P ratio)	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **3rdSemester**

Name of the Paper: **MM-303 (Organic Chemistry-I)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Chemistry of Halogenated Hydrocarbons		
1.	Alkyl halides: Methods of preparation including Hunsdiecker reaction from silver or lead (IV) salts of carboxylic Acid).	
2.	Nucleophilic substitution reactions: SN1, SN2, and SNi Mechanisms with stereochemical aspects and effect of solvent. Nucleophilic substitution vs elimination. Haloform reaction.	
3.	Aryl halides: Preparation from diazonium salts. Nucleophilic aromatic Substitution SNAr, Benzyne intermediates.	
4.	Relative reactivity of alkyl, allyl /benzyl, vinyl and aryl halides towards nucleophilic substitution reactions. Organometallic Compounds of Mg and Li - Use in synthesis of organic compounds.	
Unit II: Chemistry of C-O Bond		
1.	Alcohols: Preparation, properties and relative reactivity of 1°, 2°, 3° alcohols. Bouveault Blanc Reduction and Baeyer-Villiger Oxidation Preparation and properties of Glycol: Oxidation by OsO4, alkaline, KMnO4, periodic acid and lead tetracetate. Pinacol Pinacolone rearrangement with mechanism	
2.	Trihydric alcohol: Glycerol: preparation & properties. Phenols: preparation and properties: acidity- comparison with alcohol. Substitution reaction, Reimer-Tiemann and Kolbe-Schmidt reaction, Fries rearrangement with mechanism.	
3.	Other aromatic Hydroxy compounds: Cresol, nitrophenols, picric acid, benzyl alcohol, dihydric phenols. Ethers and Epoxides: Preparation and reactions with acids.	
Unit III: Carbonyl Compounds: Aldehydes and ketones (aliphatic and aromatic)		
1.	Structure, Preparation and Reactions, Relative reactivity of aldehydes, ketones. Nucleophilic addition reactions.	
2.	Mechanism of Aldol, Benzoin, Stobbe, Darzens glycidic ester condensation, Perkin, Cannizzaro reaction. Beckmann and Benzil-Benzilic acid rearrangement, substitution, oxidation and reduction (Clemmensen, Wolf-Kishner and M P V reduction) Addition reactions of unsaturated carbonyl Compound: Michael addition.	
3.	Unsaturated aldehydes (Acrolein, Crotonaldehyde, Cinnamaldehyde) Unsaturated ketone (MVK).	
Unit III: Carboxylic acid and their derivatives		
1.	Preparation and properties and reactions of, monocarboxylic acids: effect of substituent on acidity, HVZ reaction and Schmidt reaction. Typical reactions and uses of dicarboxylic acids, Hydroxy acids, Unsaturated acids: Succinic, phthalic, lactic, malic, tartaric,	

	citric, maleic and fumaric acids.	
2.	Preparation and reactions of acid chlorides, anhydrides, esters, amides: Mechanism of acidic and alkaline hydrolysis of esters.	
3.	Claisen Ester Condensation, Dieckmann and Reformatsky Reaction, Hofmann bromamide degradation, Curtius rearrangement.	
Unit III:		
1	Sulphur containing compounds: Preparation and reactions of Thiols, Thioethers and sulphonic acids.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **3rd Semester**

Name of the Paper: **NM-301 (Organic Chemistry-I)**

Units Assigned: **I + II + III**

Marks Assigned: **12 + 12 + 12 + 10 + 2**

Class	Topic	Remarks
Unit I: Aliphatic Hydrocarbons: Alkenes & Alkynes		
1.	Alkenes (upto 5 carbons) Preparation- Elimination reaction- Mechanism of E1, E2, E1cB.	
2.	Dehydration of alcohols and dehydrohalogenation of alkyl halides— Saytzeff's & Hoffmann's rule.	
3.	Reactions: cis-addition (alk. KMnO ₄) and trans addition (bromine). Addition of HX (Markownikoff's and anti-Markownikoff's addition). Hydration, Hydroxylation by Osmium tetroxide, Hydroxylation via epoxydation, Ozonolysis. Oxymercuration-demercuration, hydroboration-oxidation.	
4.	Alkynes (up-to 5 carbons) Preparation: Acetylene from CaC ₂ and conversion into higher alkynes: by dehydrohalogenation of tetra halides, dehydrohalogenation of vicinal-dihalides. Reactions- Formation of metal acetylides, addition of bromine and alkaline KMnO ₄ , ozonolysis and oxidation with hot alk. KMnO ₄ .	
Unit II: Aromatic Hydrocarbons		
1.	Preparation (only benzene) from phenol by decarboxylation, from acetylene, from benzenesulphonic acid.	
2.	Reactions-Electrophilic substitution in benzene- nitration, halogenations, sulphonation, Friedel-Craft alkylation and acylation with mechanism.	
Unit III: Alkyl and Aryl halides		
1.	Alkyl halides- Nucleophilic Substitution Reactions (S _N 2, S _N 1, & S _N i) Preparation: from alkenes and alcohols	
2.	Reactions:: Hydrolysis, nitrite and nitro formation, nitrile and isonitrile formation. Williamson's Synthesis: elimination vs Substitution	
3.	Aryl halides Preparation (chloro, bromo, iodo benzene only): From phenol, Sandmeyer & Gattermann reaction.	
4	Reactions (chlorobenzene): Aromatic nucleophilic substitution (replacement by -OH) and effect of nitro substituent. Reactivity and relative strength of carbon-halogen bond in alkyl, allyl, benzyl and vinyl and Aryl halide.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **4thSemester**

Name of the Paper: **MM-403 (Organic Chemistry-II)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **6 + 10 + 8 + 6 + 10 + 8**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Keto-enol tautomerism, Preparation and properties of Acetoacetic ester and diethyl malonate.	
2.	Knoevenagel Condensation	
Unit II: Nitrogen containing functional groups		
1.	Effect of substituent and solvent on basicity. Preparation and properties: Gabriel Phthalimide synthesis and Hoffmann bromamide degradation, carbylamines reaction, Mannich Reaction, Hoffmann's Exhaustive methylation, Hoffmann-Elimination Reaction.	
2.	Distinction between 1°, 2° and 3° amines with Hinsberg reagent and nitrous acid. Nitro and nitroso compounds, Nitriles and isonitriles, cyanates and isocyanates: Preparation and important reactions.	
3.	Diazomethane and diazoacetic ester with synthetic application. Diazonium salts: Preparation and their synthetic applications.	
Unit III: Amino acids and proteins		
1.	Amino Acids and their classification, synthesis and Ionic properties, Reactions, Zwitter ions, pKa values, isoelectric point & electrophoresis. Study of peptides: Determination of their primary structure: end group analysis, Principles of peptide synthesis.	
2.	Proteins: Their classification and biological importance. Elementary idea on Primary, Secondary, Tertiary and Quaternary structure of proteins, α-helix and β-pleated sheet structure, tertiary structure of proteins.	
Unit IV: Polynuclear Aromatic Hydrocarbons		
1.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbons: naphthalene, anthracene and phenanthrene.	
2.	Important derivatives of Naphthalene and Anthracene.	
Unit V: Heterocyclic Compounds		
1.	Classification, Nomenclature and structure. Aromaticity in 5-membered and 6-membered rings containing one heteroatom.	
2.	Synthesis, reactions, properties of furan, pyrrole (Paal-Knorr synthesis), thiophene, pyridine (Hantzsch synthesis), quinoline (Skraup synthesis, Knorr quinoline synthesis, Pfitzinger reaction) and isoquinoline (Bischler-Napieralski reaction).	
Unit VI: Heterocyclic Compounds		
1.	Natural occurrence, General structural features, Isolation and their physiological action.	
2.	Hoffmann's Exhaustive Methylation with special reference to coniine, nicotine.	
3.	Emde's modification. Medicinal importance of Nicotine, Hygrine, Quinine, Morphine, Cocaine and Reserpine.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **5thSemester**

Name of the Paper: **MM-505 (Organic Chemistry-III)**

Units Assigned: **I + II + III + IV + V**

Marks Assigned: **8 + 12 + 10 + 10 + 8**

Class	Topic	Remarks
Unit I: Pericyclic reactions		
1.	Definition. The conservation of orbital symmetry, Woodward-Hofmann Rules, HOMO-LUMO approach.	
2.	Cyclo addition reactions: (2+2) and (2+4) cycloadditions. Diels Alder Reaction, 1,3- dipolar cycloaddition, Sigma tropic rearrangements- Cope and Claisen rearrangement, electrocyclic reactions.	
Unit II: Bio-molecules		
1.	Carbohydrates- Occurrence, classification and biological importance, General properties of glucose and fructose (open and cyclic structure).	
2.	Monosaccharides: Constitution and absolute configuration of glucose and fructose, Epimerization, Mutarotation	
3.	Determination of ring size of glucose. Haworth projections and conformational structures. Ascending and descending in monosaccharides, Interconversions of Aldoses and Ketoses.	
Unit III: Nucleic acids & Enzymes		
1.	Components of Nucleic acids, Nucleosides and Nucleotides. Structure Synthesis and Reactions of Adenine, Guanine, Cytosine, Uracil & Thymine. Polynucleotides: Structure of DNA (Watson – Crick Model) and RNA, Genetic code. Biological roles of DNA and RNA, Replication. Transcription and Translation (elementary idea only)	
2.	Enzymes and their functions as catalyst – Classification- Active site, Specificity, Mechanism of Enzyme action, Co-enzyme, Application of Enzymes.	
Unit IV: Pharmaceutical compounds: Structure and Importance		
1.	Introduction to natural and synthetic medicinal compounds: Azadirachtin (neem), Curcumin(haldi), Vitamin C- their medicinal values, Drug action. Classification, structure, preparation and therapeutic uses of Antipyretics: Paracetamol.	
2.	Analgesic: Aspirin, Ibuprofens (with green synthesis)	
3	Antimalerials: Chloroquine. Antacids: Ranitidine, Antibacterial: povidone –Iodine solutions, Sulphanilamide and other sulphadrugs. An elementary treatment of Antibiotics and detailed study of chloramphenicol.	
Unit V: Terpenes		
1.	Occurrence, classification Isoprene Rule. Elucidations of structure and synthesis of Citral, Neral and α -Terpineol).	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **6thSemester**

Name of the Paper: **MM-605 (Organic Chemistry IV)**

Units Assigned: **I + II + III + IV + V + VI**

Marks Assigned: **10 + 10 + 4 + 8 + 10 + 6**

Class	Topic	Remarks
Unit I: Disconnection approach in organic synthesis		
1.	Elementary idea about disconnection, functional group interchange (FGI), functional group addition (FGA).	
2.	Synthon and synthetic equivalent, simple examples of reaction leading to C-C bond formation (Corey-House, Wittig & aldol condensation)	
3	Retrosynthesis of monofunctionalised compounds.	
Unit II: Spectroscopy		
1.	UV-visible Spectroscopy: Application of Woodward rules for calculation of λ_{\max} for the following system: α,β -unsaturated aldehydes, ketones.	
2.	IR Spectroscopy: Application in functional group analysis.	
3.	NMR Spectroscopy: Anisotropic Effects in Alkenes, Alkynes, carbonyl compounds and benzene. Study of simple NMR spectra. Applications of IR, NMR and UV in Structural Identification of Simple Organic Molecules.	
Unit III: Lipids		
1.	Classification of Oils and Fats and their vegetable origin, structure of common fatty acid present. Structure, properties and biological importance of triglycerides and phosphoglycerides.	
2.	Change of flavor of oils, Reversion and Rancidity, Saponification value and Iodine number.	
Unit IV: Dyes		
1.	Classification, elementary idea of color and constitution, Chemistry of Dying. Synthesis and application of- Azo dyes-Methyl Orange and Congo red Triphenyl Methane Dyes-Malachite Green.	
2.	Rosaniline and Crystal Violet. Phthalein Dyes- Phnolphthalein and Fluorescein. Vat Dyes: Alizarin and Indigotin.	
Unit V: Polymers		
1.	Types of polymers- Isotactic, syndiotactic and atactic polymers.	
2.	Preparation and applications of plastics- Thermo-setting (Urea-formaldehyde, Phenol-formaldehyde, polyurethanes and thermo softening (PVC, Polythene) polymer additives.	
3	Synthetic fibers: Rayon, Nylon-6, terylene, Fabrics- natural and synthetic (acrylic, polyamido, polyester).	
4	Rubbers-natural and synthetic: Buna-S, chloroprene and neoprene, vulcanization.	
Unit VI: Green Chemistry		
1	Introduction to the principles of green chemistry – Twelve Principles.	

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **6thSemester**

Name of the Paper: **NM-601 (Organic Chemistry-II)**

Units Assigned: **I + II + III**

Marks Assigned: **4 + 5 + 7**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Synthesis of ethylacetoacetate (Claisen ester condensation), Diethylmalonate .Synthetic uses of ethylacetoacetate and diethylmalonate. Keto – enol Tautomerism.	
Unit II: Compounds containing more than one functional group		
1.	Hydroxy acid - Lactic and Tartaric acidsDicarboxylic acids- (Oxalic, Malonic, Succinic and Pthalic acid) and Citric acid.	
2.	Acrolein, Crotonaldehyde, Cinnamaldehyde,Acrylic acid, Crotonic acid, Maleic acid and Fumaric acid	
Unit III: Preparation, properties and reaction of the following Organic Compounds		
1.	Aromatic Sulphonic acids- Benzene sulphonic acid, nitro sulphonic acid, amino sulphonic acid, sulphuryl chloride, saccharin, chloramines-T.	
2.	Aromatic nitro compounds- Nitrobenzene, Dinitrobenzene, Nitro toluene, TNT, Reduction of nitro compounds in different conditions.	
3	Heterocyclic compounds- preparation and properties of five and six membered heterocyclic compounds: pyrrole, thiophene, furan, pyridine.	
4	Polynuclear Hydrocarbon : preparation and properties of apNhtalene and anthracene	

CBCS COURSE**Session-Jan 2020 to May 2020****NAME OF THE TEACHER-DR ABHIJIT MAHANTA**

Course –Honours / Generic – Generic

Class/Semester-2st sem

Name of the Paper-Chemistry GE 201

Units Assigned- Unit 4

Marks Assigned- 12

Class	Topic/ Unit	Remarks
1.	Unit 4: Alcohols, Phenols and Ethers: <i>Alcohols</i> : Preparation: Preparation of 1o, 2o and 3o alcohols: using Grignard reagent, Ester hydrolysis, Reduction of aldehydes, ketones, carboxylic acid and esters.	
2.	Unit 4: Alcohols, Phenols and Ethers: Reactions: With sodium, HX (Lucas test), esterification, oxidation (with PCC, <i>alk.</i> KMnO ₄ , acidic dichromate, conc. HNO ₃).	
3.	Unit 4: Alcohols, Phenols and Ethers: Diols: (Up to 6 Carbons) oxidation of diols. Pinacol-Pinacolone rearrangement.	
4.	Unit 4: Alcohols, Phenols and Ethers: Unit 4: Phenols: (Phenol case): Preparation: Cumene hydroperoxide method, from diazonium salts.	
5.	Unit 4: Alcohols, Phenols and Ethers: Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation. Reimer-Tiemann Reaction, Schotten – Baumann Reaction.	
6.	Unit 4: Alcohols, Phenols and Ethers: Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation. Reimer-Tiemann Reaction, Schotten – Baumann Reaction.	
7.	Unit 4: Alcohols, Phenols and Ethers: <i>Ethers (aliphatic and aromatic)</i> : Cleavage of ethers with HI.	
8.	Unit 4: Alcohols, Phenols and Ethers: <i>Aldehydes and ketones (aliphatic and aromatic)</i> : (Formaldehyde, acetaldehyde, acetone and benzaldehyde): Preparation: from acid chlorides and from nitriles. Reactions – Reaction with HCN, ROH, NaHSO ₃ , NH ₂ -G derivatives.	
9.	Unit 4: Alcohols, Phenols and Ethers: Iodoform test. Aldol Condensation, Cannizzaro's Reaction, Wittig Reaction, Benzoin Condensation. Clemensen Reduction and Wolff Kishner Reduction. Meerwein-Ponndorf Verley Reduction.	

Name of the Teacher-Dr Abhijit Mahanta

Course –Honours / Generic – Core

Class/Semester-2st sem

Name of the Paper-Chemistry C 201

Units Assigned- Unit III and IV

Marks Assigned- 26

Class	Topic/ Unit	Remarks
Unit III		
1.	Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz-Fittig Reactions, CoreyHouse Reaction,	
2.	Free radical substitutions: Halogenation -relative reactivity and selectivity.	
3.	Formation of alkenes and alkynes by elimination reactions, Mechanism of E1, E2, E1cbreactions. Saytzeff and Hofmann eliminations.	
4.	Special emphasis on preparation of alkenes by syn elimination – Pyrolysis of esters, Chugaev, Wittig and Heck Reaction.	
5.	Electrophilic additions and their mechanisms (Markownikoff/ AntiMarkownikoff addition),	
6.	Regioselective (directional selectivity) and Streoselective additionreactions. Mechanism of oxymercuration-demercuration, hydroboration-oxidation, ozonolysis, reduction (catalytic and chemical),	
7.	syn and anti-hydroxylation (oxidation), Simple effect of Streoselectivity & Streospecificity;	
8.	1,2-and 1,4-addition reactions in conjugated dienes and, Diels-Alder reaction.	
9.	Allylic and benzylic bromination and mechanism, e.g. propene, 1-butene, toluene, ethyl benzene.	
10	Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.	
11	Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.	
12	Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.	
Unit V		
1.	<i>Aromaticity</i> : Hückel's rule, aromatic character of arenes, cyclic carbocations/carbanions and heterocyclic compounds with suitable examples.	
2.	Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism.	
3	Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism.	
4	Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism.	
5	Directing effects of the groups.	
6	Directing effects of the groups.	

Name of the Teacher-Dr Abhijit Mahanta
 Course –Honours / Generic– Core
 Class/Semester-4st sem
 Name of the Paper-Chemistry MM 403
 Units Assigned- Unit IV, V, VI
 Marks Assigned- 24

Class	Topic/ Unit	Remarks
Unit IV		
1.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbones: naphthalene,	
2.	Important methods of synthesis and reactions of polynuclear Aromatic- hydrocarbones: arthracene	
3.	Important methods of synthesis and reactions of polynuclear Aromatic-hydrocarbones: arthracene and phenanthrene. Important derivatives of Naphthalene and Anthracene.	
Unit V		
4.	Classification, Nomenclature and structure. Aromaticity in 5-membered and 6-membered rings containing one heteroatom.	
5.	Synthesis, reactions, properties of furan, pyrrole (Paal-knorr synthesis)	
6.	thiophene, pyridine (Hantzsch synthesis),	
7.	quinoline (Skraup synthesis, Knorr quinoline synthesis, Pfitzinger reaction)	
8.	isoquinoline (Bischler-Napieralski reaction).	
Unit VI		
9.	Natural occurrence, General structural features, Isolation and their physiological action of alkaloids	
10.	Hoffmann's Exhaustive Methylation with special reference to coniine, nicotine. Emde' modification.	
11.	Medicinal importance of Nicotine, Hygrine, Quinine, Morphine, Cocaine and Reserpine.	

Non CBCS COURSE
Session-Jan 2020 to May 2020

Name of the Teacher-Dr Abhijit Mahanta

Course –Non Major

Class/Semester-4st sem

Name of the Paper-Chemistry NM 401

Units Assigned- Unit II

Marks Assigned- 8

Class	Topic/ Unit	Remarks
Unit II		
1.	Strong and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water.	
2.	Ionization of weak acids and weak bases. pH and its determination, pH scale, common ion effect.	
3.	Salt hydrolysis – calculation of hydrolysis constant, degree of hydrolysis and pH for different salts.	
4.	Buffer solutions.Solubility and solubility product of sparingly soluble salts- applications of solubility product (stress to be given to numerical problems).	
5.	Buffer solutions.Solubility and solubility product of sparingly soluble salts- applications of solubility product (stress to be given to numerical problems).	
6.	Buffer solutions.Solubility and solubility product of sparingly soluble salts- applications of solubility product (stress to be given to numerical problems).	

Non CBCS COURSE
Session-Jan 2020 to May 2020

Name of the Teacher-Dr Abhijit Mahanta

Course –Honours / Generic– Core

Class/Semester-6st sem

Name of the Paper-Chemistry MM 605

Units Assigned- Unit IV, V, VI

Marks Assigned- 24

Class	Topic/ Unit	Remarks
Unit IV		
1.	Classification, elementary idea of color and constitution	
2.	Chemistry of Dying. Synthesis and application of- Azo dyes- Methyl Orange and Congo red	
3.	Triphenyl Methane Dyes-Malachite Green, Rosaniline and Crystal Violet.	
4.	Phthalein Dyes- Phnolphthalein and Fluorescein.	
5.	Vat Dyes: Alizarin and Indigotin.	
Unit V		
6.	Types of polymers- Isotactic, syndiotactic and atactic polymers	
7.	Preparation and applications of plastics- Thermo-setting (Urea– formaldehyde, Phenol-formaldehyde,	
8.	polyurethanes and thermo softening (PVC, Polythene) polymer additives. Synthetic fibers: Rayon,	
9.	Nylon-6, terylene, Fabrics- natural and synthetic (acrylic, polyamido, polyester)	
10.	Rubbers-natural and synthetic: Buna-S, chloroprene and neoprene, vulcanization	
Unit VI		
11.	Introduction to the principles of green chemistry – Twelve Principles.	
12.	Introduction to the principles of green chemistry – Twelve Principles.	
13.	Introduction to the principles of green chemistry – Twelve Principles.	

Non CBCS COURSE
Session-Jan 2020 to May 2020

Name of the Teacher-Dr Abhijit Mahanta

Course –Non Major

Class/Semester-6st sem

Name of the Paper-Chemistry NM 601

Units Assigned- Unit IV, V, VI

Marks Assigned- 18

Class	Topic/ Unit	Remarks
Unit IV		
1.	Study of the following reactions– Rosenmund reduction, Stephen’s reduction, Aldol condensation	
2.	Claisen condensation, Cannizzaro’s reaction, Wittig reaction, Benzoin condensation,	
3.	Clemmensen reduction and Wolf Kishner reduction, Meerwein–Pondorf – Verley reduction and Haloform reaction	
4.	Aromatic aldehydes & Ketones – Preparation and reactions, Benzaldehyde, Salicylaldehyde, Cinnamaldehyde, acetophenone, benzophenone.	
5	Carboxylic acid derivatives – preparation of Acid chloride, Anhydrides, Esters & Amides from acids and their interconversions Reactions – Reformatsky reaction & Perkin condensation.	
6	Carboxylic acid derivatives – preparation of Acid chloride, Anhydrides, Esters & Amides from acids and their interconversions Reactions – Reformatsky reaction & Perkin condensation.	
7	Aromatic Carboxylic acid – Benzoic acid, Cinnamic acid, Phthalic acid.	
8	Aliphatic carboxylic Acids – Relative reactivity, strength of acids, general methods of preparation & properties. Hell-Volhard-Zelinsky Reaction.	
Unit V		
9.	Carbohydrates :Classification and General properties	
10.	Amino Acids : classification, preparation and properties Glycine, Alanine and Phenylalanine (Strecker synthesis and Gabriel phthalimide method).	
11.	Reactions of amino acids.	
12.	Elementary ideas of peptides and proteins.	
13.	Elementary ideas of nucleoside, nucleotide, nucleic acid (DNA, RNA). Elementary ideas of enzyme and co-enzyme, lipids and fatty acids.	
Unit VI		
11.	Classification of polymers, Addition or chain growth polymerization (free radical vinyl polymerization only)	
12.	Condensation (step growth) polymerization	

Course Plan
2019 (JULY - DEC)

1st Semester(CBCS)

Economics Core

Course Code: ECNHC101

Course Title: Introductory Microeconomics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Exploring the subject matter of Economics:	AN Chakraborty
12	Unit 2: Supply and Demand: How Markets Work, Markets and Welfare:	AN Chakraborty
12	Unit III: The Household Behaviour and Consumer's Choice:	Subhashish Gogoi
10	Unit IV: The Firm and Perfect Market Structure	Subhashish Gogoi
12	Unit V: Input Markets	Subhashish Gogoi

2019 (JULY - DEC)

1st Semester

Economics Major(CBCS)

Course Code: ECNHC102

Course Title: Mathematical Methods for Economics-I

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Preliminaries	Dr. M.Sharma
12	Unit 2: Functions of one real variable	Dr. M.Sharma
12	Unit III: Derivative for Functions of One Variable	Dr. M.Sharma
10	Unit IV: Integration of functions	Simisita Borah
12	Unit V: Differential Equations:	Simisita Borah

2019 (JAN - JUNE)2nd Semester

Economics Major

PAPER 2.01 (MACROECONOMICS)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: National Income Accounting	M M Gogoi
10	Unit 2: Theories of Aggregate Income and Employment	M M Gogoi
11	Unit III: Theories of Consumption Function and Investment Spending	Simishmita Borah
10	Unit IV: Rate of interest and IS-LM Analysis	Simishmita Borah
10	Unit V: Exploring the Macroeconomics of an Open Economy	Simishmita Borah

2019 (JULY - DEC)3rd Semester

Economics Major

PAPER 3.01(MICROECONOMICS-II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Pricing in Product markets	Dr. M.Sharma
8	Unit 2: Pricing with Market Power	Dr. M.Sharma
10	Unit III: Monopolistic Competition and Introduction to Oligopoly	Dr. M.Sharma
12	Unit IV: Theory of Factor Pricing	Subhashish Gogoi
11	Unit V: General Equilibrium and Economic Efficiency	Subhashish Gogoi

2019 (JULY - DEC)3rd Semester

Economics Major

PAPER 3.02 (STATISTICAL METHODS IN ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Measures of Central Tendency and Dispersion	Subhashish Gogoi
8	Unit 2: Elementary Probability Theory	Subhashish Gogoi
10	Unit III: Sampling	MM Gogoi
12	Unit IV: Correlation and simple regression	MM Gogoi
8	Unit V: Index Numbers	MM Gogoi

2019 (JAN - JUNE)4th Semester

Economics Major

PAPER 4.01 (MATHEMATICS FOR ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Sets and Set Operations	Simishmita Borah
11	Unit 2: Elements of Matrix Algebra and Input-Output Analysis	Simishmita Borah
8	Unit III: Differential Calculus and its Economic Applications	Simishmita Borah
10	Unit IV: Integral Calculus and its Economic Applications	Subhashish Gogoi

9	Unit V: Differential and Difference Equations	Subhashish Gogoi
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2019 (JAN - JUNE)

4th Semester

Economics Major

PAPER 4.02 (PUBLIC ECONOMICS – THEORETICAL ISSUES)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Role and significance of Public Finance	Dr. M Sharma
10	Unit 2: Public Revenue: Sources of Public Revenue,	Dr. M Sharma
8	Unit III: Public Expenditure	Dr. M Sharma
8	Unit IV: Public Debt: Role and Purpose	Subhashish Gogoi
5	Unit V: Public Enterprises	Subhashish Gogoi

2019 (JULY - DEC)

5th Semester

Economics Major

PAPER 5.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – I)

No of Class	Unit No and Title	Name of the teachers
5	Unit 1: Development: Meaning and Measurement	Dr. M Sharma
11	Unit 2: Obstacles to Development	Dr. M Sharma
7	Unit III: Poverty, Inequality and Unemployment	Dr. M Sharma
10	Unit IV: Theories of Economic Growth	Dr. M Sharma
9	Unit V: Development Theories: Theories of Persistence of Underdevelopment	Dr. M Sharma

2019 (JULY- DEC)5th Semester

Economics Major

PAPER 5.02 (PUBLIC ECONOMICS: POLICY ISSUES)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Structure, Pattern and Policies of Taxation in Developing Economies	Dr. M Sharma
9	Unit 2: Trend and Pattern of Public expenditure in India	Dr. M Sharma
7	Unit III: Budget System and Policy	Dr. M Sharma
5	Unit IV: Fiscal Policy: Its role and objectives	Diksha Mahanta
8	Unit V: Fiscal Federalism: Principles of Allocation of Resources	Diksha Mahanta

2019 (JULY - DEC)5th Semester

Economics Major

PAPER 5.03 (HISTORY OF ECONOMIC THOUGHT)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Pre-Classical and Classical Economic Thought	Dikhsha Mahanta
8	Unit 2: Reaction against Classicism	Dikhsha Mahanta
9	Unit III: The Reconstruction of Economic Science	Dikhsha Mahanta
10	Unit IV: Keynesian Economic Thought	Dikhsha Mahanta
11	Unit V: Indian Economic Thought	Dikhsha Mahanta

2019 (J ULY - DEC)5th Semester

Economics Major

PAPER 5.04 (MONETARY THEORIES AND FINANCIAL MARKETS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Theories of demand for and supply of money	M M Gogoi
8	Unit 2: Inflation and Deflation	M M Gogoi
9	Unit III: Business Cycle: Meaning, types and phases	M M Gogoi
7	Unit IV: Banking: Scheduled commercial banks	M M Gogoi
6	Unit V: Financial Markets	M M Gogoi

2019 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Planning: Concept and Justification	Shubhashish Gogoi
10	Unit 2: Role of Agriculture in Economic Development	Shubhashish Gogoi
8	Unit III: Role of Industries in the Development Process	Shubhashish Gogoi
11	Unit IV: India in the Global Economy:	Simishmita Borah
7	Unit V: Economic Problems of North-East India	Simishmita Borah

2019 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.02 (ENVIRONMENTAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Basic Concepts: Ecology, Environment and Economy	Simishmita Borah
12	Unit 2: Market Failure: Concept and Common Sources of Market Failure	Simishmita Borah
11	Unit III: Solution to the Environmental problems	MM Gogoi
10	Unit IV: Sustainable development	MM Gogoi
8	Unit V: Global and Local Environmental Concerns	MM Gogoi

2019 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.03 (INTERNATIONAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: International Economics and Trade Theories	Simishmita Brah
8	Unit 2: Terms of Trade and Gains From Trade	Simishmita Brah
9	Unit III: International Trade Policy:	MM Gogoi
10	Unit IV: Foreign Exchange Markets and Exchange Rates	MM Gogoi
7	Unit V: Evolution of International Monetary System:	MM Gogoi

2019 (JAN - JUNE)6th Semester

Economics Major

PAPER 6.04 (ECONOMIC ISSUES OF ASSAM)

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Economic Characteristics of Assam	MM Gogoi
10	Unit 2: Agriculture: Trends and Pattern of Production	MM Gogoi
9	Unit III: Industry: Problems and prospects of Industrial development of Assam	MM Gogoi
7	Unit IV: Infrastructure: Economic Infrastructure of the State	MM Gogoi
10	Unit V: Economic Problems of Assam	MM Gogoi

Course Plan**2019 (JULY - DEC)**1st Semester

Economics Generic (CBCS)

Course Code: ECNGE1

Course Title: Introductory Microeconomics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Exploring the subject matter of Economics	AN Chakraborty
12	Unit 2: Supply and Demand: How Markets Work, Markets and Welfare	AN Chakraborty
12	Unit III: The Household Behaviour and Consumer's Choice	Subhashish Gogoi

10	Unit IV: The Firm and Perfect Market Structure	Subhashish Gogoi
12	Unit V: Input Markets	Subhashish Gogoi

2019 (JAN - JUNE)

2nd Semester

Economics Non-Major

PAPER 2.01 (MACROECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction to Macroeconomics and National Income Accounting	M M Gogoi
11	Unit 2: Theory of Money: Demand for and supply of money	M M Gogoi
10	Unit III: Theories of Employment and Income	Dr. Mamoni Sharma
8	Unit IV: Banking: Types and role of bank	Dr. Mamoni Sharma
10	Unit V: International Trade and Balance of Payment Analysis	Dr. Mamoni Sharma

2019 (JULY - DEC)

3rd Semester

Economics Non-Major

PAPER 3.01 (Public Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Nature and scope of Public Finance	M M Gogoi
8	Unit 2: Public Revenue- Sources, Tax and Non-Tax Revenue	M M Gogoi
12	Unit III:	Dikhya Mahanta

	Public Expenditure and Public Debt	
10	Unit IV: Budget System and Fiscal Policy	Subhashish Gogoi
12	Unit V: Indian Public Finance	Subhashish Gogoi

2019 (JAN - JUNE)

4th Semester

Economics Non-Major

PAPER 4.01 (Issues of Indian Economy)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Major features of Indian economy with special reference to Assam	Dr. Mamoni Sharma
7	Unit 2: Basic issues in agriculture at national level and in Assam	Subhashish Gogoi
12	Unit III: Industry and tertiary sectors in India	Subhashish Gogoi
7	Unit IV: Industry, trade and commerce in Assam	Subhashish Gogoi
8	Unit V: Economic Planning and Economic Reforms	Dr. Mamoni Sharma

2019 (JULY - DEC)

5th Semester

Economics Non-Major

PAPER 5.01 (Elementary Statistics for economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction: Definition of statistics, uses and abuses of statistics	Dikhya Mahanta
10	Unit 2: Measurement of central tendency	Dikhya Mahanta

10	Unit III: Measures of dispersion	Dikhya Mahanta
8	Unit IV: Index numbers	MM Gogoi
6	Unit V: Interpolation	MM Gogoi

2019 (JAN - JUNE)

6th Semester

Economics Non-Major

PAPER 6.01 (Development Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Growth and Development: Growth	Subhashish Gogoi
7	Unit 2: Theories of Economic Development and Economic Growth	Subhashish Gogoi
8	Unit III: Human Resource Development and Manpower Planning	Subhashish Gogoi
10	Unit IV: Sectoral Analysis of Development:	MM Gogoi
6	Unit V: Economic Development and Planning:	MM Gogoi

COURSE PLAN

2019-2020

DEPARTMENT OF EDUCATION

DIGBOI COLLEGE

2019-20

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-I

Name of the paper-philosophical foundation of Education

Units Assigned-II Indian schools of philosophy and their influence in education

III-western schools of philosophy and their influence in Education

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	1.basic feature and classification of Indian philosophy	
2	2.yoga philosophy	
3	Hatha, Raj,astangika	
4	Influence of yoga in Education	
5	Vedanta philosophy concept and basic features	
6	Advaita Vedanta,	
7	Influence in Education	
8	Buddhism, four noble truth	
9	Influence in Education	
10	Middle path	
11	impact of Indian schools of philosophy in present system of education.	

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-I

Name of the paper-sociological foundation of Education

Units Assigned-V –education and political ideologies

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Democracy- concept and basic features	
2	Nature of education in	

	democracy	
3	Totalitarianism – concept & basic feature	
5	Nature of education in totalitarianism	
6	communism- concept and basic features	
7	Nature of education in totalitarianism	
8	Secularism-concept and basic feature	
9	Discussion	

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-II

Name of the paper-psychological foundation of education

Units Assigned-II **Learning and Motivation**

III-western schools of philosophy and their influence in Education

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	1.Meaning and nature of Learning	
2	Factors of learning-Home and school	
3	Mass-media , Intelligence	
4	Variables of Learning-personal	
5	Subject matter and Method	
6	Types of Learning –cognitive, affective , psychomotor	
7	Theories of learning, thorndike s theory of learning , classical conditioning	
8	Operant conditioning	
9	Gestalt theory	
10	Thorndike’s laws of learning	
11	Maturation -Meaning and role in learning	
12	Motivation -Meaning and role in learning	
13	Transfer of Learning –intra-	

	inter , positive , negative	
14	Zero, Horizontal, Bilateral, Vertical	
15	Attention and interest - Meaning and role in learning	
16	Memory and learning	

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-II

Name of the paper-Educational Management and Administration

Unit's Assigned-II –Leadership

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Meaning And Definition Of Educational Leadership	
2	Nature of Educational Leadership	
3	Functions of Educational Leadership	
5	principles of Educational Leadership	
6	Style of Educational Leadership –Autocratic,	
7	Democratic and laissezfaire	
8	Factors influence educational leadership style	
9	Factors influence educational leadership style	
10	Essential qualities of an educational leader	
11	Essential qualities of an educational leader	
12	Leadership development programmes	
13	Role of educational leader in ensuring quality of educational	
14	Discussion	

Course plan

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-III

Name of the paper-Measurement and evaluation in education

Units Assigned–**Concept of Measurement And Evaluation In Education**

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Meaning and Nature of measurement and evaluation in education.	
2	Relationship between measurement and evaluation in education	
3	Psychological measurement	
5	Physical measurement	
6	Difference between Psychological and Physical measurement	
7	Principle of evaluation	
8	Continuous and comprehensive evaluation	
9	Difference between Continuous and comprehensive	
10	Formative and summative evaluation	
11	Formative and summative evaluation	
12	Diagnostic and prognostic evaluation	
13	Diagnostic and prognostic evaluation	
14	Discussion	
Unit IV-STATISTICS IN EDUCATION		
1	Meaning nature and scope of educational statistics	
2	Types of data –Enumeration and Measurement Data	
3	Grouped and ungrouped data	
4	Measurement Of Central Tendency -Concept Of Mean Median and Mode	
5	Merits and demerits of Mean Median and Mode	

6	Computation and application in education Computation and application in education	
7	Computation and application in education	
8	Measurement of variability – concept of range ,quartile deviation, mean deviation ,standard deviation	
9	Computation of application of range ,quartile deviation	
10	Computation of application of standard deviation	
11	Computation of application of standard deviation	
12	Practice of computation	
13	Practice	
14	Tutorial	
15	Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 4th

Name of the Paper- ELTM401- **DIGITAL ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1	Decimal-Binary conversion	
2	Octal and Hexadecimal number system and their conversion to Decimal	
3	BCD number, compliment Technique, Floating point number	
4	Boolean postulates from basic gates, properties of Boolean algebra,	
5	De morgaris theorems	
6	simplification of compound expressions, sum of product and products of sum form	
7	Minimisation by the use of Karnaugh's map for 2, 3, 4, 5 and 6 variables.	
8	Need of Coding, Weighted codes (BCD), Excess - 3 code	
9	Gray code and conversion. Alpha numeric code- ASCII and EBCDIC	
10	Decimal to binary encoder, octal to binary encoder.	
11	Basic Logic operation, AND, OR, NOT, NAND, NOR, XOR, gates	

12	Universal gates, Truth tables, Bipolar logic families, DTL families	
13	RTL families, TTL families, Schottky TTL	
14	Emitter coupled logic (ECL), NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
15	Emitter coupled logic (ECL), NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
16	NAND and NOR gates, voltage transfer function. Fanout, Noise-immunity and propagation delay of logic families.	
17	Combinational and sequential circuits	
18	flip-flops, NAND flip-flop	
19	NAND flip-flop, SR flip-flop	
20	NAND flip-flop, SR flip-flop	
21	Clocked SR flip-flop	
22	D-latch, JK flip-flop	
23	Master-slave flip-flop.	
24	Asynchronous counter	
25	Asynchronous decade counter	
26	Synchronous counters	
27	Up/down counters	
28	Self stopping counter	
29	Sequential counter design procedure and applications	
30	Sequential counter design procedure and applications	
31	Serial in shift registers	

32	Serial in shift registers	
33	Parallel-in shift register	
34	Universal shift register	
35	3-bits CMOS shift register	
36	Half adder	
37	Full adder	
38	parallel binary adder	
39	Half subtractor. Full subtractor	
40	Parallel subtractor, subtraction using full adder	
41	Introduction, RAM, ROM, PROM	
42	Introduction, RAM, ROM, PROM	
43	EPROM, EAPROM,	
44	Secondary memory,floppy, Hard disk, Magnetic storage.	
45	Secondary memory, floppy, Hard disk, Magnetic storage.	
46	Digital to analog converter,	
47	Weighted Register DAC	
48	R-2R ladder DAC	
49	Analog to digital converter, Successive approximation ADC,	
50	Parallel ADC, Dual slope ADC	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM603- **POWER ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Concepts of power diodes and power transistors	
2	Concept of thyristor technology, ratings, symbol, characteristics, turn on methods and turn off methods of thyristors	
3	Concept of thyristor technology, ratings, symbol, characteristics, turn on methods and turn off methods of thyristors	
4	diacs,	
5	SCS, SVS,	
6	SVS, SBS,	
7	LASCR	
8	triacs	
9	MOSFETS	
10	MOSFETS	
11	Internal power dissipation	
12	Internal power dissipation and need for heat sinks for these devices.	
13	Basic structure, principle of operation and VI characteristics of UJT	

14	Explanation of working of UJT as relaxation oscillator and its use in thyristor	
15	Explanation of working of UJT as relaxation oscillator and its use in thyristor	
16	Working principle of converters single phase half wave and full wave	
17	Working principle of converters three phase half wave and full wave	
18	Working principle of converters three phase half wave and full wave	
19	Half controlled, full controlled principle of operation of basic inverter circuit	
20	Half controlled, full controlled principle of operation of basic inverter circuit	
21	Half controlled, full controlled principle of operation of basic inverter circuit	
22	Chopper circuit	
23	Chopper circuit	
24	Principle of working of AC Phase control circuit	
25	Principle of working of AC Phase control circuit	
26	Three terminal voltage regulator ICs (positive, negative and variable applications)	
27	Block diagram of a regulated power supply	
28	Concepts of cv, cc and foldback limiting	
29	Concepts of cv, cc and foldback limiting	
30	Short circuit and overload protection	
31	Major specifications of a regulated power supply and their significance (line and load regulation, output ripple and transients)	

32	Major specifications of a regulated power supply and their significance (line and load regulation, output ripple and transients)	
33	Basic working principles of a switched mode power supply	
34	Concept of floating and grounded power supplied and their interconnections to obtain multiple output supplied.	
35	Concept of floating and grounded power supplied and their interconnections to obtain multiple output supplied.	
36	Brief idea of CVT, UPS and dual tracking power supply.	
37	Brief idea of CVT, UPS and dual tracking power supply.	
38	Principle of operation and working of following switching circuits	
39	Automatic battery charger, Voltage regulator	
40	Emergency light, Time delay relay circuit	
41	Fan speed control, Temperature control	
42	Speed control of DC and small DC motors	
43	SMPS, UPS	
44	Static sensitive electronics Components, EC, (National Electrical Code)	
45	Tagging of wiring or equipment	
46	Equipment hazardous when turned off,	
47	Ground faults, Isolation transformers	
48	Ground blocks and rods, Electrical or chemical fire extinguishers,	
49	Ground blocks and rods, Electrical or chemical fire extinguishers,	
50	Metal chains—ornamentation hazards, Electrical shock, Leaded solder	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 2nd Sem

Name of the Paper- ELTG201- **Network Analysis**

Units Assigned- 2

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1	Poles and Zero's in the complex plane Complex frequency and the s-plane	
2	Poles and Zero's in the complex plane Complex frequency and the s-plane	
3	properties of poles and zeros in the complex plane	
4	properties of poles and zeros in the complex plane	
5	Network functions for one port and two port networks	
6	Network functions for one port and two port networks	
7	poles and zeros of network functions	
8	poles and zeros of network functions	
9	restrictions on locations of poles and zeros	
10	restrictions on locations of poles and zeros	
11	Time domain response from pole and zero plot	
12	Time domain response from pole and zero plot	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 4th Sem

Name of the Paper- ELTG401- **Digital Electronics**

Units Assigned- 3

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1	Combinational and sequential circuits	
2	flip-flops, NAND flip-flop	
3	SR flip-flop. Clocked SR flip-flop, D-latch	
4	JK flip-flop. Master-slave flip-flop	
5	Edge-triggered devices, Application of flip-flops	
6	Monostable and Astable multivibrators.	
7	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 6th Sem

Name of the Paper- ELTG601- **Electromagnetic and wave propagation**

Units Assigned- 1,2

Marks Assigned- 10

Class	Topic/ Unit	Remarks
1	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
2	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
3	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
4	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
5	Fundamentals concepts- gradient, divergence & curl of a vector –applications to simple problems	
6	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
7	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
8	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
9	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	

10	Gauss divergence theorem, Stoke's theorem, Green's theorem application to simple problems	
11	Coulomb's law, Gauss's law, applications	
12	concept of electric potential, work & energy in electrostatics	
13	electrostatics field in matter	
14	concept of electric displacement, Lorentz force	
15	bio-savart's law, Ampere's law	
16	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
17	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
18	Faraday's law of electromagnetic induction.	
19	Revision	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 6th Sem

Name of the Paper- RMEG601- **Repairing of Television and Computers**

Units Assigned- 3, 4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
1	Colour TV receivers- Primary colours	
2	mixing of colours, saturation, luminance, luminance signal colour different signals.	
3	Colour picture tube- Different types of tubes	
4	PIL, Trinitron, purity and convergence, degaussing	
5	PIL, Trinitron, purity and convergence, degaussing	
6	PIL, Trinitron, purity and convergence, degaussing	
7	Chroma section of Colour TV, colour signal matrix, RGB matrix.	
8	Chroma section of Colour TV, colour signal matrix, RGB matrix.	
9	Fault finding and rectification of colour TV receivers trouble shooting.	
10	Fault finding and rectification of colour TV receivers trouble shooting.	
11	The Main working functions of LCD TV.	

12	Concepts of Dish TV, Magic box	
13	Computer Software: Different type of computer software,	
14	formatting and installation of software	
15	Computer hardware identification: RAM, CPU,	
16	ROM, hard disc,	
17	SMPS and ICs.	
18	Computer Monitor's working function, Testing procedures.	
19	Computer Monitor's working function, Testing procedures.	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 1st

Name of the Paper- ELTM101- **ELECTRONICS MATERIALS & COMPONENTS**

Units Assigned- Unit- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Classical free electron theory	
2	Electrical and thermal conductivity of metals	
3	Relaxation time and mean free path	
4	Qualitative discussion of the bloch function	

5	Qualitative discussion of the Bloch function, Kronig – Penny model	
6	Kronig – Penny model, E – K diagram	
7	Reduced zone representation, Brillouin zone	
8	Concept of effective mass and holes	
9	Brief idea of dielectric materials	
10	Spontaneous polarization	
11	Conductivity of metals	
12	Ohm's law	
13	Relaxation time & Collision time & Mean free path	
14	Electron scattering and resistivity of metals	
15	Heat developed in current carrying conductor	
16	Superconductivity (introduction), Hall effect	
17	Introduction to magnetic material	
18	Origin of dipole moment, Classification of Magnetic Material	
19	Origin of Magnetic moment	
20	Origin of dia, para, ferro and anti ferro magnetism and their comparison	
21	Origin of dia, para, ferro and anti ferro magnetism and their comparison	
22	Ferromagnetic materials	
23	Ferromagnetic materials and Saturation Magnetisation	
24	Saturation Magnetisation, Curie Temperature	
25	Curie Temperature	
26	Conductor, Insulator, Properties of insulator	

27	Insulation resistance, dielectric strength	
28	Dielectric constant, Polarization	
29	Polarization mechanism and total polarization	
30	Ferroelectric Materials	
31	Spontaneous Polarization	
32	Curie – Weiss Law, Classification	
33	Curie – Weiss Law, Classification	
34	Piezoelectricity	
35	Piezoelectricity	
36	Dielectrics in Alternating fields	
37	Dielectrics in Alternating fields	
38	Temperature and Frequency dependence of dielectric constant	
39	Temperature and Frequency dependence of dielectric constant	
40	Revision	
41	Electrical and electronics components, Classification and properties	
42	Resistance, Low resistance, effect of temperature on resistance	
43	Power rating, fixed and variable resistor, colour code, tolerance,	
44	Combination of resistors, varactor and thermistor	
45	Concept of capacitor and capacitance, parallel plate capacitor	
46	Energy store in capacitor, Paper capacitor, electrolytic capacitor, Tantalum and ceramics capacitors	
47	Air capacitor (gang and field type), voltage rating in circuit(CR, LC, LCR), combination of capacitor	
48	Inductance, inductive reactance, self & mutual reactance,	

49	Solenoids, iron core and ferrite core inductors, coefficients of inductors, quality factor	
50	Resonance circuits, couple circuits, variable inductor, combination of inductor	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM501- **ANALOG COMMUNICATION**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Signals and their classification	

2	Fourier analysis of Signals, Fourier Series representation of Signals(Continuous-Time periodic signals)	
3	Fourier Series representation of Signals(Continuous-Time periodic signals)	
4	Convergence of the Fourier series, Properties of continuous-Time Fourier series	
5	Properties of continuous-Time Fourier series	
6	Fourier Transform representation of signals(Aperiodic signals)	
7	Periodic signals, Properties of Continuous-time Fourier transform,)	
8	Periodic signals, Properties of Continuous-time Fourier transform,), Time domain and frequency domain. Sampling theorem.	
9	Time domain and frequency domain. Sampling theorem, Different types of noise	
10	Time domain and frequency domain. Sampling theorem, Different types of noise	
11	TTL and CMOS families and their comparison.	
12	Thermal, Shot Flicker noise, signal to noise ratio	
13	Noise factor, noise temperature, Friss formula	
14	Need of modulation, Amplitude modulation, Expression for AM	
15	Expression for AM and spectrum, modulation index and percentage modulation	
16	Generation of AM, non-linear devices	
17	Basic principle of DSB, SSB, VSB (Vestigial Side Band modulation)	
18	Frequency and Phase modulation	
19	Modulation index and frequency spectrum	

20	Equivalence between FM and PM, Generation of FM (direct and indirect methods).	
21	Linear diode detector	
22	Detection characteristics of diode and its uses	
23	Diode for automatic volume control, square law diode detection	
24	Frequency demodulation, discriminator	
25	Comparison between AM, FM and PM.	
26	Communication channels for AM and FM broadcast	
27	Communication channels for AM and FM broadcast	
28	AM transmitter: Low level and high level modulation, FM transmitter	
29	FM transmitter, Receiver parameters: sensitivity, selectivity and fidelity	
30	FM transmitter, Receiver parameters: sensitivity, selectivity and fidelity	
31	Super Heterodyne Receiver,	
32	Double Conversion Receiver	
33	AM receivers, FM receivers.	
34	Frequency Division Multiplexing.	
35	Radio reception at different frequencies,	
36	Reflected wave, ground wave	
37	Line of sight and through satellite aeri-als-radiation resistance	
38	Power radiated effect of earth.	
39	Picture elements, principle of image transmission	
40	TV camera tubes image orthicon & vidicon	

41	Electron beam scanning, synchronization-horizontal & vertical synchronization pulses	
42	Blanking horizontal & vertical	
43	Telephony, Telegraphy	
44	Radar, block diagram of pulsed & CW radar transmitter & receiver	
45	Radar range equation, power & frequency consideration	
46	e-mail , fax, internet	
47	Mobile communication, basic principle of satellite communication	
48	IMPATT, TRAPAIT diode	
49	BARTTT diodes, basic idea of gun & PIN diodes	
50	Basic idea of travelling wave tubes(TWT)	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 1st

Name of the Paper- ELTG101- **PHYSICS AND SEMICONDUCTOR**

Units Assigned- 2,6

Marks Assigned- 20

Class	Topic/ Unit	Remarks
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1	Inadequacies of classical mechanics, wave particle duality,	
2	Davisson and gramer's experiments, Group and Phase velocities	
3	de-Broglie waves, wave packet.	
4	Revision	
5	Fundamentals of quantum mechanics,	
6	Heisenberg uncertainty principle, concept of wave function, Postulates of quantum mechanics,	
7	Schrodinger equations and application to potential problems (in one dimensional box).	
8	Schrodinger equations and application to potential problems (in one dimensional box).	
9	Tunnel diode, Breakdown diodes,	
10	Transistor types, forward and reverse biased diode,	
11	common base, common emitter and common collector configurations,	
12	common base, common emitter and common collector configurations,	
13	equivalent circuits,	
14	characteristic curves of transistor,	
15	current amplification factors,	
16	working principles of FET,	
17	MQSFET	
18	MQSFET	
19	UJT.	
20	UJT.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned- 1,4

Marks Assigned- 13

Class	Topic/ Unit	Remarks
1	Power supply: The ideal rectifier,	

2	Half-wave rectifier, Full-wave rectifier	
3	Bridge rectifier, voltage doubler, capacitive filter,	
4	L-section filter, pi-section filter,	
5	controlled rectifiers, Electronic regulated power supply	
6	Feedback amplifiers - The feedback concept, feedback network, advantage of negative feedback's	
7	characteristics of negative feedback amplifiers, effect of negative feedback on input and output impedances and on bandwidth	
8	high input impedance transistor circuits,	
9	emitter follower and biasing,	
10	cascade configuration,	
11	Design of RC - coupled cascaded audio amplifiers,	
12	Basic design considerations for preamplifiers.	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –General

Class/Semester- 5th

Name of the Paper- ELTG501- **Electronics communication**

Units Assigned- 4

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1	Parameters of radio receiver, regenerative receivers,	

2	tuned radio receiver, super heterodyne receiver,	
3	FM receiver, Telephone receiver Picture elements,	
4	principle of image transmission, TV camera tubes-Image orthicon and Videocon,	
5	Image orthicon and Videocon,	
6	Electron beam scanning synchronization	
7	separation of horizontal and vertical pulses,	
8	TV Bandwidth and channels	
9	TV transmitter, and receiver,	
10	Colour TV,	
11	Colour TV transmitter and receiver	
12	Picture tube.	
13	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Jayanta Handique

Course –RMEG

Class/Semester- 5th

Name of the Paper- RMEG501- **BASICS OF ELECTRONICS & ELECTRONIC DEVICES**

Units Assigned- 1,2,4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
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1	Electrical and electronics materials and components,	
2	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
3	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
4	conductors, insulators, semi conductors, resistors, capacitors and inductors, specification and uses.	
5	Definition of circuits, series circuits, parallel circuits	
6	Series and parallel circuits	
7	Combination of circuit, Ohm's Law.	
8	Transformers and Power supply: Different type of transformers, Basic rectifier circuits	
9	Half wave, full wave and bridge rectifiers	
10	Half wave, full wave and bridge rectifiers	
11	filter circuits, their uses and applications	
12	Zener diode as regulators	
13	Description of different type of power supply, power supply used in TV and computers,	
14	switch mode power supply (SMPS), Principle of SMPS, types, block diagram of SMPS	
15	switch mode power supply (SMPS), Principle of SMPS, types, block diagram of SMPS	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 2nd

Name of the Paper- ELTM201- **SEMICONDUCTOR & DEVICES**

Units Assigned- Unit- ALL

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1	Energy band in solids (metal, semiconductor and insulators)	
2	Conductors and insulators,	
3	Charge carriers in intrinsic semiconductors	
4	Charge carriers in extrinsic semiconductors	
5	Donor and acceptor impurities	
6	P-type semiconductors	
7	N- type semiconductors	
8	Majority and minority charge carriers	
9	Fermi level in semiconductors	
10	Fermi level in semiconductors	
11	Mobility current density	
12	Conductivity	
13	Revision	
14	PN junction	
15	Space charge region in a semiconductor junction	
16	Potential and field in P-N junction	
17	forward bias	

18	reverse bias	
19	Q-point and load line of a diode	
20	Q-point and load line of a diode	
21	Reverse breakdown avalanche	
22	Zener diode, breakdown voltage	
23	Special diodes-varactor diode	
24	Tunnel diode, Schottky diode	
25	Schottky diode, LED.	
26	PNP and NPN transistor	
27	Transistor biasing ,	
28	Transistor circuit configuration(CB, CE, CC)	
29	Transistor circuit configuration(CB, CE, CC)	
30	Transistor circuit configuration(CB, CE, CC)	
31	Relation between α and β	
32	Leakage current, thermal runaway	
33	Static characteristics (CB & CE).Emitter follower	
34	Field effect transistor, JFET	
35	MOSFET, types of MOSFET	
36	UJT (Construction, working and I-V characteristics of UJT)	
37	Basic construction and Characteristics of Thyristor, Semiconductor Controlled Device(SCR)	
38	Basic construction and Characteristics of Thyristor, Semiconductor Controlled Device(SCR)	
39	Introduction to integrated circuit technology	
40	Monolithic IC technology of substrate preparation,	

41	Monolithic components in Ics (resistor, capacitor)	
42	Inductance simulation in Ics, integrated circuit processing,	
43	Oxidation, diffusion, photo-lithography, epitaxy	
44	Fabrication of semiconductor diode	
45	Fabrication of transistor	
46	MOS transistor fabrication, Moore's Law,	
47	Medium Scale Integration (MSI), Large Scale Integration (LSI)	
48	Very Large Scale Integration (VLSI), Ultra Large Scale Integration (ULSI)	
49	Giant Scale Integration (GSI)	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM601- **ELECTROMAGNETIC, WAVE PROPAGATION & ANTENNA**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Equation of continuity, displacement current	
2	Maxwell equation, scalar and vector potential	
3	Gauss transformations, Poynting theorem,	
4	Conservation of energy and momentum for electromagnetic fields	
5	Maxwell's wave equation, the plane wave	
6	Polarization of electromagnetic waves, linear and circular polarization,	
7	Reflection, refraction and dispersion,	
8	Polarization by reflection and total internal reflection.	
9	Electromagnetic waves in the non-conducting media	
10	Reflection & transmission at oblique incidence, Snell's law, Fresnel's equation	
11	Brewster's angle, electromagnetic waves in conducting media	
12	Skin depth, reflection & transmission at a conducting surface	
13	Basic concept of transmission line, low & high frequency transmission line	
14	Distributed parameters, types of transmission line	
15	Voltage & current relation on radio frequency transmission line	

16	Characteristics impedance, transmission line as circuit element	
17	Voltage & current relation with distance from load end or receiving end	
18	Line terminator, propagation constant	
19	Conditions for distortion less transmission with minimum attenuation	
20	Loss free line, short circuit & open circuit lines	
21	Standing wave ratio, phase factor	
22	Reflection & transmission co-efficient	
23	Transmission Line matching	
24	Maximum power transfer	
25	Smith chart and its application	
26	Introduction to wave guide, rectangular wave guide, solution of wave equation	
27	TE and TM modes	
28	TE and TM modes	
29	Total internal reflection, calculation of wave impedance	
30	Cut-off frequency, phase constant and wavelength	
31	Brief idea about cylindrical wave guide and micro strips	
32	Electromagnetic spectrum	
33	Propagation of radio wave, ground waves	
34	Space waves, reflection of space waves from different layer of ionosphere	
35	Characteristics of various propagation media with referee to LF	
36	Characteristics of various propagation media with referee to HF, VHF	

37	Characteristics of various propagation media with reference to microwave signals.	
38	Basic antenna principles, Wire and Aperture Antennas	
39	The Retarded Potential, Hertzian Dipole	
40	Power radiated, Radiation Resistance,	
41	Antenna Characteristics, Antenna Patterns, Radiation Intensity	
42	Directive Gain, coordinate system, radiation fields	
43	Polarization, isotropic radiator, power gain of microwave antennas	
44	Antenna, folded dipole	
45	Rhombic & yagi antenna & their radiation pattern	
46	Vertical antenna, microwave antennas	
47	Microwave antennas, antenna equivalent	
48	Half-wave Dipole Antenna, Quarter-Wave Monopole Antenna,	
49	Small Loop Antenna, Aperture Antenna	
50	Antenna Arrays, Microstrip Antennas	

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 2nd Sem

Name of the Paper- ELTG201- **Network Analysis**

Units Assigned- 1,3

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Superposition theorem, Milman theorem	
2	Thevenin's theorem, Norton's theorem	
3	Maximum power transfer theorem, Reciprocity theorem	
4	Thevenin's theorem and Norton's theorem	
5	Thevenin's theorem and Norton's theorem in frequency domain	
6	Substitution theorem, Compensation theorem.	
7	Substitution theorem, Compensation theorem.	
8	Two port Networks Short circuit admittance parameters, open circuit impedance parameters	
9	relation between Z- and Y-parameters	
10	Transmission parameters (A, B, C, D,), A B C D parameters in terms of Z- and Y parameters	
11	hybrid parameters, g- parameters	
12	input, impedance in terms of Z, Y-, ABCD- parameters and output impedance in terms of Z, Y, ABCD- parameters	
13	T-section representation, Π -section representation	
14	Image impedances, Symmetrical Networks, Ladder Networks.	
15	Image impedances, Symmetrical Networks, Ladder Networks.	

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 4th Sem

Name of the Paper- ELTG401- **Digital Electronics**

Units Assigned- 1,2,5

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Decimal-Binary conversion, Octal and Hexadecimal number system and their conversion to Decimal, BCD number	
2	compliment Technique, Floating point number	
3	Boolean postulates from basic gates, properties of Boolean algebra	
4	De morgan's theorems, simplification of compound expressions	
5	simplification of compound expressions	
6	sum of product and products of sum form.	
7	sum of product and products of sum form.	
8	Basic Logic operation, AND, OR, NOT, NAND, NOR, XOR, gates.	
9	Universal gales, Truth tables	
10	Bipolar logic families, DTL families, RTL families,	
11	TTL families, Schottky TTL,	
12	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
13	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
14	Emitter coupled logic (ECL), MOS and CMOS ICs as inverter, NAND and NOR gates,	
15	Voltage transfer function. Fan-out, Noise-immunity and propagation delay of logic families.	

16	Half adder, full adder, parallel binary adder	
17	Half subtractor. Full subtractor, parallel subtractor	
18	subtraction using full adder, 4-bit adder/subtractor.	
19	Binary multipliers, speed up addition.	
20	Magnitude comparator	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –Honours

Class/Semester- 3rd

Name of the Paper- ELTM301- **ANALOG ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Ideal diode, dc load line analysis, Quiescent (Q) point	
2	Positive, negative and biased clipper circuits	
3	Clamping circuits	
4	Half wave rectifier, calculation of efficiency and ripple factor.	
5	Centre tapped Full wave rectifiers, calculation of efficiency and ripple factor.	
6	Bridge full wave rectifiers, calculation of efficiency and ripple factor.	

7	Block diagram of a power supply, qualitative description of shunt capacitor filter	
8	Zener diode as voltage regulator, temperature coefficient of Zener diode.	
9	Classification of transistor amplifiers, small signal amplifiers	
10	Concept of amplification, current gain, voltage gain	
11	Power gain, input and output resistance, Q-point, load line	
12	Class A, B and C and class AB amplifiers	
13	Class A, B and C and class AB amplifiers	
14	Analysis of transistor amplifiers	
15	Transistor biasing, stabilization	
16	Two – point representation of transistor	
17	AC equivalent circuit using h-parameters	
18	Determination of hparameters	
19	RC coupled amplifiers, impedance coupled	
20	Transistor coupled amplifiers	
21	Noise in amplifiers	
22	Feedback amplifiers	
23	General theory of feedback, positive & negative feedback	
24	Advantages of negative feedback,	
25	Types of negative feedback in transistor amplifier	
26	Current series, voltage series	
27	Current shunt, emitter follower	
28	Biasing, cascaded configuration	

29	Revision	
30	Ideal OPAMP characteristics, Practical OPAMS-off-set current	
31	Practical OPAMS-off-set current & voltage, CMRR	
32	Basic OPAMP application, inverting & non-inverting amplifiers	
33	Input off-set voltages, input bias current	
34	DC amplifier, summing	
35	Differentiation & integration using OPAMPS	
36	Active filters, low-pass,	
37	High – pass & band-pass	
38	Positive feedback in oscillator	
39	General & continuous oscillation	
40	Barkha-usen criterion, types of RC	
41	LC and crystal oscillators	
42	Wein Bridge Oscillator	
43	Phase shift, Hartley oscillator	
44	collpit, Chapp oscillator	
45	VHF & relaxation oscillator, frequency stability, Q- value	
46	VHF & relaxation oscillator, frequency stability, Q- value	
47	Bistable multivibrator, nenostabie multivibrator	
48	Astable multivibrator, high speed multivibrator	
49	Tunnel diodes, emitter coupled multivibrator	
50	Emitter coupled multivibrator {Schmitt trigger)	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep Khound

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM502- **DIGITAL COMMUNICATION**

Units Assigned- UNIT: All

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Sampling theorem, Errors in Sampling	
2	Pulse Amplitude Modulation (PAM)	
3	Pulse Amplitude Modulation (PAM)	
4	Time Division Multiplexing (TDM)	
5	Time Division Multiplexing (TDM)	

6	Pulse Width Modulation (PWM)	
7	Pulse Width Modulation (PWM)	
8	Pulse Position Modulation (PPM)	
9	Pulse Position Modulation (PPM)	
10	Generation and detection of PAM, PWM, PPM	
11	Generation and detection of PAM, PWM, PPM	
12	Generation and detection of PAM, PWM, PPM	
13	Need for digital transmission, Quantizing	
14	Uniform and Non uniform Quantization	
15	Quantization Noise, Compounding	
16	Coding, Digital Formats	
17	Decoding, Regeneration	
18	Transmission noise and Bit Error Rate	
19	Differential Pulse Code Modulation	
20	Differential Pulse Code Modulation	
21	Delta Modulation	
22	Delta Modulation, Quantization noise	
23	Adaptive Delta Modulation	
24	Adaptive Delta Modulation	
25	Time Division Multiplexing (TDM)	
26	Digital transmission	
27	Reception Techniques	
28	Information capacity, Bit Rate	
29	Band Rate and M-ary coding	

30	Amplitude Shift Keying (ASK)	
31	Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK)	
32	Frequency Shift Keying (FSK), Phase Shift Keying (PSK)	
33	Phase Shift Keying (PSK), Binary Phase Shift Keying (BPSK)	
34	Binary Phase Shift Keying (BPSK), Quadrature Phase Shift Keying (QPSK)	
35	Quadrature Phase Shift Keying (QPSK)	
36	Revision	
37	Revision	
38	Concept of Frequency Division Multiple Access (FDMA),	
39	Concept of Frequency Division Multiple Access (FDMA),	
40	Code Division Multiple Access (CDMA).	
41	Code Division Multiple Access (CDMA).	
42	Base band transmission	
43	Base band transmission	
44	Modem principle and architecture	
45	Modem principle and architecture	
46	Mobile Communication	
47	Mobile Communication	
48	Satellite Communication	
49	Optical Communication	
50	Optical Communication.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 1st

Name of the Paper- ELTG101- **PHYSICS AND SEMICONDUCTOR**

Units Assigned-1,4

Marks Assigned- 17

Class	Topic/ Unit	Remarks
1	Coulomb's law, Gauss's law, applications	
2	concept of electric potential, work & energy in electrostatics	
3	electrostatics field in matter	
4	concept of electric displacement, Lorentz force	
5	bio-savart's law, Ampere's law	
6	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	
7	concept of magnetic vector potential, comparison of magnetostatics & electrostatics	

8	Faraday's law of electromagnetic induction.	
9	Kirchoff's current &. voltage laws.	
10	Suspension Galvanometer, torque and deflection of the galvanometer, moving coil galvanometer.	
11	Ammeters, voltmeters (AC & DC), ohmmeters.	
12	Thermionic emission, Richardson's equation, Photoelectric emission, secondary emission	
13	high field emission, Space charge, Child-Langmuir law	
14	high field emission, Space charge, Child-Langmuir law	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned- 2,3

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	The ideal rectifier, Half-wave rectifier	
2	Full-wave rectifier, Bridge rectifier	
3	voltage doubler, capacitive filter, L-section filter, pi-section filter	
4	controlled rectifiers, Electronic regulated power supply.	
5	Analysis of transistor amplifiers, Transistor biasing, stabilization	
6	Analysis of transistor amplifiers, Transistor biasing, stabilization	

7	Two-port representation of a transistor, AC equivalent circuit using h-parameters, Determination - of h parameters	
8	Analysis of transistor amplifier using h parameters.	
9	Classification of amplifiers; Distortion in amplifier, amplitude, frequency and phase distortion,	
10	Impedance matching, frequency range of amplifiers	
11	Transistor as an amplifier in CE configuration, load line analysis, operating point, voltage gain	
12	Transistor as an amplifier in CE configuration, load line analysis, operating point, voltage gain	
13	dc and ac equivalent circuits.	
14	R-C coupled amplifiers, Impedance coupled amplifiers, Transformer coupled amplifier	
15	Band pass amplifiers, Video amplifiers, direct coupled amplifiers, Noise in amplifiers	
16	low noise amplifiers. Power amplifiers, efficiency of amplifiers,	
17	class A amplifiers, push-pull class A operation, parallel class A operation, class B audio frequency amplifiers,	
18	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	
19	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	
20	class B and C radio frequency amplifiers, simplified analysis of linear class B and class C amplifiers.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Pradeep K. Khound

Course –General

Class/Semester- 5th

Name of the Paper- ELTG501- **Electronics communication**

Units Assigned- 1,2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1	Amplitude modulation, frequency spectrum and power content	
2	generation of AM, SSB and vestigial sideband	
3	Angle modulation, frequency modulation, phase modulation,	
4	FM generation, the transistor reactance modulator	
5	varactor diode FM modulator	
6	pulse modulation	
7	pulse code modulation	
8	Linear diode detector, detection characteristics of diode and its uses	

9	effect of introducing C and R in a diode	
10	diode for automatic volume control	
11	square law diode detection	
12	Frequency demodulation, discriminator, limiter, detector	
13	Frequency demodulation, discriminator, limiter, detector	
14	SSB detection	
15	PCM encoders and decoders	
16	multiplexing	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 4th

Name of the Paper- ELTM402- **NETWORK ANALYSIS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Complex frequency and the s-plane	
2	Complex frequency and the s-plane	
3	Properties of poles and zeros in the complex plane	
4	Properties of poles and zeros in the complex plane	

5	Network functions for one port and two port networks	
6	Network functions for one port and two port networks	
7	Poles and zeros of network functions	
8	Poles and zeros of network functions	
9	Restrictions on locations of poles and zeros	
10	Restrictions on locations of poles and zeros	
11	Time domain response from pole and zero plot.	
12	Time domain response from pole and zero plot.	
13	Revision	
14	Superposition theorem	
15	Milman theorem	
16	Thevenm's theorem	
17	Norton's theorem	
18	Maximum power transfer theorem, Reciprocity theorem	
19	Thevenin's theorem in frequency domain	
20	Thevenin's theorem in frequency domain	
21	Norton's theorem in frequency domain	
22	Norton's theorem in frequency domain	
23	Substitution theorem	
24	Compensation theorem	
25	Revision	
26	Short circuit admittance parameters	
27	open circuit impedance parameters	
28	relation between Z- and Y-parameters	

29	Transmission parameters (A,B,C,D,)	
30	A B C D parameters in terms of Z and Y-parameters	
31	A B C D parameters in terms of Z and Y-parameters	
32	hybrid parameters, g- parameters	
33	input impedance in terms of Z- parameters	
34	Y-, ABCD- parameters; output impedance in terms of Z	
35	Output impedance in terms of Y, ABCD – parameter	
36	T-section representation, pi-section representation	
37	Image impedances. Symmetrical Networks	
38	Ladder Networks, Lattice Networks.	
39	Constant K-type filters(Low pass)	
40	Constant K-type filters(high pass)	
41	Constant K-type filters(band pass, band elimination)	
42	M – derived filters(low pass, high pass)	
43	M – derived filters(low pass, high pass)	
44	M – derived filters(low pass, high pass)	
45	Delay network	
46	Attenuators and attenuating pads	
47	Attenuators and attenuating pads	
48	Revision	
49	Revision	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 6th

Name of the Paper- ELTM602- **MICROPROCESSOR & MICROCONTROLLER**

Units Assigned- ALL

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Introduction to microprocessors and microcomputers	
2.	Machine language, assembly language and high level language	
3.	Microprocessor architecture,	
4.	Types of buses, registers,	

5.	Memory mapping	
6.	Basic idea of INTEL 8085, 8086, 80386, 80486, Pentium processors	
7.	8085 Microprocessor : pin-out diagram	
8.	8085 Microprocessor: classification of the signals,	
9.	Bus timings	
10.	Types of machine cycles and their functioning.	
11.	Types of machine cycles and their functioning.	
12.	Revision	
13.	8085 programming model: Accumulator, register	
14.	flags, instruction classification & programming concepts	
15.	Stack and subroutine (CALL and RET statements)	
16.	Stack and subroutine (CALL and RET statements)	
17.	Delay subroutines, Code conversion	
18.	Delay subroutines, Code conversion	
19.	BCD Arithmetic	
20.	Introduction to transmission format	
21	Introduction to transmission format	
22	modes of data transfer	
23	Interrupts: Maskable and non-maskable interrupts	
24	Interrupts: Maskable and non-maskable interrupts	
25	RST (Restart), vectored interrupts	
26	RST (Restart), vectored interrupts	
27	Instructions (SIM & RIM).	

28	Instructions (SIM & RIM).	
29	Memory: Primary & Secondary Memory	
30	Memory Mapping	
31	Serial and Parallel I/O	
32	Memory Interfacing with 8085	
33	Programmable I/O	
34	DMA	
35	Memory Mapped I/O and I/O	
36	Mapped I/O techniques.	
37	8255-Programmable Peripheral Interface	
38	8253- Programmable interval Timer	
39	8259- Priority Interrupt Controller	
40	8279-Programmable Keyboard/Display Interface	
41	8251- USART	
42	8237/8257- Programmable DMA Controller	
43	8237/8257- Programmable DMA Controller	
44	Revision	
45	Introduction to microcontrollers, advantages of microcontrollers.	
46	8031/8051 Microcontroller	
47	Architecture, register bank,	
48	Flags, special function registers, I/O ports	
49	Timers, serial communication, interrupts	
50	Instruction set. Introduction to 8086 & 6800.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 2nd

Name of the Paper- ELTG201- **NETWORK ANALYSIS**

Units Assigned- 4

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Network Analysis Laplace transformation and theorem	
2.	Transient response of RC, RL and RLC networks	
3.	Laplacian transform method, Laplacian transform of step voltage and a rectangular pulse	
4.	Laplacian transform method, Laplacian transform of step voltage and a rectangular pulse	
5.	Laplacian transforms of either commonly used voltage waveforms	

6.	Determination of network response with Laplacian transform	
7.	Response of networks to a pulse series	
8.	Fouriers transforms of step voltage and rectangular pulse	
9.	Fouriers transforms of step voltage and rectangular pulse	
10.	use of Fourier transforms to describe input waveforms	
11.	use of Fourier transforms to describe input waveforms	
12.	Determination of network response by Fourier transforms	
13.	Determination of network response by Fourier transforms	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 4th

Name of the Paper- ELTG401- **NETWORK ANALYSIS**

Units Assigned- 4, 6

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Asynchronous counter. Asynchronous decade counter	
2.	Synchronous counters	
3.	Up/down counters	
4.	Self stopping counter	
5.	TTL1C counter	

6.	Sequential counter design procedure and applications.	
7.	Serial in shift registers, parallel-in shift register	
8.	Universal shift register	
9.	3-bits CMOS shift register	
10.	Introduction: RAM, ROM, PROM	
11.	EPROM, secondary memory, floppy, Hard disk	
12.	Magnetic storage, programmable logic devices	
13.	Digital to analog converter,	
14.	Weighted Register DAC	
15.	R-2R ladder DAC	
16.	Analog to digital converter, Successive approximation ADC	
17.	Parallel ADC	
18.	Dual slope ADC, IC ADC 0809	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 6th

Name of the Paper- ELTG601- **ELECTROMAGNETIC AND WAVE PROPAGATION**

Units Assigned- 3, 4

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Energy in a magnetic field	
2.	Maxwell's equation and Maxwell's wave equation	
3.	Pointing theorem & poynting vector	
4.	Simple problems.	
5.	The wave equation, the plane wave	
6.	polarization of electromagnetic waves,	

7.	linear and circular polarization	
8.	Reflection, refraction and dispersion	
9.	Polarization by reflection and total internal reflection	
10.	Electromagnetic waves in non-conducting media, reflection and transmission at oblique incidence	
11.	Snell's law, Fresnel's equation, Brewster's angle,	
12.	Electromagnetic waves in conducting media, skin depth	
13.	Reflection,& transmission at a conducting surface	
14.	Dispersion, normal and anomalous dispersion	
15.	Cauchy's equation	
16.	Revision	
17.	Basic antenna principles, Wire and Aperture Antennas	
18.	Dipole, Power radiated, Radiation Resistance	
19.	Antenna Characteristics, Antenna Patterns	
20.	Radiation Intensity, Directive Gain	
21.	Coordinate system, radiation fields, polarization, isotropic radiator.	
22.	Half-wave Dipole Antenna, Quarter-Wave Monopole Antenna	
23.	Small Loop Antenna, Aperture Antenna	
24.	Antenna Arrays, Microstrip Antennas	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – RMEG

Class/Semester- 6th

Name of the Paper- RMEG-601- **REPAIRING OF TELEVISION & COMPUTERS**

Units Assigned- 1, 2

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Introduction to Television Principle and Theory - Principle of conversion of picture to electrical signal	
2.	Introduction to Television Principle and Theory - Principle of conversion of picture to electrical signal	
3.	Picture frame, scanning, scanning lines	
4.	Picture frame, scanning, scanning lines	
5.	Field and frame frequency, interlace scanning	

6.	Field and frame frequency, interlace scanning	
7.	B/W TV receivers: description of B/W TV receiver in block diagram form	
8.	B/W TV receivers: description of B/W TV receiver in block diagram form	
9.	Principle of TV signal reception by antenna, receiving antenna, balloon booster, tunners	
10.	Principle of TV signal reception by antenna, receiving antenna, balloon booster, tunners	
11.	Receiver circuits: Functional description of IF amplifiers	
12.	Video detector, video amplifiers, sound trap	
13.	Audio power amplifier, loud speaker	
14.	Deflection circuits: Description of picture tubes	
16.	Magnetic deflection yoke, system brightness	
17.	Magnetic deflection yoke, system brightness	
18.	Contrast, height and width control circuits	
19.	Contrast, height and width control circuits	
20.	Different type of picture tubes	
21.	Fault finding and rectification of B/W TV receivers trouble shooting	
22.	Fault finding and rectification of B/W TV receivers trouble shooting	
23.	Fault finding and rectification of B/W TV receivers trouble shooting	
24.	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 3rd

Name of the Paper- ELTM302- **INSTRUMENTATION, OPTOELECTRONICS & NANOELECTRONICS**

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1	Electronic instruments & their characteristics, a generalized instrumentation scheme	
2	Classification of instrumentation error and their statistical behavior	
3	Construction and working principle, equivalent ckt, of a transformer	
4	Types of transformers, efficiency	
5	Audio transformer, auto voltage transformer	
6	Impedance matching, coil winding of ordinary transformer	
7	Measurement of current, voltage power at audio & radio frequencies, Advantages of electronic voltmeters	
8	Vacuum tube voltmeter(diode type only), Measurement of resistance and current with VTVM	
9	Digital voltmeter, Q-meter, wave analyzer	
10	Spectrum analyzer, power factor meter, ohmmeter and multimeter analog & digital.	
11	Basic CRO operation, deflection of charged particles in electronic & magnetic field	
12	Block diagram of CRO, vertical deflection system	

13	CRT : construction & principle of focusing and deflection of electron beam, CRT screens	
14	Delay line, Lissajous figures, synchronization, CRO probes	
15	Trigger circuits, application of CRO in measuring voltage	
16	Application of CRO in measuring frequency & phase, type of CRO, spectrum analyzer.	
17	Definitions, types active & passive, analog & digital, Thermocouple & piezoelectric transducers	
18	Thermistors, LDVT, basic idea of displacement & temperature transducer	
19	Photo sensitive devices, magnetic measurements	
20	Insulation systems, magnetic type recorders	
21	Spontaneous emission, absorption and stimulated emission	
22	Population inversion, Einstein A & B co-efficient	
23	Properties of laser, gain coefficient	
24	Pumping processes, optical resonator	
25	Types of resonator. Laser diode and its applications	
26	LED, photo diode,	
27	Photo multiplier tube semiconductor optoelectronic materials	
28	Phototransistor, optocoupler	
29	Optocoupler, photo-detectors	
30	LCD and CCD.	
31	Optical fiber, principle of fabrication, types of optical fiber	
32	Characteristic parameters, modes, single mode, multi-mode fiber	
33	Transmission through fiber	

34	Advantage of optical communication	
35	Conceptual set up of an optical communication System	
36	Fibre optical wave guide, step index fiber	
37	Concept of graded index, dielectric waveguide	
38	Total internal reflection, fibre splicing	
39	Fibre splicing, low dispersion fibres	
40	Losses in fibres, fiber jointing.	
41	Introduction to nano, Definition of nano particles	
42	Quantum well	
43	Quantum wire,	
44	Characteristics of nano particles	
45	Plastic electronics	
46	Processes for nano electronics	
47	Processes for nano electronics	
48	Nano electronics devices	
49	PCM(Phase change memory)	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –Honours

Class/Semester- 5th

Name of the Paper- ELTM503(A)- **INTRODUCTION TO COMPUTER PROGRAMMING AND**

NUMERICAL ANALYSIS

Units Assigned- ALL

Marks Assigned- 48

Class	Topic/ Unit	Remarks
1.	Introduction to computer System	
2.	Block diagram of computer (CPU,MAIN Memory, I/O devices)	
3.	Block diagram of computer (CPU,MAIN Memory, I/O devices)	
4.	Concept of machine language	
5.	Concept of machine language	
6.	High level languages	
7.	High level languages	
8.	Compiler,	
9.	Interpreter	
10.	Assembler	
11.	Linker, loader	
12.	Revision	
13.	Introduction to Software	
14.	Need of software, system software	
15.	Types of software, system software, application software	

16.	Programming language	
17.	Machine languages, high level languages	
18.	High level languages	
19.	High level languages	
20.	Introduction to Operating system	
21	Introduction to Operating system and its function	
22	Disk operating system,	
23	Windows OS, Linux OS	
24	Unix OS	
25	Revision	
26	Algorithm, flowchart	
27	Control loops, pseudo code	
28	Modular design of a program	
29	Program development cycle and environment	
30	Level of programming language	
31	Introduction to C, standard data types,	
32	Constant and variables, expressions	
33	Assignment, control statement	
34	Functions and procedures, Parameter passing	
35	Recursion, Sub-range and enumerated data types	
36	Arrays, string, structures, files pointers	
37	Linked, list as example of using pointers	
38	Concept of structured programming-stepwise refinement	
39	Introduction to MATLAB & SIMULINK, Introduction to numerical Methods	

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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 1st

Name of the Paper- ELTG101- **BASIC PHYSICS & SEMICONDUCTOR**

Units Assigned – 3, 5

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Electron spin, Spin and Orbital angular momentum	
2.	Quantization and Larmor's theorem	
3.	Atoms in external magnetic fields:- Zeeman effect (Normal and Anomalous)	
4.	Atoms in external magnetic fields:- Zeeman effect (Normal and Anomalous)	
5.	Pauli's exclusion principle. Atomic Shell Model	
6.	Periodic table. Spin orbit coupling. Fine structure	
7.	Total angular momentum, Vector Model	
8.	L-S and J-J couplings (for 2 valence electrons only)	
9.	Charge carrier in intrinsic and extrinsic semiconductor	
10.	Charge carrier in intrinsic and extrinsic semiconductor	
11.	p-type and n-type semiconductor	
12.	majority and minority carrier Fermi Level in semiconductor	
13	Mobility current density	
14	conductivity	
15	properties of p-n junction	
16	I-V characteristics of p-n junction	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 3rd

Name of the Paper- ELTG301- **ANALOG ELECTRONICS**

Units Assigned – 5, 6

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Properties of feedback circuits	
2.	Feedback requirements for oscillator	
3.	Generation of continuous oscillation	
4.	Tuned collector oscillator	
5.	Hartley oscillator	
6.	Colpitts oscillator, phase-shift oscillator	
7.	Wien-Bridge oscillator, crystal oscillator	
8.	VHF oscillators, relaxation oscillators	
9.	Fabrication of monolithic integrated circuits	
10.	Integrated circuit component	
11.	Operational amplifier	
12.	Operational amplifier	
13	Some applications of operational amplifiers	
14	Measurement of operational amplifier parameters	
15	Measurement of operational amplifier parameters	
16	Frequency response of operational amplifiers	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course – General

Class/Semester- 5th

Name of the Paper- ELTG501 – **ELECTRONICS COMMUNICATION**

Units Assigned – 3, 5

Marks Assigned – 25

Class	Topic/ Unit	Remarks
1.	Ground, space and sky wave propagation	
2.	Propagation through troposphere	
3.	Propagation through ionosphere	
4.	Propagation through space	
5.	Characteristics of various propagation media with reference to LF	
6.	Characteristics of various propagation media with reference to HF	
7.	Characteristics of various propagation media with reference to VHF	
8.	Characteristics of various propagation media with reference to Microwave signals	
9.	Line-of-sight microwave links and communication via satellite	
10.	Line-of-sight microwave links and communication via satellite	
11.	Line-of-sight microwave links and communication via satellite	
12.	Calculation of path Loss and transmitter power required	
13.	Calculation of path Loss and transmitter power required	
14.	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
15.	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
16.	Block diagram of pulsed and CW radar transmitters and receivers, range, power and frequency consideration	
17.	Radio aids to navigation-direction finders	

18	Radio aids to navigation-direction finders	
19	Aircraft navigation system	
20	Aircraft navigation system	
21	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Mr. Satish Kumar Gupta

Course –RMEG

Class/Semester- 5th

Name of the Paper- RMEG-501 – **BASICS OF ELECTRONICS & ELECTRONICS DEVICES**

Units Assigned – 3, 5

Marks Assigned – 20

Class	Topic/ Unit	Remarks
1.	Semi conductors: P-type and N-type semi conductors	
2.	Formation of P-N junction and its properties, specifications and uses	
3.	Formation of P-N-P transistor	
4.	Different types of terminal characteristics, field effect transistor (FET)	
5.	Silicon controlled rectifier (SCR)	
6.	Photo diodes, light emitting diode(LED), characteristics	
7.	Amplification principle of IC, study of common ICs used in Radio and TV receiver circuits	
8.	Amplification principle of IC, study of common ICs used in Radio and TV receiver circuits	
9.	Radio receivers: Block diagram presentation of Radio and working principles	
10.	Radio receivers: Block diagram presentation of Radio and working principles	
11.	Modulators: Purpose of modulators and their types (AM & FM)	

12.	Amplitude Modulation : Different types of amplitude modulation.	
13	Amplitude Modulation : Different types of amplitude modulation.	
14	Frequency modulation : Principle of frequency modulation.	
15	Frequency modulation : Principle of frequency modulation.	
16	Antenna: Different types of radio receiving antenna.	
17	Antenna: Different types of radio receiving antenna.	
18	AM Radio receivers: Tunners, RF amplifies	
19	IF amplifiers, detectors	
20	AVC and Audio preamplifier and output amplifiers	
21	FM Radio receivers: Identification and study of different stages.	

COURSE PLAN

2019-20

DEPARTMENT OF ENGLISH

DIGBOI COLLEGE

NAME OF THE TEACHER: DR. PABITRA BHARALI

(Jul - Dec 2019)

Programme:

English Honours

Class/Semester-:

FIRST

Name of the Course/Paper:

C1: Indian Classical Literature

Units Assigned:

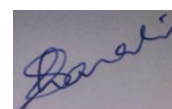
I : Kalidasa - Abhijnana Sakuntalam & II: Temptation of Karna

Marks Assigned:

20

Class per week: 02

Class	Topic/ Unit	Remarks
1.	a. Introduction to literature b. Introduction to Indian Classical drama c. Briefing on Rasa theory.	Objective is to familiarize the learners with the diverse modes of literature and inspire in them a critical insight.
2.	a. A synopsis on the story of Abhijnana Sakuntalam as told in the Mahabharata b. Introduction to the major characters in Abhijnana Sakuntalam. c. Introduction to major Indian gods and goddesses	Groundwork for the play
3.	Unit-I:Abhijnana Sakuntalam: Act I	Analysis and appreciation
4.	Unit-I:Abhijnana Sakuntalam: Act I	Analysis and appreciation
5.	Unit-I:Abhijnana Sakuntalam: Act II	Analysis and appreciation
6.	Unit-I:Abhijnana Sakuntalam: Act II	Analysis and appreciation
7.	Unit-I:Abhijnana Sakuntalam: Act III	Analysis and appreciation
8.	Unit-I:Abhijnana Sakuntalam: Act III	Analysis and appreciation
9.	Unit-I:Abhijnana Sakuntalam: Act IV	Analysis and appreciation
10.	Unit-I:Abhijnana Sakuntalam: Act IV	Analysis and appreciation
11.	Unit-I:Abhijnana Sakuntalam: Act V	Analysis and appreciation
12.	Unit-I:Abhijnana Sakuntalam: Act V	Analysis and appreciation
13.	Unit-I:Abhijnana Sakuntalam: Act VI	Analysis and appreciation
14.	Unit-I:Abhijnana Sakuntalam: Act VI	Analysis and appreciation
15.	Unit-I:Abhijnana Sakuntalam: Act VII	Analysis and appreciation
16.	Unit-I:Abhijnana Sakuntalam: Act VII	Analysis and appreciation
17.	Rasas in Abhijnana Sakuntalam	Critical analysis
18.	Characterization in Abhijnana Sakuntalam	Critical analysis
19.	II: The Temptation of Karna	Analysis and appreciation
20.	II: The Temptation of Karna	Analysis and appreciation
21.	II: The Temptation of Karna	Analysis and appreciation
22.	Interactions/Presentations	Problem solving
23.	Interactions/Presentations	Problem solving
24.	Interactions/Presentations	Problem solving



Signature of faculty

(Jul - Dec 2019)

Programme:

Honours (BA: Gr-A)

Class/Semester-:

FIRST

Name of the Course/Paper:

AECC 1: English Communication

Units Assigned:

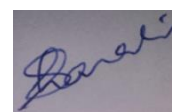
I, II, III, IV

Marks Assigned:

40

Class per week: 02

Class	Topic/ Unit	Remarks
1.	Unit I: Communication Theory and types: What is communication? Classification.	Conceptualization
2.	Unit I: Communication Theory and types: Verbal and Non-verbal; formal and informal	Analysis and demonstration
3.	Unit I: Communication Theory and types: Processes, components	Analysis
4.	Unit I: Communication Theory and types: Model - SMCR	Analysis
5.	Unit I: Communication Theory and types: Modes- vertical, horizontal, diagonal	Analysis
6.	Unit I: Communication Theory and types: levels	Analysis
7.	Unit I: Communication Theory and types: Barriers	Analysis
8.	Unit II: Speaking Skills: Monologue, dialogue	Concept and practice
9.	Unit II: Speaking Skills: Effective Communication	Analysis
10.	Unit II: Speaking Skills: GD	Concept and practice
11.	Unit II: Speaking Skills: Interview	Concept and practice
12.	Unit II: Speaking Skills: Public speech	Concept and practice
13.	Unit III: Reading and understanding: Close reading, comprehension	Concept and practice
14.	Unit III: Reading and understanding: Summary	Concept and practice
15.	Unit III: Reading and understanding: Paraphrasing	Concept and practice
16.	Unit III: Reading and understanding: Analysis and interpretation	Concept and practice
17.	Unit IV: Writing Skills: Documenting, Making Notes	Concept and practice
18.	Unit IV: Writing Skills: Report writing	Concept and practice
19.	Unit IV: Writing Skills: Letter writing	Model letter
20.	Unit IV: Writing Skills: Letter writing	Practice
21	Revision	Refreshing the concepts
22	Interaction	Problem solving



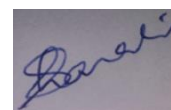
Signature of faculty

(Jul - Dec 2019)

Name of the Teacher: **Dr. Pabitra Bharali**
Programme: **Honours (BCom)**
Class/Semester-: **FIRST**
Name of the Course/Paper: **AECC 2: Alternative English**
Units Assigned: **I & II**
Marks Assigned: **40**

Class per week: 02

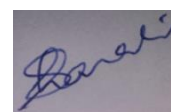
Class	Topic/ Unit	Remarks
1.	Introduction to Literature; characteristics of short story	conceptualization
2.	Gandhi: Doctrine of the Sword	Analysis and critical thinking
3.	Gandhi: Doctrine of the Sword	Analysis and critical thinking
4.	Ambedkar: Prospects of Democracy in India	Analysis and critical thinking
5.	Ambedkar: Prospects of Democracy in India	Analysis and critical thinking
6.	G.B Shaw: Spoken English and Broken English	Analysis and critical thinking
7.	G.B Shaw: Spoken English and Broken English	Analysis and critical thinking
8.	G.L.Dickinson:The Greek view of Life	Analysis and critical thinking
9.	G.L.Dickinson:The Greek view of Life	Analysis and critical thinking
10.	M.V.C. Jeffreys: Mass Culture	Analysis and critical thinking
11.	M.V.C. Jeffreys: Mass Culture	Analysis and appreciation
12.	Tolstoy: How Much Land does a man need?	Analysis and appreciation
13.	Tolstoy: How Much Land does a man need?	Analysis and appreciation
14.	R.K. Narayan: An Astrologer's Day	Analysis and appreciation
15.	R.K. Narayan: An Astrologer's Day	Analysis and appreciation
16.	S.H. Manto: The Dog of Tithwal	Analysis and appreciation
17.	S.H. Manto: The Dog of Tithwal	Analysis and appreciation
18.	Temsula Ao: Soaba	Analysis and appreciation
19.	Temsula Ao: Soaba	Analysis and appreciation
20.	O Henry: An Unfinished Story	Analysis and appreciation
21	O Henry: An Unfinished Story	Analysis and appreciation
22	Interactions	Problem solving



Signature of faculty

Course Plan (NCBCS)**(Jun - Dec 2019)****Programs:****Major and General**

Sem	Subject	Course	Units	Marks assigned	No of class per week	No of Projected class
BA3	MAJOR	301	Critical Terms and Concepts	30	2	24
BA3	MAJOR	302	V: W. B. Yeats T.S. Eliot	16	3	30
BA5	MAJOR	502	On the Sublime	20	2	20
BA5	MAJOR	504	IV: Indian English Poetry	35	2	20
BA3	Gen. Eng	301	II: Langston Hughes: Ballad of the Landlord Seamus Heaney: The Wife's Tale Grace Nichols: Wherever I Hang Derek Walcott: The River	25	2	20



Signature of faculty

(Jan-Jun 2020)

Programme:

English Honours

Class/Semester-:

SECOND

Name of the Course/Paper:

C3: Indian writing in English

Units Assigned:

III (Part) & IV

Marks Assigned:

30

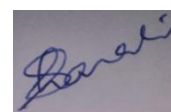
Class per week: 02

Class	Topic/ Unit	Remarks
1.	a. Introduction to Indian English writings b. Introduction to North-east Indian poetry in English	Objective is to familiarize the learners with the concerns of Indian English writers and inspire in them a critical insight.
2.	Mulk Raj Anand: The Two Lady Rams	Groundwork for the play
3.	Mulk Raj Anand: The Two Lady Rams	Analysis and appreciation
4.	Mulk Raj Anand: The Two Lady Rams	Analysis and appreciation
5.	Salman Rushdie: The Free Radio	Analysis and appreciation
6.	Salman Rushdie: The Free Radio	Analysis and appreciation
7.	Salman Rushdie: The Free Radio	Analysis and appreciation
8.	Shashi Deshpande: The Intrusion	Analysis and appreciation
9.	Shashi Deshpande: The Intrusion	Analysis and appreciation
10.	Shashi Deshpande: The Intrusion	Analysis and appreciation
11.	Arup kr Dutta: The Wilted Flower	Analysis and appreciation
12.	Arup kr Dutta: The Wilted Flower	Analysis and appreciation
13.	Arup kr Dutta: The Wilted Flower	Analysis and appreciation
14.	Nissim Ezekiel: Night of the Scorpion	Analysis and appreciation
15.	Nissim Ezekiel: Enterprise	Analysis and appreciation
16.	Nissim Ezekiel: as a poet	Analysis and appreciation
17.	Robin s. Ngangom: A Poem for Mother	Analysis and appreciation
18.	Robin s. Ngangom: The Strange affair of Robin s. Ngangom	Analysis and appreciation
19.	Robin s. Ngangom: The Strange affair of Robin s. Ngangom	Analysis and appreciation
20.	Robin s. Ngangom: The Strange affair of Robin s. Ngangom	Analysis and appreciation
21	Interactions	Problem solving
22	Interactions	Problem solving
23	Presentations	Problem solving
24	Presentations	Problem solving

Course Plan (NCBCS)
(Jan-Jun 2020)

Name of the Teacher: **Dr. Pabitra Bharali**
Programs: **Major and General**

Sem	Subject	Course	Units	Marks assigned	No of class per week	No of Projected class
BA4	MAJOR	401	I: Of Studies Sir Roger in London II: The superannuated Man Politics and the English Language	40	2	20
BA6	MAJOR	603	I: Post-colonialism: concepts II: Colonialist Criticism	40	3	30
BA6	MAJOR	604	I: Linguistic Concepts	30	2	20
BA4	AltEng	401	II:A Wife's letter Javni	25	2	20



Signature of faculty

NAME OF THE TEACHER- SANJOY DAS

(Session June- Dec, 2019)

Course 1: 10100

Class/Semester- B.A. 1st Semester (English Honours) (CBCS)

Name of the Paper- Indian Classical Literature

Units Assigned- Unit – II & IV

Marks Assigned- 40

Class	Topic/ Unit	Remark
1.	Unit: Selections from Epic Sanskrit Literature	Introduction to the unit
2.	Vyasa, 'The Dicing'- introduction to the author	Introduction
3.	Contd...	Appreciation
4.	The Dicing- text	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Contd...	Discussion
10.	Pandava's role in the Dicing episode	Discussion
11.	Bhimsen's role in general	Discussion
12.	Druapadi's questions	Interaction and discussion
13.	Feminist voices	Interaction and discussion
14.	Vidur's role and Krishna's absence from the episode highlighted	Appreciation
15.	Interaction with students	Interaction
16.	Introduction to The Sequel to Dicing	Appreciation
17.	The sequel to Dicing	Appreciation
18.	Contd..	Appreciation
19.	Contd...	Appreciation
20.	Contd...	Appreciation
21.	Various underlying themes explained	Appreciation
22.	Queries addressed	Discussion
23.	Queries addressed	Discussion
24.	Queries addressed	Discussion
25.	Queries addressed	Discussion

Paper: III

Class/Semester- 3rd Semester (English Major) Non-CBCS

Name of the Paper: History of the English Language, Critical Terms, and Classical Mythology

Units Assigned- Unit Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit- History of the English Language- introduction	Introduction
2.	Origin of English language elaborated	Analysis and interpretation
3.	Four types of the history or origin of language analysed	Analysis and interpretation
4.	Contd...	Analysis and interpretation
5.	Contd...	Analysis and interpretation
6.	Middle English language	Analysis and interpretation
7.	Contd...	Analysis and interpretation
8.	Contd...	Analysis and interpretation
9.	Change of meaning in English language	Analysis and interpretation
10.	Contd...	Analysis and interpretation
11.	Contd...	Analysis and interpretation
12.	Growth of vocabulary in language	Analysis and interpretation
13.	Contd...	Analysis and interpretation
14.	Contd...	Analysis and interpretation

Paper: VII

Class/Semester- 5th Semester (English Major)

Name of the Paper: Reading Drama

Units Assigned- I & IV and Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Nature of Drama from the Renaissance to the Modern Period	Introduction
2.	Contd...	Appreciation
3.	Becket- Waiting for Godot	Appreciation
4.	Text	Appreciation
5.	Contd...	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Absurdist ideas explained	Appreciation
10.	As a tragic comedy	Appreciation
11.	Character analysis	Appreciation
12.	Character analysis	Appreciation
13.	Other important themes discussed	Appreciation
14.	Contd...	Appreciation
15.	Contd...	Appreciation
16.	Question of previous year paper discussed	Discussion
17.	Contd...	Discussion
18.	Use of Symbols in the novel , Autobiographical elements in the novel	
19.	Discussion /Tutorial	
20.	Unit IV: Modernist Poetry W. B Yeats: Leda & the Swan	
21.	W.B Yeats: No Second Troy	
22.	W. B Yeats: Sailing to Byzantium	
23.	Contd.	
24.	Yeats' The Second Coming	
25.	Contd.	
25.	Contd.	
26.	Discussion / Tutorial	

(Jan- June, 2020)

Course- 4

Class/Semester- 2nd Semester (English Honours) CBCS

Name of the Paper: British Poetry and Drama: 14th to 17th Centuries (c)

Units Assigned- IV

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit IV- Shakespeare's Comedy	Introduction
2.	Features of comedy defined	Appreciation
3.	Shakespearean comedy characteristics highlighted	Appreciation
4.	Twelfth Night – Text	Appreciation
5.	Act I scene I	Appreciation
6.	Act I scene I	Appreciation
7.	Act I scene II, III	Appreciation
8.	Act I scene IV, V	Appreciation
9.	Act II scene I, II	Appreciation
10.	ActII scene II, II ,III	Appreciation
11.	ActII scene III, IV	Appreciation
12.	Act IIscene IV	Appreciation
13.	Act IIscene IV, V	Appreciation
14	ActIII scene I, II	Appreciation
15	ActIII scene II,III	Appreciation
16	Act III scene III, IV	Appreciation
17	Act III scene IV, V	Appreciation
18.	Act III scene V	Appreciation
19.	Act Iv scene I,II	Appreciation
20.	Act IV scene III,IV	Appreciation
21	Act IV scene IV, V	Appreciation
22	Act V scene V,	Appreciation
23	TN as a romantic comedy	Appreciation
24	Character analysis	Appreciation
25	Contd..	Appreciation
25	Various other themes and perspectives undertaken	Appreciation
26	Discussion / Tutorial	Discussion
27	Discussion	Discussion
28	Discussion	Discussion
29	Interaction	Discussion

(Jan- June, 2020)Class/Semester- 4th Semester

Name of the Paper- Reading Fiction

Unit's Assigned-Unit I & II

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I- The socio-political contexts of the English novel – An overview	Introduction
2.	Contd...	Appreciation
3.	Contd...	
4.	Dickens- A Tale of Two Cities – introduction to the author	Background information
5.	Chapterwise discussion of the text	Appreciation
6.	Contd...	Appreciation
7.	Contd...	Appreciation
8.	Contd...	Appreciation
9.	Contd...	Appreciation
10.	Important issues discussed	Discussion
11.	Discussed the text as historical novel	Discussion
12.	Socio-cultural aspects discussed	Discussion
13.	Contd...	Discussion
14	Interaction	Interaction
15	Interaction	Interaction

(Jan-June, 2019)

Course – English Major, Course: 201

Class/Semester- B.Com 2nd Semester

Name of the Paper- Business Communication

Units Assigned-IV

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	Unit IV: Business letters and Memo Formats	
2.	Principles of Business Letters	
3.Unit - II	Sales Letters	
4.	Memos	
5.	Collection Letters	
6.	Complaint & Persuasive Letters	
7.	Request Letters	
8.	Good News & Bad News Letters	
9.	Office Memorandum	

NAME OF THE TEACHER-DR. CHANDANA CHETIA

June- December 2019)

Course –10310

Class/Semester- B.A. 1st Semester

Name of the Paper- AECC 1: English Communication

Units Assigned- Unit – I, II, III & IV

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Communication: Theory & Types Topic: What is Communication?	
2.	The Communication Process	
3.	Verbal & Non –Verbal Communication	
4.	Effective communication: Barriers, Solutions	
5.	Intra Personal, Inter Personal & Group Communication	
6.	Different theories of Communication	
7.	Discussion/ Tutorial	
8.	Unit II: Speaking Skills Topic: Monologue	
9.	Dialogue	
10.	Group Discussion	
11.	Effective Communication/ Mis- Communication	
12.	Interview	
13.	Public Speech	
14.	Discussion/ Tutorial	
15.	Unit III: Reading and Understanding Topic: Close Reading	
16.	Comprehension	
17.	Summary	
18.	Paraphrasing	
19.	Analysis & Interpretation	
20.	Translation(from Indian Language to English and vice-versa)	
21.	Discussion/ Tutorial	
22.	Unit IV: Writing Skills: Topic: Documenting	
23.	Report Writing	
24.	Making Notes	
25.	Letter Writing	
26.	Discussion/ Tutorial	

Course: 10200

Class/Semester: B.A Ist Semester (English Honours)

Name of the Paper: C2: European Classical Literature

Unit Assigned: I & IV

Marks Assigned: 30

Class	Topic/ Unit	Remarks
1.	Unit I : Classical Greek Epic, Homer : The Illiad An Outline of The Illiad	
2.	The Authenticity and Survival of Homer's Text	
3.	The Central Theme of The Illiad	
4.	Main Characters & Gods & Goddesses in The Illiad	
5.	Book I of The Illiad	
6.	Book 2 of The Illiad	
7.	Book 3 of The Illiad	
8.	Book 4 & 5 of The Illiad	
9.	Book 6 of The Illiad	
10.	Book 7 & 8 of The Illiad	
11.	Book 9 &10 of The Illiad	
12.	Book 11 &12 of The Illiad	
13.	Book 13 & 14 of The Illiad	
14.	Book 15 & 16 of The Illiad	
15.	Book 17& 18 of The Illiad	
16.	Book !9 & 20 of The Illiad	
17.	Book 21 & 22 of The Illiad	
18.	Book 23 & 24 of The illiad	
19.	Discussion/ Tutorial	
20.	Unit IV: Classical Roman Epic/ Narrative Poem Ovid: Selections from Metamorphoses “ Bacchus”,Book III Introduction to Bacchuss 's Book III	
21	Book IV: Pyramus & Thisbe	
22	Discussion/ Tutorials	

Name of the Teacher- Dr. Chandana chetia

Course 5: 30100

Class/Semester- 3rd Semester (English Honours)

Name of the Paper- C5 : American Literature

Units Assigned- Unit I & II

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I :Drama The Glass Menagerie Life & Age of Tennessee Williams	
2.	The Glass Menagerie as an Autobiographical Play	
3.	Scene 1 of The Glass Menagerie	
4.	Scene 2	
5.	Scene 3	
6.	Scene 4	
7.	Scene 5	
8.	Scene 6	
9.	Scene 7	
10.	Illusion & Reality in The Glass Menagerie	
11.	Symbolism in The Glass Menagerie	
12.	The Glass Menagerie as a Memory Play	
13.	Discussion / Tutorial	
14.	Unit II: African American Novel Toni Morrison: Beloved Emergence of African American Literature & Toni Morrison	
15.	Black Women Novelist: Development , flowering & Fruition of a Tradition	
16.	Beloved as a New- Slave Narrative	
17.	Chapter 1& 2 of Beloved	
18.	Chapter 3 & 4 of Beloved	
19.	Chapter 4 & 6 of Beloved	
20.	Chapter 7&8 of Beloved	
21	Chapter 9 & 10 of Beloved	
22	Chapter 11 , 12 & 13 of Beloved	
23	Summarised 14, 15 16 of Beloved	
24	Summarised 17 18 19, 20 of Beloved	
25	Summarised 21, 22 23 24 of Beloved	
26	Summarised 25, 26 27 28 of Beloved	
27	Character Analysis	
28	Motherhood in Beloved	
29	The Mystery Streak in Beloved	
30	Discussion/ Tutorial	

(June-Dec, 2019)

Name of the Teacher-Dr. Chandana Chetia

Course –50200

Class/Semester- 5th Semester (English Honours)

Name of the Paper-C12: British Literature : The Early 20th Century

Units Assigned- I , II & IV

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1.	Unit I : Joseph Conrad: Heart of Darkness Various Aspects of Conrad as a Novelist	
2.	Detailed Summary of Heart of Darkness Part I	
3	Detailed Summary of Part II	
4.	Detailed Summary of Part III	
5.	Major themes in Heart of Darkness	
6.	Critical Analysis of Major Characters	
7.	Symbolical Significance of the Novel	
8.	Unit II: Lawrence's : Sons & Lovers The Age of D.H Lawrence	
9.	The Essentials of Lawrence's Philosophy	
10.	Chapterwise Analysis of the novel	
11.	Contd	
12.	Contd	
13.	Contd	
14.	Contd	
15.	Contd	
16.	Oedipus Complex in Sons & Lovers	
17.	Paul- Miriam, Paul-Clara relationship	
18.	Use of Symbols in the novel , Autobiographical elements in the novel	
19.	Discussion /Tutorial	
20.	Unit IV: Modernist Poetry W. B Yeats: Leda & the Swan	
21	W.B Yeats: No Second Troy	
22	W. B Yeats: Sailing to Byzantium	
23	Contd.	
24	Yeats' The Second Coming	
25	Contd.	
25	Contd.	
26	Discussion / Tutorial	

Course – 502

Class/Semester- 5th Semester (Non- C.B. C. S)

Name of the Paper-Reading Drama

Units Assigned-Unit III

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Bernard Shaw's : Pygmalion Essence of Shaw's Plays/ Main Trends : Shaw's Contribution	
2.	Detailed study of Act I	
3	Act II	
4.	Act II	
5.	Act III	
6.	Act III	
7.	Act IV	
8.	Act V	
9.	Act V	
10.	Pygmalion As a Problem Play	
11.	Title of the Play	
12.	Theme of Education	
13.	Character Analysis	
14.	Raja Rao's : Kanthapura Raja Rao: A Philosophical Novelist	
15.	Gandhian Ideology in Kanthapura	
16.	Summary of Kanthapura	
17.	Characterisation	
18.	Kanthapura- as a Sthalapurana	
19.	Society in Kanthapura	
20.	The Political Element in Kanthapura	
21	Discussion / Tutorial	
22	Discussion / Tutorial	

Course Plan (Jan-June 2020)

Name of the Teacher- Dr. Chandana Chetia

Course –20200

Class/Semester- 2nd Semester (English Honours)

Name of the Paper- Course 4: British Poetry And Drama : 14th to 17th Centuries

Units Assigned- Unit III

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit III: Shakespeare's Macbeth	
2.	Introduction to Drama & Shakespeare's greatness as a Dramatist	
3.	Elizabethan Theatre & Shakespeare	
4.	Macbeth Act I Sc1 & 2	
5.	Act I Sc 3 & 4	
6.	Act I Sc 5	
7.	Act I Sc 6 & 7	
8.	Discussion / Tutorial	
9.	Macbeth Act 2 Sc1	
10.	Act 2 Sc 2 & 3	
11.	Act 2 Sc 4 & 5	
12.	Act 2 Sc 4	
13.	Discussion/ Tutorial	
14.	Macbeth Act 3 Sc 1 & 2	
15.	Act 3 Sc 3 & 4	
16.	Act 3 Sc 4	
17.	Act 3 Sc 5 & 6	
18.	Discussion/ Tutorial	
19.	Macbeth Act 4 Sc 1	
20.	Act 4 Sc 2 & 3	
21	Discussion/ Tutorial	
22	Macbeth Act 5 Sc 1	
23	Act 5 Sc 2 & 3	
24	Act 5 Sc 4 & 5	
25	Act 5 Sc 6 & 7	
26	Act 5 Sc 8 & 9	
27	Theme of Ambition in Macbeth	

(Jan-June, 2020)

Course : 40200

Class/Semester- 4th Semester

Name of the Paper- 4th Semester (English Honours)

Units Assigned-Unit III & IV

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit III: High Romantic poetry Socio Cultural Background of Romantic Age	
2.	Features of Romanticism, Meaning of Ode	
3.	Ode to Autumn	
4.	Contd. Ode to Autumn & completed	
5.	Ode to a Nightingale	
6.	Ode to a Nightingale	
7.	On First Looking Into Chapman's Homer	
8.	Introduction to P. b Shelley	
9.	1 st 3 Stanzas of Ode to the West Wind	
10.	Ode to the West Wind	
11.	Hymn to Intellectual Beauty	
12.	Discussion / Tutorial	
13.	Frankenstein : The Background	
14.	The Romantic Movement and Frankenstein	
15.	Chapterwise analysis of the novel	
16.	Contd	
17.	Contd	
18.	Contd	
19.	Contd	
20.	Contd	
21	Contd	
22	Contd	
23	Contd	
24	Character Analysis	
25	Motifs & Symbols in Frankenstein	
26	Discussion/ Tutorial	

Course : 602

Class/Semester- B.A. 6th Semester(English major, Non- C.B.C.S)

Name of the Paper- Literature of the U.S.A

Units Assigned- Unit – I & IV

Marks Assigned- 30

Class	Topic/ Unit	Remark
1	Henry David Thoreau as a Transcendentalist	
2	Whitman as a Spokesman of America	
3	Influence of Puritanism in Early American Literature	
4	Features of Renaissance Literature in the 19 th Century	
5	Eugene O' Neill as a Dramatist	
6	Eugene O' Neill: Realism, Expressionism	
7	Desire Under the Elms : Title	
8	Pat I Sc I of Desire Under the Elms	
9	Pat I Sc II of Desire Under the Elms	
10	Pat I Sc III of the play	
11	Part I Sc IV of the play Desire Under the Elms Pat II	
12	Par II Sc III of the play	
13	Sc II & IV of Part II of the Play	
14	Part III Sc I & II of the Play POart III, Sc III& IV	
15	Desire Under the Elms as a tragedy & Psychological Realism in the play	
16	Inheritance & Infanticide in the play	
17	Discussion/ Tutorial	
18	Discussion/ Tutorial	
19	Discussion	

Course – 603

Class/Semester- B.A. 6th Semester(English Major, Non-C.B.C.S)

Name of the Paper-Postcolonial Literature

Units Assigned- Unit – Unit IV

Marks Assigned- 20

Class	Topic/ Unit	Remark
1	Unit IV: J.M. Coetzee: Disgrace: Background of the Novel	
2	Apartheid in South Africa Disintegration of White Supremacy After the end of Apartheid	
3	Animal as a central ecological & ethical feature in Disgrace	
4	Power , Sex and Subjugation in Disgrace	
5	Paradoxical truth in Disgrace	
6	Chapterwise Detailed study of the Novel	
7	Detailed Study of the Novel	
8	Detailed Study of the Novel	
9	Detailed Study of the Novel	
10	Detailed study of the Novel	
11	Detailed Study of the Novel	
12	Discussion/ Tutorial	
13	Discussion / Tutorial	
14	Discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2019-20)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic –Generic

Class/Semester-1st Semester (CBCS)

Name of the Paper-Disaster Management

Units Assigned-1 and 2

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Concept and Definitions of Disasters	
2.	Types of Disasters	
3.	Present scenario of natural Disaster in the World	
4.	Present scenario of natural Disaster in India	
5.	Causes of Natural Disaster	
6.	Impact of Natural Disaster	
7.	Concept and Definition of Hazards	
8.	Characteristics and mode of Hazards	
9.	Types of Hazards	
10.	Concept of Risk	
11.	Meaning and Classification of Vulnerability	
12.	Flood Disaster: Types of Flood	
13.	Causes of Flood	
14.	Impact of Flood	
15.	Distribution of Flood	
16.	Drought Concept: Types of Drought	
17.	Causes of Drought	
18.	Impact of Drought	
19.	Distribution of Drought	
20.	Landslide Concept: Types of Landslide	
21.	Causes of Landslide	
22.	Impact of Landslide	
23.	Distribution of Landslide	
24.	Mapping of flood prone area	
25.	Mapping of Drought prone area	
26.	Mapping of Landslide prone area	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2019-20)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Pass Course

Class/Semester-3rd Semester (NON-CBCS)

Name of the Paper- Human and Population Geography

Units Assigned-1 (Theory) and 2(Practical)

Marks Assigned- 24+16=40

Class	Topic/ Unit	Remarks
1.	Meaning and definition Human Geo	
2.	Nature scaple and importance of Human Geo	
3.	Man Environment relationship	
4.	Environment Diterminism and environment possibilism	
5.	Way of life in Desert Region	
6.	Way of life Polar Region	
7.	Way of life in Equatorial Region	
8.	Bodo tribe dress and food habit	
9.	Naga tribe dress and food habit	
10.	Khasi tribe dress and food habit	
11.	natural region of the world	
12.	Continue natural region of the world	
13.	Meaning definition of Human races	
14.	Classification of Hunman races in the world	
15.	Human races in India	
16.	Classification of Human races in the world	
17.	Characteristies of human races	
18.	Bases of Human Race	
19.	Distribution of human races	
20.	Drawing of Climograph	
21.	Drawing of Hythergraph	
22.	Preparation of Line graph	
23.	Preparation of Bar graph	
24.	Weather map interpretation Winter	
25.	Weather map interpretation Summer	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2019-20)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Classification of Industry	
2.	Iron and Steel Industry	
3.	Locational Factors of Iron and Steel Industry	
4.	Distribution of Iron and Steel Industry	
5.	Ruhr basin steel centres of West Germany	
6.	Iron and Steel Industry in Japan	
7.	Locational Factors of Cotton Textile Industry	
8.	Distribution of Cotton Textile Industry	
9.	Cotton Textile Industry in India	
10.	Cotton Textile Industry in U.K	
11.	Cotton Textile Industry in USA	
12.	Classification of Chemical Industry	
13.	Locational Factors of Chemical Industry	
14.	Chemical Industry in India	
15.	World Distribution of Rice	
16.	Practical-Pie Diagram	
17.	World Distribution of Wheat	
18.	Practical-Bar Diagram	
19.	Tea distribution in the World	
20.	Practical-Histogram	
21.	Tea in India	
22.	Practical-Frequency Curve	
23.	Coffee distribution in the World	
24.	Practical- Population distribution map of N.E. India	
25.	Coffee in Brazil	
26.	Practical-Population distribution map of India	
27.	Cotton Distribution in the World	
28.	Practical- Population Density map of N.E. India	

29.	Jute Distribution in the World	
30.	Practical- Population Density map of India	
31.	Rubber Cultivation in the World	
32.	Practical-Population literacy map of India	
33.	Rubber in S,E, Asia	
34.	Practical-Population literacy map of Assam	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (20219-20)

Name of the Teacher-Dr. Sangeeta Boruah Saikia

Course –Honours / Generic – GE-2

Class/Semester-2nd Semester (CBCS)

Name of the Paper-Regional Development

Units Assigned- 1 and 2

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Definition of Region	
2.	Types of Region	
3.	Concept of Planning	
4.	Planning Regions: Definition and Characteristics	
5.	Types of Planning Region	
6.	Need of Regional Planning	
7.	Principles of Regional Planning	
8.	Objectives of Regional Planning	
9.	Planning Process and Planning Regions	
10.	Evolution of Regional Planning	
11.	Formal Region	
12.	Functional Regional	
13.	Nodal Region	
14.	Planning Region and Regional Development	
15.	Karl Marx's Theory of Economic Development	
16.	Concept of Regional Imbalanced	
17.	Theory of Balanced Development	
18.	Regional Development in India	
19.	Theory of unbalanced Development	
20.	Causes of Regional Imbalance in India	
21.	Regional Disparities in India	
22.	Regional Imbalances and Economic Industries	
23.	Regional Disparities and Human Development	
24.	Problem of Functional Regiona	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2019-20)

Name of the Teacher-Dr. Sangeeta Boruah Saikia

Course –Honours / Generic – Pass Course

Class/Semester-4th Semester (Non-CBCS)

Name of the Paper-Regional Geography of India

Units Assigned- 2 and 3

Marks Assigned - 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Concept of Heavy Industry Iron and Steel Industry	
2.	Production of Iron and Steel Industry in India	
3.	Distribution of Iron and Steel Industry in India	
4.	Production of Cotton Textile Industry in India	
5.	Distribution of Cotton Textile Industry in India	
6.	Classification of Chemical Industry in India	
7.	Heavy Chemical Industry in India	
8.	Petro- Chemical Industry in India	
9.	Industrial belt in India	
10.	Transport system in India, types of transport	
11.	Communication system in India	
12.	Causes of Population Growth	
13.	Factors of Population Distribution	
14.	Population Growth in India	
15.	Distribution of Population	
16.	Physiography of N.E.India	
17.	Climate of N.E.India	
18.	Soil of N.E.India	
19.	Natural vegetation of N.E.India	
20.	Major Minerals of of N.E.India	
21.	Transport and communication of N.E.India	
22.	Production of Major crops of N.E.India	
23.	Distribution of Major crops of N.E.India	
24.	Basic concept of Survey	
25.	Plain table survey by radiation method	
26.	Plain table survey by intersection method	
27.	Open traverse by Prismatic compass	
28.	Close traverse by Prismatic compass	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2019-20)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World

Units Assigned- Unit 1 (Asia)

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Physical features of Asia	
2.	Climatic Region of Asia	
3.	Factors affecting the climate of Asia	
4.	Climatic Characteristics of Asia	
5.	Soil of Asia	
6.	Natural Vegetation of Asia	
7.	Tea Cultivation in Asia	
8.	Cultivation of Rice in Asia	
9.	Rubber Plantation in Asia	
10.	Coffee Cultivation in Asia	
11.	Maize Cultivation in Asia	
12.	Sugar cultivation in Asia	
13.	Wheat Cultivation in Asia	
14.	Spatial Distribution of Population in S.E. Asia	
15.	Density of Population in Asia	
16.	Practical-International Boundaries of Neighboring Countries	
17.	Iron and Steel Industry in Asia	
18.	Practical-Mac Mohon line	
19.	Petroleum and Natural Gas in S,E, Asia	
20.	Mineral Resources of Asia	
21.	Practical- Demarcation of Red-Cliff line	
22.	Jute Cultivation of Bangladesh	
23.	Practical-International Boundary of India with Myanmar and Bhutan	
24.	Coal recourses of Asia	
25.	Practical-SAARC Countries	
26.	Cotton Textile Industry in Japan	
27.	Practical-Durand Line	
28.	Fishing Industry in Japan	


29.	Practical-Asia political Map	
30.	Manufacturing industry in Japan	

DIGBOI COLLEGE: DIGBOI

Course Plan

2019-20

Name of the teacher- Narendra Kumar Das

CLASS	UNITS/TOPICS TAUGHT	REMARKS
1	Concept of Disasters in India	
2	Concept of Earthquake	
3	Causes and Impact of Earthquake	
4	Distribution of Earthquake Zones in India	
5	Do's and Do not's During and Post Earthquake Disaster	
6	Mapping of Earthquake Zones in India	
7	Concept of Tsunami	
8	Causes and Impact of Tsunami	
9	History of Tsunami in India	
10	Distribution of Tsunami in India	
12	Do's and Do not's During and Post Tsunami	
13	Mapping of Tsunami Zones in India	
14	Concept of Cyclone	
15	Causes and Impact of Cyclone	
16	Distribution of Cyclones in India	
17	Do's and Do not's During Cyclone	
18	Mapping of Cyclone Zones in India	
19	Concept of Human induced disasters	
20	Cause and Impact of Human induced disasters	
21	Bhopal Gas Tragedy and Chernobyl nuclear Disaster	
22	Mitigation and Preparedness for disasters	
23	NDMA and NIDM	
24	Indigenous Knowledge and Community-Based Disaster Management	
25	Do's and Don'ts During Disasters	

Course- Honours/Generic- Generic

Class/Semester- 1st Semester (CBCS)

Name of the paper- Disaster Management (GE-01)

Units Assigned- 3,4,5

Marks Assigned- 40

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2019-20)

Name of the Teacher-Mr.Narendra Kr.Das

Course –Honours / Pass Course

Class/Semester-3rd Semester (NON-CBCS)

Name of the Paper- Human and Population Geography

Units Assigned-II (Theory) and 2(Practical)

Marks Assigned- 24+16=40

Class	Topic/ Unit	Remarks
1.	World population growth	
2.	Causes of population growth	
3.	World population distribution	
4.	Population growth in India	
5.	Population distribution in India	
6.	Causes of Uneven distribution of population	
7.	Consequences of population growth	
8.	Remedial Measures	
9.	Migration Concept and Pattern	
10.	Causes of Migration	
11.	Consequences of Migration	
12.	Types of Settlement:	
13.	Pattern of Rural Settlement	
14.	Pattern of Urban Settlement	
15.	Concept of towns	
16.	Classification of towns on the basis of its origin	
17.	Functional classification of towns	
18.	Interpretation of Toposheets	
19.	Interpretation of Toposheets	
20.	Interpretation of Toposheets	
21.	Preparation of Transact Chart	
22.	Preparation of Transact Chart	
23.	Preparation of Transact Chart	
24.	Drawing of profiles: Serial	
25.	Drawing of profiles: Serial	
26.	Drawing of profiles	
27.	Superimposed profiles	
28.	Projected profiles	

29	composite profiles	
30	Interpretation of Profiles	
31	Interpretation of Profiles	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2019-20)

Name of the Teacher-Mr.Narendra Kr. Das

Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)


Class	Topic/ Unit	Remarks
1.	Introduction to economic Geography	
2.	Types of economic activities	
3.	Types of economic activities	
4.	Economic activities in the plains of NE India	
5.	Economic activities in the hills of NE India	
6.	Economic activities vs Env. Problems	
7.	Economic activities vs Env. Problems	
8.	Concept of natural resources	
9.	Classification of natural resources	
10.	World Distribution of iron ore	
11.	World Distribution of coal	
12.	Continue	
13.	World Distribution of petroleum	
14.	World Distribution of Gold	
15.	World Distribution of copper	
16.	World Distribution of aluminium	
17.	Hydro-electricity NE India- Problems & Prospects	
18.	Measures of Central tendency	
19.	Mean	
20.	Median	

21.	Mode	
22.	Measures of dispersion	
23.	Measures of dispersion-mean deviation	
24	Measures of dispersion-standard deviation	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (20219-20)

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Generic
Class/Semester- 2nd Semester (CBCS)
Name of the paper- Regional Development (GE-02)
Units Assigned- 3,4,5
Marks Assigned- 40

CLASS	UNITS/TOPIC	REMARKS
1	Concept of Region	
2	Choice of a region for planning	
3	Concept and Characteristics of Ideal Planning Region	
4	Concept and Characteristics of Ideal Planning Region	
5	Delineation of Planning Region	
6	Delineation of Planning Region	
7	Concept of Regionalization	
8	Regionalization of India for Planning	
9	Agro-Ecological Zones	
10	Agro-Ecological Zones	
11	Concept of Strategies and Models in Regional Planning	
12	Growth Pole Model of Perroux	
13	Growth Pole Model of Perroux	
14	Growth Center Model in Indian Context	
15	Growth Center Model in Indian Context	
16	Village Cluster Model in Indian Context	
17	Concept of Problem Regions in Regional Planning	
18	Tribal Area Development Programme	
19	Hill Area Development Programme	
20	DVC The Success story and Failure	
21	DVC The Success story and Failure	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2019-20)

Name of the Teacher-Mr. Narendra Kr. Das

Course –Honours / Generic – Pass Course

Class/Semester-4th Semester (Non-CBCS)

Name of the Paper-Regional Geography of India

Units Assigned- 1 and 2

Marks Assigned - 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	India: Introduction	
2.	Geological Structure of India	
3.	Physiographical Divisions of India	
4.	Drainage system of India	
5.	Climate of India	
6.	Soil of India	
7.	Natural Vegetation	
8.	Agriculture: Major Crops	
9.	Paddy	
10.	Wheat	
11.	Cotton Textile	
12.	Sugarcane	
13.	Tea	
14.	Major minerals	
15.	Power resources	
16.	Iron ore	
17.	Copper	
18.	Aluminium	

19.	Coalpetroleum	
20.	Natural Gas	
21.	Hydro power	
22.	Projection Concept	
23.	Polar Zenithal Gnomonic Projection	
24.	Polar Zenithal Stereographic Projection	
25.	Polar Zenithal Orthographic Projection	
26.	Conical Projection	
27.	Cylindrical Equal Area Projection	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2019-20)

Name of the Teacher-Mr. Narendra Kr. Das

Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World

Units Assigned- Unit 1 (Asia)


Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Introduction to Europe: Location, Size, Shape etc.	
2.	Physical Divisions of Europe	
3.	Soils of Europe	
4.	Climate of Europe Summer Conditions	
5.	Climate of Europe Winter Conditions	
6.	Vegetation of Europe	
7.	Minerals of Europe: Iron Ore	
8.	Power Resources of Europe: Coal	
9.	Petroleum Resource of Europe	
10.	Hydro-Electricity of Europe	
11.	Agricultural Resources of Europe: Types of Agriculture in Europe	
12.	Wheat- Production & Distribution	
13.	Maize- Production & Distribution	
14.	Rice- Production & Distribution	
15.	Major Industries of Europe	
16.	Major Industries of Europe	
17.	Distribution of Population in Europe	

18.	Practical-Mac Mohon line	
19.	Map of China: Distribution of Industries	
20.	Map of Petroleum reserves of Middle East	
21.	Map of SAARC Countries	
22.	Population Density Map of South East Asia 2001	
23.	Map of China: Distribution of Industries	
24.	Map of Petroleum reserves of Middle East	
25.	Practical-Asia political Map	

COURSE PLAN FOR THE SESSION (JUNE- DECEMBER) 2019, DEPARTMENT OF HINDI, DIGBOI COLLEGE, DIGBOI.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL Hindi	Unit- I Apathit Bodh, Unit- III Aaroh - 1 Gadya Khand & Vitan - 1	Unit- II Rachanatmak Lekhan, Unit- III Aaroh – Kavya Khand, Unit –IV Moukhik Parikshan,
H.S.-II- MIL Hindi	Unit- I Apathit Bodh, Unit- III Aaroh – 2 Gadya Khand	Unit- II Rachanatmak Lekhan & Jansanchar Unit- III Aaroh – 2 Gadya Khand & Vitan -2
H.S.-II- Adv. Hindi	Unit- I Modern Poetry, Unit- II Bhaskar Varman (Natak)	Unit-III Rani Laxmibai (Novel) Unit- IV Ras, Chhand, Alankar,
1 st Sem.- MIL	Unit- I Prachin Kavya, Unit- II Aadhunik Kavya,	Unit- III Kahani, Unit –IV Nibandh,
1 st Sem.- Hon. C-1	Unit- II Bhaktikal Prishthabhoomi, Unit- III Bhaktikal ki Dharayen,	Unit- I Aaadikal, Unit- IV Ritikal ,
1 st Sem.- Hon. C-2	Unit- III Hindi Gadya Ka Vikas, Unit- IV Hindi Gadya Ki Anya Vidhayen,	Unit- I Aadhunik Kalin Prishthabhoomi, Unit- II Hindi Padya Sahitya Ka Vikas
3 rd Sem. - Major 301	Unit- I Natak Ka Udbhav Or Vikas, Unit- III Chandragupt (Natak)	Unit- II Natak Ke Bhed, Unit- IV Andhayug (Natak)
3 rd Sem. -Major 302	Unit- I Kavya Lakshan, Kavya Prayojan, Kavya Hetu, Unit- III Alankar,	Unit- II Vibhinn Sampraday, Unit- IV Chhand Ke Bhed & Lakshan,
5 th Sem.- Elective	Unit- I Bharapiya Parivar, Bhartiya Aarya Bhasha, Unit- III Aadhunik Bharatiya Aarya Bhasha,	Unit- I Bhasha Or Bhasha Vigyan, Unit- IV Devnagari Lipi & Lipi ke Manak Roop,


17.06.2019

HOD (HINDI)
DIGBOI COLLEGE, DIGBOI

Course Plan for the Session (January- May) 2020, Department of Hindi, Digboi College, Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL Hindi	Unit-III Gadya Khand, Unit -IV-Moukhik Prikshan,	Unit-I Apathit Bodh, Unit - II Rachanatmak Lekhan, Unit -III Kavya Khand & Vittan -1 ,
Sem.-II (Hon.) C-3	Unit -I Vidyapati, Mirabai, Raskham, Unit -II Kabir, Jayasi,	Unit -III Surdas, Tulasidas, Unit -IV-Ghananand, Rahim, Bihari,
Sem.-II (Hon.) C-4	Unit -I Bhartendu, Harioudh Unit -II Maithali Sharan Gupt, Ram Naresh Tripathi	Unit -III Jai Shankar Prasad, Nirala, Unit -IV Sumitranandan Pant, Mahadevi Verma,
Sem.- IV- MIL Hindi	Unit -I Vyavaharik Hindi, Unit -III Patra Lekham,	Unit- II Anuvad, Unit - IV Sankshepan,
Sem.- IV- Major-401	Unit- II 1084 ई. की मा (Novel) Mahashweta Devi,	Unit- I Gadya Katha Sahitya, Unit- II Droot Path(Premchand, Agyey, Mahadevi),
Sem.- IV- Major-402	Unit- III Katha aur Jivani Sahitya, Unit- IV Natak aur Gadya ki Anya Vidhayen,	Unit- I Khadiboli Hindi Ka Prarambhik Swaroop, Unit- II Bhartendu Yug, Dwivedi Yug, Chhayavad Yug, Pragativad, Prayogvad, Nai Kavita,
Sem.-VI- Elec. Hindi	Unit- I Alochana Ka Swaroop, Unit- II Hindi Alochana - Shukla & Dwivedi,	Unit-III Jan Sanchar Madhyam, Unit-IV Sanchar Madhyam Ke Vividh Roop,


20/02/2020

HOD (HINDI)

DIGBOI COLLEGE, DIGBOI

DIGBOI COLLEGE, DIGBOI
Course Plan June, 2019

Name of the Teacher- Partha Kr. Narah

Course –Honours / Generic – HISGE1

Class/Semester-1

Name of the Paper-History of Assam 1228-1826

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Sources: Archaeological epigraphic.	Baruah, S.L. –A Comprehensive History of Assam
2	literary, numismatic	
3	Account of the foreign travellers	
4	Political conditions of the Brahmaputra Valley at the time of the advent of the Ahoms	
5	Sukapha and his foundation of the kingdom-An assessment	
6	State formation in the Brahmaputra Valley-the Chutiya,	
7	The Kachari	
8	The Koch State	
9	Expansion of the Ahom Kingdom in the 16th century- Conquests of the Neighbouring States and Territories	
10	Sudhangpha	
11	Dihingiya Raja	
12	Ahom Muslim conflict	
13	Sukhel Nung	
14	Political Developments in the 17th century- Reign of Pratap Singha	
15	Ahom Mughal Conflict	
16	Administrative reform	
17	Mumai Tamuli Barbaruah	
18	Jayadhwaj Singh and Kuch Relation.	
19	The Ahom-Mughal Relations in the Second half of the 17th Century Wars – Mir Jumla's Assam Invasion	
20	Account Of Shihabuddin Taish	
21	Chakradhwaj Singh	
22	The Battle of Saraighat and its Consequences	

DIGBOI COLLEGE, DIGBOI
Course Plan -June, 2019

Name of the Teacher-Partha k Narah

Course -Core/Pass course

Class/Semester III

Name of the Paper- History of Europe (1453-1815)

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	American war of independence. Enlightened Despotism in Europe –	Text Books:English: Hayes,C.J.H.-A Political and Cultural History of Early Modern Europe; Phukan Meenakshi- Rise of the Modern West: Social and Economic History of Early Modern Europe
2	Political and economic issues and significance	
3	Enlightenment in Europe-its Impact	
4	Russia	
5	Prussia and Austria.	
6	The Industrial Revolution in Europe Causes and Significance.	
7	Transition From Feudalism to Capitalism	
8	French Revolution and causes	
9	Political Causes	
10	Economic cause	
11	Social cause	
12	Significance of Revolution	
13	Napoleon Bonaparte	
14	Internal Polices	
15	External Polices	
16	Downfall of Napoleon Bonaparte.	
17	The Congress of Vienna.	
18	Europe 1815	

DIGBOI COLLEGE, DIGBOI
Course Plan -June, 2019

Name of the Teacher-Partha Kr. Narah

Course –Pass course

Class/Semester V

Name of the Paper- History of India 1526 to 1947

Assessment - 1st, 2nd, 3rd

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Political Conditions in Northern India in the beginning of the 16th century- The Afghan Empire and the Mughals-Resistance vs. Struggle for Hegemony	Text Books: Banerjee, A.C. - History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)
2	Battle of first Panipath 1526	
3	The Age of the Mughals- Foundation of the Mughal Empire.	
4	Babar And Rajput War	
5	Babar and Afghan War	
6	Humayun	
7	Humayun and Sher Saha Conflict	
8	Sher Shah Administrative Refroms.	
9	Akbar and 2 nd Battle of Panipath	
10	Akbar Political Policy	
11	Akbar Hindu Policy.	
12	Akbar Religious policy towards Hindu	
13	Akbar Religious Policy.	
14	Akbar Administration	
15	Akbar land Policy and Social Refroms	
16	Jahangir Ruling Periods	
17	Shajahan	
18	Aurangzeb- Political Supremacy.	
19	Administrative Developments	
20	The later Mughals and the Decline of the Mughal Empire	
21	Rise of the Marathas in the Deccan- Sivaji and His career	
22	Society, Economy, Religion and Culture under the Mughals	
23	Beginning of the European Settlements in India—the Portuguese –the Dutch	
24	The French and the English.	

DIGBOI COLLEGE, DIGBOI

Course Plan June , 2019

Name of the Teacher- Dr. Anamika Neog

Course – Generic – HISGE1

Class/Semester-1

Name of the Paper-History of Assam 1228-1826

Units Assigned- Unit III (3.03)- Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Post-Saraighat Assam- Debera Hazarika	Text Books:
2.	AtanBargohain, Laluk Sola Barphukan	English: Baruah, S.L. –A Comprehensive History of Assam Gait, E.A.- A History of Assam
3.	Ascendancy of the Tungkhangia dynasty-the reign of Gadadhar Singha	Assamese: Baruah, Surajit Boruah, Nirode- Asomar Itihas, 2 nd edition (revised) Nath, D. – AsamBuranji, Revised and enlarged edition
4.	Ahom rule at its zenith-the reign of Rudra Singha	
5.	Rajeshwar Singha (1751-1769)	
6.	Background of the Moamariya Rebellion	
7.	Lakshmi Singha (1769-1780)	
8.	The Moamariya Rebellion	

9.	GaurinathSingha(1780-1795)	
10.	Decline and fall of the Ahom Kingdom	
11.	The Burmese invasions	
12.	The East India company in Assam politics- the Treaty of Yandabo and Assam	
13.	Ahom system of administration	
14.	The Paik System	
15.	Ahom policy towards the neighbouring hill tribes;	
16.	Society in Assam under the Ahoms	
17.	Caste and class structures	
18.	The Neo-Vaishnavite Movement-background	
19.	The Neo-Vaishnavite Movement- its implications	
20.	Sankardev and the Neo-Vaishnavite Movement	

DIGBOI COLLEGE, DIGBOI

Course Plan June , 2019

Name of the Teacher- Dr. Anamika Neog

Course -III (General) HISG III

Class/Semester-III

Name of the Paper-History of Europe : 1453-1815

Units Assigned- Unit III (3.03)- Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Renaissance-meaning-backgrounds	Text Books:
2.	Renaissance-impacts	English: Hayes,C.J.H.-A Political and Cultural History of Early Modern Europe; Phukan ,Meenakshi- Rise of the Modern West: Social and Economic History of Early Modern Europe
3.	Reformation-origin,courses and consequences	Assamese: Bhattacharya- AdhunikPaschattyarUtthan
4.	Counter Reformation	
5.	The Thirty Years' War-causes and consequences	
6.	Colonial Expansion in the 15 th and 16 th centuries-causes,extent and implications;	
7.	Absolute Monarchy in Europe-Spain	
8.	Absolute Monarchy in Europe-Spain (cont.)	
9.	Absolute Monarchy in Europe-France	

10.	Absolute Monarchy in Europe-France(cont.)	
11.	Absolue Monarchy in Europe- England	
12.	Absolue Monarchy in Europe- England(cont.)	
13.	Absolue Monarchy in Europe- Russia	
14.	Absolue Monarchy in Europe- Russia (cont.)	
15.	The Glorious Revolution- background	
16.	The Glorious Revolution- results	
17.	The Scientific Revolution in the 16 th -17 th centuries-extent.	
18.	The Scientific Revolution in the 16 th -17 th centuries- nature and results	
19.	Mercantilism	
20.	European Economy 17 th and 18 th centuries	

DIGBOI COLLEGE, DIGBOI

Course Plan -June, 2019

Name of the Teacher-Dr. Anamika Neog

Course -V (General) HISG V

Class/Semester V

Name of the Paper- History of India 1526 to 1947

Units Assigned- Unit III (3.02)- Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Expansion and consolidation of the British rule in India upto 1857- Conflict with the Marathas	Text Books:
2.	Expansion and consolidation of the British rule in India upto 1857- Conflict with Mysore, Awadh, Punjab and Sindh	English: Banerjee, A.C. - History of India Chandra, S. - Medieval India From Sultanat to Mughals (1526- 1748
3.	Administrative developments upto 1857	Assamese: Barua, P.K. Hussain, T.A. - Bharat Buranji Goswami, S.D. - Bharat Buranji
4.	Socio- economic reform upto 1857	
5.	Revolt of 1857 and its aftermath	
6.	Post 1858 administrative developments till 1919;	
7.	Socio- religious reform movements in the post 1857 period	
8.	Growth of press and rise of national consciousness	
9.	Freedom struggle upto 1919- Partition of Bengal and the Swadeshi Movement;	
10.	Home Rule League	
11.	Rise of Muslim of Muslim Politics	
12.	Freedom Struggle from 1919 to 1939- Gandhi in	

	politics	
13.	Khilafat and Non- Cooperation Movement	
14.	Civil Disobedience Movement	
15.	Government of India Act, 1935	
16.	Rise of Communalism, revolutionary terrorism	
17.	Trade unionism and Leftist politics	
18.	Cripps Mission- Quit India Movement- Second World War-INA	
19.	Post- War Development- Cabinet Mission	
20.	Transfer of power	

DIGBOI COLLEGE, DIGBOI
Course Plan Jan, 2020

Name of the Teacher- Partha Kr Narah

Course –Generic-HISGE2

Class/Semester-II

Name of the Paper- History of India earliest time to 1526 A.D.

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Sources –A survey. Archaeological sources.	Text Books: English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India
2.	Literary sources	
3	Foreign accounts	
4	Harappan Civilization.Origin and extent.	
5	Salient features, of Harrapans Civilisation	
6	Town planning.	
7	Socials and Economic conditions of Harrapans	
8	Religions and decline and the end of Civilization.	
9	Vedic Civilization society, economy, polity and culture of the Rig-Vedic	
10	Later Vedic periods	
11	Raise of the Territorial States –Mahajanapadas.Ascendancy of Magadha	
12	Alexander invasion of India	
13	Rise of the Mauryan Empire under Asoka-his inscription	
14	Dhamma of Asoka.	
15	Mauryan system of Administration.	
16	Political developments in the Post-Mauryan The period (200BC-300BC) The Sungas	
17	The Satavahanas	
18	The Kushanas	
19	Sangam literature	

DIGBOI COLLEGE, DIGBOI
Course Plan January, 2020

Name of the Teacher- Partha Kr Narah

Course –Core / Pass course

Class/Semester-IV

Name of the Paper- History of India earliest time to 1526 A.D.

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Sources –A survey. Archaeological sources.	Text Books: English: Thapar. Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India
2.	Literary sources	
3	Foreign accounts	
4	Harappan Civilization. Origin and extent,	
5	Salient features, of Harrapans	
6	Town Planning.	
7	Socials and Economic condition s of Harrapans	
8	Religions and decline and the end of Civilization.	
9	Vedic Civilization society, economy, polity and culture of the Rig-Vedic	
10	Later Vedic periods	
11	Raise of the Territorial States –Mahajanapadas. Ascendancy of Magadha	
12	Alexander invasion of India	
13	Rise of the Mauryan Empire under Asoka-his inscription	
14	Dhamma of Asoka.	
15	Mauryan System of Administration.	
16	Political developments in the Post-Mauryan The period (200BC-3000BC) The Sungas	
17	The Satavahanas	
18	The Khushanas.	
19	Sangam literature	

DIGBOI COLLEGE, DIGBOI
Course Plan Jan, 2020

Name of the Teacher- Partha Kr Narah

Course –Core / Pass course

Class/Semester-VI

Name of the Paper- Women in Indian History

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Definition and Scope	Text Books: English: Altekar, A.S.-The Position of Women in Hindu Civilization. 2 nd print Chandel, Bhuban(ed.)- Women in Ancient and Medieval India. Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women 1836-1937
2	Feminist, movements and Developments of women's History	
3	Key Concepts in Women's studies Gender.	
4	Patriarchy and Sexual Division of Labour.	
5	Sources for Reconstruction of women's History Oral, Narratives	
6	Autobiography, Dairies	
7	Women in Ancient Indian Society Vedic period	
8	Status of women in Buddhism Changing Status of women in the subsequent period.,	
9	Women in Medieval India.	
10	Female Infanticide.	
11	Social Customs and Reform Movements in 19 th century; Sati, widow Remarriage	
12	Role of Brahma Samaj, Arjya Samaj, Parthana Samaj	
13	Aligarh Movements	

DIGBOI COLLEGE, DIGBOI

Course Plan January, 2020

Name of the Teacher-Dr. Anamika Neog

Course –Generic – HISGE2

Class/Semester- II

Name of the Paper- History of India From the earliest times to 1526

Units Assigned- Unit III (3.04) – Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Gupta Age- Political history	Text Books:
2.	Gupta Age- society,economy and culture	English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India
3.	Post-Gupta period(upto 640 A.D.)- polity, society,economy and culture	Assamese: Barua, P.K.- Bharat Buranji Nath, D.- BharatarRajnoitikaruSanskritikBuranji(Revised)
4.	Political developments in the South- the Pallavas	
5.	The Imperial Cholas	
6.	The Rashtrakutas	
7.	The Chalukyas	
8.	The Arabs in Indian politics	
9.	The Turks in Indian politics- Ghaznavides	
10.	The Ghorid invasions	
11.	Indian Society during 650-1200 A.D.-literature & language, temple architecture and sculpture	
12.	The Delhi Sultanate- the Slave dynasty	

13.	The Khaljis- AlauddinKhalji's administration	
14.	The Tughluqs dynasty	
15.	Disintegration of the Delhi Sultanate and rise of Provincial Kingdoms	
16.	Vijayanagar Kingdom	
17.	Bahmani Kingdom	
18.	Polity, society of the Sultanate period	
19.	Economy, religion and culture of the Sultanate period,	
20.	Bhakti Movement and Sufism	

DIGBOI COLLEGE, DIGBOI

Course Plan January,2020

Name of the Teacher-Dr. Anamika Neog

Course – IV (General) – HISG IV

Class/Semester- IV

Name of the Paper- History of India From the earliest times to 1526

Units Assigned- Unit III (3.04) – Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Gupta Age- Political history	Text Books:
2.	Gupta Age- society,economy and culture	English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India
3.	Post-Gupta period(upto 640 A.D.)- polity, society,economy and culture	Assamese: Barua, P.K.- Bharat Buranji Nath, D.- BharatarRajnoitikaruSanskritikBuranji(Revised)
4.	Political developments in the South- the Pallavas	
5.	The Imperial Cholas	
6.	The Rashtrakutas	
7.	The Chalukyas	
8.	The Arabs in Indian politics	
9.	The Turks in Indian politics- Ghaznavides	
10.	The Ghorid invasions	
11.	Indian Society during 650-1200 A.D.-literature & language, temple architecture and sculpture	
12.	The Delhi Sultanate- the Slave dynasty	

13.	The Khaljis- AlauddinKhalji's administration	
14.	The Tughluqs dynasty	
15.	Disintegration of the Delhi Sultanate and rise of Provincial Kingdoms	
16.	Vijayanagar Kingdom	
17.	Bahmani Kingdom	
18.	Polity, society of the Sultanate period	
19.	Economy, religion and culture of the Sultanate period,	
20.	Bhakti Movement and Sufism	

DIGBOI COLLEGE, DIGBOI

Course Plan , January, 2020

Name of the Teacher- Dr. Anamika Neog

Course – VI (Optional -II) (General)

Class/Semester- VI

Name of the Paper- Women in Indian History

Units Assigned- Unit III (3.03)- Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Development of Women's Education in the 19 th and 20 th centuries	Text Books:
2.	Role of Social Reformers	English: Altekar, A.S.-The Position of Women in Hindu Civilization, 2 nd print Chandel, Bhuban(ed.)- Women in Ancient and Medieval India, Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women 1836-1937
3.	Role of Missionaries	Assamese: Goswami, Gita, Goswami, P-Bharator Itihasot Nari
4.	Sarda Act, 1929	
5.	Hindu Women's Right to Property Act, 1937	
6.	Development of Women's Organisation	
7.	Women's Conference, 1910	
8.	National Council of Women in India	
9.	Demand for Women's Franchise	

10.	Women in Indian Freedom Struggle:Pre-Gandhian Phase	
11.	Women in Freedom Struggle-Gandhian Phase	
12.	Women in Revolutionary Movement	
13.	Women and Society in Medieval Assam	
14.	Patriarchy in Medieval Assam	
15.	Social Reform Movement in 19 th and 20 th centuries	
16.	Development of Women's Organisation in Assam	
17.	Women in Freedom Struggle in North East India	

Department of Mathematics
Digboi College
Course Plan
Session 2019-2020

DIGBOI COLLEGE, DIGBOI**Department of Mathematics****Course Plan (Session June-December, 2019)**

Name of the Teacher: Dr. Jatindra Lahkar
Course –Honours / Generic: Honours
Class/Semester: First Semester
Name of the Paper: Calculus(P) Paper Code:C1
Units Assigned: Complete Paper
Marks Assigned: Theory – 60 and Practical – 20.

Class	Topic/ Unit	Remarks
1	Unit-1: Introductory Class: About Calculus and its historical background.	
2	Hyperbolic functions: Introduction, definitions, identities and examples. Graph of hyperbolic Functions.	
3	Derivatives and integrals of Hyperbolic functions.	
4	Evaluation of inverse hyperbolic functions and their graph.	
5	Higher order derivatives: Successive differentiation. Examples	
6	The nth derivative of some special functions and rational algebraic functions. Examples	
7	Leibnitz theorem for nth derivative of product functions and application to problems of type $e^{ax+b} \sin x$, $e^{ax+b} \cos x$,	
8	Leibnitz theorem application to problems of type $(ax+b)^n \sin x$, $(ax+b)^n \cos x$. Symbolic operation.	
9	Concavity and convexity and its definitions and application to real life.	
10	Point of inflexion, analytical test for concavity. Examples	
11	Asymptotes: Introduction, Definitions, Rectangular asymptotes, Oblique asymptotes and its examples.	
12	Method of finding rectangular and oblique asymptote, Examples	
13	Examples of asymptotes.	
14	Curve tracing in cartesian coordinates, tracing of cycloid, cardioid etc.	
15	Curve tracing in polar coordinates, tracing of cycloid, cardioid etc.	
16	Examples of curve tracing in cartesian and polar form.	
17	Indeterminate form: L'Hospitals ule, Definition and Rule 0/0 form, ∞/∞ form, example	
18	Rule $0 \times \infty$, $\infty - \infty$, 0^0 , ∞^0 , $1^{\pm\infty}$ forms and its applications examples.	
19	Application of Maxima and Minima.	
20	Examples of Maxima and minima.	
21	Unit-2: Reduction formulae: Introduction.	
22	Derivations and illustrations of reduction formulae of the type $\int \sin^n x dx$, $\int \cos^n x dx$, and for definite integrals from 0 to $\pi/2$, and Examples	
23	Derivations and illustrations of reduction formulae of the type $\int \tan^n x dx$, $\int \cot^n x$, and for definite integrals from 0 to $\pi/2$ and Examples	
24	Derivations and illustrations of reduction formulae of the $\int \sec^n x dx$, $\int \operatorname{cosec}^n x dx$, and for definite integrals from 0 to $\pi/2$, and Examples.	

25	Derivations and illustrations of reduction formulae of the , $\int (\log x)^n dx$, $\int \sin^n x \cos^n x dx$ and examples.	
26	Derivations and illustrations of reduction formulae of the type $\int x \sin^n x dx$, $\int x \cos^n x dx$, and Examples	
27	Derivations and illustrations of reduction formulae of the type $\int e^x \sin^n x dx$, $\int e^x \cos^n x dx$, and Examples	
28	Derivations and illustrations of reduction formulae of the type $\int \cos^m x \sin^n x dx$, $\int \cos^m x \cos^n x dx$, and Examples	
29	Volume by slicing formula and examples.	
30	Volume of solids of revolution: disk method, Formula for rotation about x-axis and y- axis and examples.	
31	Volume of solids of revolution: Washers method, Formula for Finding Volumes by Washer Method and Examples.	
32	Volume by Cylindrical Shells: Shell formula for Revolution about y-axis and examples	
33	Volume by Cylindrical Shells: Shell formula for Revolution about x-axis and examples	
34	Unit-3: Parameterizing a plane curve: Parametric equation of circle, half circle, parabola, ellipse, hyperbola.	
35	Tracing of curves of Parametric equation of circle, half circle, parabola, ellipse, hyperbola.	
36	Conversion of parametric to cartesian equations and vice-versa.	
37	Calculus with parametrization curves. First and second derivatives.	
38	Arc length of cartesian equations, formula and examples.	
39	Arc length of parametric curves formula and examples.	
40	Area of surface of revolution: Formula for Surface area revolving about x-axis($y \geq 0$) and examples.	
41	Formula for Surface area revolving about y-axis($x \geq 0$) and examples.	
42	Conversion of cartesian to polar coordinates and examples.	
43	Techniques of sketching conics: Techniques of sketching parabola and ellipse and hyperbola and examples.	
44	Techniques of sketching hyperbola and examples.	
45	Shifting conic sections,	
46	Classification of conic section by eccentricity.	
47	Reflection properties of parabola, ellipse and hyperbola and its uses in practical life.	
48	Quadratic equation and rotation of axes: Rotating the coordinate axes to eliminate the cross-product term, and examples.	
49	Classification into conics using the discriminant $B^2 - 4AC \geq 0$ with examples.	
50	Polar equations of conics: parabola, ellipse and hyperbola.	
51	Unit-3: Triple Product: Definition of Vector triple product and examples.	
52	Definition of Scalar triple product and examples.	
53	Volume of parallelepiped and collinearity of four points.	
54	Introduction to vector functions.	
55	Operations with vector-valued functions.	

56	Limits and continuity of vector functions and examples.	
57	Differentiation and integration of vector functions and examples.	
58	Integration of vector functions and examples.	
59	Tangent and Normal components of acceleration and examples.	
60	Practical: Introduction to MatLab(Matrix Laboratory)	Practical Class 2 hours.
61	Uses and application of MatLab in different fields.	
62	Basic structures and different MatLab windows : Command Window, Command History, Workspace, Current Directory, Help Browser, Start button	
63	Using MATLAB as a calculator: Creating MATLAB variables etc.	
64	MatLab built in functions and user defined functions.	
65	Hierarchy of algebraic operations, evaluation of expressions.	
66	Controlling the appearance of floating point number, format specification of integer. %f and %d format. Format long and short.	
67	Some basic commands: like clc, clear all, close all, who, whos, hold on, bar3, clear, compass, pie, figure, subplot, plot, gridon, text, surf, surfc, meshgrid, mesh, meshc etc.	
68	Plotting of graphs of function e^{ax+b} , $\log(ax+b)$, and to illustrate the effect of a and b on the graph. Plot of sinx and cosx graph in single plot command.	
69	Plotting of graphs of function $1/(ax+b)$, $\sin(ax+b)$, $\cos(ax+b)$, $ ax+b $ and to illustrate the effect of a and b on the graph.	
70	Plotting the graphs of polynomials of degree 4 and 5 etc.	
71	Plotting the graphs of the derivative graph, the second derivative graph and comparing them.	
72	Sketching parametric curves (E.g. Trochoid, cycloid).	
73	Sketching parametric curves (E.g. epicycloids, hypocycloid).	
74	Obtaining surface of revolution of curves using surf, surfc command.	
75	Tracing of conics in Cartesian coordinates.	
76	Tracing of conics in polar coordinates. Derivative and integration of functions.	
77	Sketching ellipsoid, hyperboloid of one and two sheets, elliptic cone using cartesian coordinates.	
78	Sketching of elliptic paraboloid, hyperbolic paraboloid using cartesian coordinates. Solution of system of linear equations	
79	Matrix input, addition, subtraction and multiplication of matrix.	
80	Matrix inversion, transpose, determinant etc.	

DIGBOI COLLEGE, DIGBOI
Department of Mathematics
Course Plan (Session June-December, 2019)

Name of the Teacher: Dr. Jatindra Lahkar
 Course –Major / Pass: Major
 Class/Semester: Third semester
 Name of the Paper: MM301
 Units Assigned: Unit-IV
 Marks Assigned: 4

Class	Topic/ Unit	Remarks
1	Unit-IV: Definition of Beta functions, Examples	
2	Problems of Beta functions.	
3	Definition of Gama functions, Examples	
4	Relation ship between Beta and Gama functions.	
5	Examples	

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Course Plan (Session June-December, 2019)

Name of the Teacher: Dr. Jatindra Lahkar
 Course –Major / Pass: Major
 Class/Semester: Fifth Semester
 Name of the Paper: Fluid Mechanics: Paper MM503
 Units Assigned: Complete Paper
 Marks Assigned: Theory – 80.

Class	Topic/ Unit	Remarks
1	Unit-1: Kinematics introduction.	
2	Types of fluids and their properties	
3	Velocity of a fluid at a point and examples.	
4	Eulerian and Lagrangian method, stream lines and path lines and examples	
5	Steady and unsteady flows, velocity potential	
6	Tutorial	
7	Rotational and irrotational motions, local and particle rate of change.	
8	Equation of continuity in cartesian form	
9	Equation of continuity in vector form	
10	Equation of continuity examples	
11	Equation of continuity examples	

12	Tutorial	
13	Acceleration of a fluid at a point and examples.	
14	General analysis of fluid motion	
15	Unit-2: Equation of motion introduction	
16	Euler's equation of motion in cartesian form	
17	Euler's equation of motion in vector form	
18	Tutorial	
19	Bernoullis equation and examples	
20	Steady motion under conservative forces,	
21	Impulsive motion	
22	Circulation, Kelvin's circulation theorem	
23	Examples on Circulation	
24	Tutorial	
25	Unit-3: General theory of irrotational motion introduction	
26	Potential flow, deductions from Green's theorem.	
27	Kinetic energy of a liquid,	
28	Uniqueness theorems, Kelvin's minimum energy theorem,	
29	Mean value of velocity potential	
30	Tutorial	
31	Unit-4: Fluid pressure. Introduction	
32	Definition and examples of Density and specific gravity	
33	Theorems on fluid pressure under gravity	
34	Rate of variation of pressure	
35	Differential equation of pressure	
36	Tutorial	
37	Condition of equilibrium of floating body	
38	Equi-pressure surfaces and lines of force	
39	Curves of equi-pressure	
40	Curves of equi-density	
41	Examples	
42	Tutorial	
43	Unit-5: Resultant Pressure and Centre of Pressure	
44	Definition of Resultant Pressure and Centre of Pressure	
45	Determination of centre of pressure of parallelogram	
46	Determination of centre of pressure of triangle	
47	Determination of centre of pressure of circle	
48	Tutorial	
49	Determination of centre of pressure of different examples	
50	Thrust on curved surface	
51	Example on thrust on curved surface	
52	Unit-6: Equilibrium and Stability of Floating Bodies	
53	Condition of equilibrium of floating bodies	
54	Examples	
55	Stable, Unstable and Neutral equilibrium	
56	Determination of Meta centre	
57	Examples	
58	Tutorial	

DIGBOI COLLEGE, DIGBOI
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Course Plan (Session January-May, 2020)

Name of the Teacher: Dr. Jatindra Lahkar
 Course –Honours / Generic: Honours
 Class/Semester: Second Semester
 Name of the Paper: Differential Equations(P) Paper Code:C4
 Units Assigned: Complete Paper
 Marks Assigned: Theory – 60 and Practical – 20.

Class	Topic/ Unit	Remarks
1	Unit-1: Differential equation and Classification.	
2	Formation of differential equations and examples	
3	General, Particular, implicit and explicit solution of DE.	
4	Revision of HS Differential equations.	
5	Exact Differential Equations and examples, Class-1	
6	Exact Differential Equation and examples, Class-2	
7	Different rules of Integrating Factor.	
8	Method of separation of variable and Homogeneous DE	
9	Homogeneous DE and example	
10	Equation reducible to homogeneous and LDE	
11	Linear DE and examples	
12	Bernoulli's Equation, DE reducible to LDE	
13	Bernoulli's equation and examples, Class-1	
14	Bernoulli's equation and examples, Class-1	
15	Special integrating factors and transformations, Class-1	
16	Special integrating factors and transformations, Class-2	
17	Unit-2: Application of DE and Model Formulation	
18	Application of first order DE	
19	General Compartmental Model, Balance law	
20	Formulation of the differential equation for exponential decay model.	
21	Lake pollution model,	
22	Lake pollution model, problem of salt dissolved in a tank	
23	Lake Burley Griffin Case Study	
24	Drug assimilation model case of a single cold pill.	
25	Drug assimilation into the blood (case of a course of cold pills)	
26		
27	Exponential growth of population.	
28	Population growth model	
29	Limited growth with harvesting	
30		
31	Epidemic model of influenza, formulation of DE	
32	Epidemic model of influenza, solution	
33	Predators and prey Model	
34	Model of battle	
35	Unit-3: Solution of homogeneous equation of second order	
36	Linear combinations of the solution.	

37	Solution of homogeneous equation of second order, Principle of super position-1	
38	Solution of homogeneous equation of second order, Principle of super position-1	
39	Wronskian, definition for two and n-functions.	
40	Wronskian: its properties and applications with examples-1	
41	Wronskian: its properties and applications with examples-2	
42	Examples and Theorems of linearly dependent and independent solution of HLDE, Class-1	
43	Examples and Theorems of linearly dependent and independent solution of HLDE, Class-2	
44	Linear second order HLDE (reduction of order), Class-1	
45	Linear second order HLDE (reduction of order), Class-2	
46	Homogeneous Linear equation with constant coefficients.	
47	Solution of non-homogeneous DE using method of undetermined coefficients-Class-1	
48	Solution of non-homogeneous DE using method of undetermined coefficients -Class-2.	
49	Euler equations.	
50	Method of variation of parameters-Class-1	
51	Method of variation of parameters-Class-2	
52	Unit-4: Equilibrium solutions and Equilibrium points	
53	Interpretation of Phase plane.	
54	Phase Plane analysis -1 compartmental model	
55	Phase Plane analysis -2: Predator and Prey Model	
56	Phase Plane analysis -3: Lotka-Volterra Predator and Prey Model.	
57	Phase Plane analysis -4: Battle model.	
58	Phase Plane analysis -4: Epidemic model of influenza.	
59	Revision of Unit-4	
60	Practical: MatLab Programming, Basic data types.	Practical Class 2 hours.
61	Plotting of second order solution family of differential equation	
62	Plotting of third order solution family of differential equation.	
63	Growth model (exponential case only).	
64	Decay model (exponential case only).	
65	Lake pollution model (with constant/seasonal flow and pollution concentration).	
66	Case of single cold pill and a course of cold pills.	
67	Limited growth of population (with and without harvesting).	
68	Predatory-prey model (basic Volterra model, with density dependence)	
69	Predatory-prey model (effect of DDT, two prey one predator).	
70	Epidemic model of influenza (basic epidemic model)	
71	Epidemic model of influenza (contagious for life, disease with carriers)	
72	Battle model (basic battle model, jungle warfare, long range weapons)	
73	Battle model (long range weapons)	
74	Plotting of recursive sequences	

75	Study the convergence of sequences through plotting	
76	Verify Bolzano-Weierstrass theorem through plotting of sequences and hence identify convergent sub-sequences from the plot	
77	Study the convergence/divergence of infinite series by plotting their sequences of partial sum	
78	Cauchy's root test by plotting n th roots	
79	Ratio test by plotting the ratio of n th and $(n+1)$ th term	
80		

DIGBOI COLLEGE, DIGBOI
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Course Plan (Session January-May, 2020)

Name of the Teacher: Dr. Jatindra Lahkar
 Course –Major / Pass: Major
 Class/Semester: Fourth semester
 Name of the Paper: Linear Programming, Part of Paper-MM402
 Units Assigned: Unit – I to Unit- IV
 Marks Assigned: 45

Class	Topic/ Unit	Remarks
	UNIT- I: LP Model formulation & Graphical Method:	
1	LP Model formulation, introduction	
2	General structure and assumption of LP model	
3	Mathematical formulation of a linear programming problem	
4	Examples LP model Formulation	
5	Examples LP model Formulation	
6	Feasible solution, basic solution	
7	Graphical method for the solution of a linear programming problem	
8	Convex set and its theorems	
	UNIT II: Theory of simplex algorithm and simplex method	
9	Standard form of an LP Problem	
10	Simplex Algorithm	
11	Solutions of unique optimal solution	
12	Examples	
13	Alternative optimal solution, unbounded solution, Examples	
14	Artificial variable technique	
15	Charnes' M-technique with example	
16	Two phase method with examples	
17	Degeneracy of LPP	
	UNIT III: Duality Theory:	
18	Concept of duality, Types of primal dual problem, standard form	
19	Rules for constructing the dual from primal	
20	Examples	
21	Simple and mixed type problems	
22	Theorem on duality, Fundamental duality theorem(Statement only)	
	UNIT IV: Transportation Problem	
23	Definition, Transportation Table	
24	Loops in transportation tables and their properties	
25	Determination of an initial basic feasible solution by North West corner method,	
26	Determination of an initial basic feasible solution by LCM	
27	Determination of an initial basic feasible solution by VAM	
28	Unbalanced transportation problem	
29	Optimization by Modi method	

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Department of Mathematics
Course Plan (Session January-May, 2020)

Name of the Teacher: Dr. Jatindra Lahkar
 Course –Major / Pass: Pass
 Class/Semester: Fourth semester
 Name of the Paper: Linear Programming, Paper-NM401
 Units Assigned: Full Paper
 Marks Assigned: Theory 50, Practical 30

Class	Topic/ Unit	Remarks
	UNIT- I: LP Model formulation & Graphical Method:	
1	LP Model formulation, introduction	
2	General structure and assumption of LP model	
3	Mathematical formulation of a linear programming problem	
4	Examples LP model Formulation	
5	Examples LP model Formulation	
6	Feasible solution, basic solution	
7	Graphical method for the solution of a linear programming problem	
8	Convex set and its theorems	
	UNIT II: Theory of simplex algorithm and simplex method	
9	Standard form of an LP Problem	
10	Simplex Algorithm	
11	Solutions of unique optimal solution	
12	Examples	
13	Alternative optimal solution, unbounded solution, Examples	
14	Artificial variable technique	
15	Charnes' M-technique with example	
16	Two phase method with examples	
17	Degeneracy of LPP	
	UNIT III: Duality Theory:	
18	Concept of duality, Types of primal dual problem, standard form	
19	Rules for constructing the dual from primal	
20	Examples	
21	Simple and mixed type problems	
22	Theorem on duality, Fundamental duality theorem(Statement only)	
	UNIT IV: Transportation Problem	
23	Definition, Transportation Table	
24	Loops in transportation tables and their properties	
25	Determination of an initial basic feasible solution by North West corner method,	
26	Determination of an initial basic feasible solution by LCM	
27	Determination of an initial basic feasible solution by VAM	
28	Unbalanced transportation problem	
29	Optimization by Modi method	
30	Problems on NWCM	
31	Problems on LCM	
32	Problems on VAM	

33	Problems on MODI Method	
	(B) Computer Laboratory (Practical)	
34	(b) Matlab: Evaluation of arithmetic expression	
35	Evaluation of exponential, logarithmic and trigonometric functions	
36	Evaluation of logarithmic function	
37	Evaluation of trigonometric functions	
38	Computation of complex numbers	
39	Plotting of curves (Algebraic function, trigonometric function and exponential function),	
40	Plotting of curves trigonometric function	
41	Plotting of curves exponential function	
42	Operations in matrices	
43	Plotting of 3D curves and shapes	
44	Solution of algebraic equation	
45	Solution of simultaneous linear equations.	

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Course Plan (Session January-May, 2020)

Name of the Teacher: Dr. Jatindra Lahkar
 Course –Major / Pass: Major
 Class/Semester: Six semester
 Name of the Paper: Relativity, Part of Paper-MM604
 Units Assigned: Unit – I to Unit- IV
 Marks Assigned: 40

Class	Topic/ Unit	Remarks
	UNIT- I: Special Theory:	
1	The fundamental postulates	
2	Lorentz transformation, equations	
3	Composition of velocities in terms of rapidity	
4	Problems on Lorentz transformation	
5	Problems on Composition of velocities	
6	Lorentz transformation as rotation	
7	Consequences of Lorentz transformation equation	
8	Lorentz-Fitzgerald contraction	
9	Time dilation with problems	
10	The clock paradox with Problems	
11	Space like intervals	
12	Time like intervals	
	UNIT II: Relativistic mechanics	
13	The relativistic conception of mass increasing with velocity	
14	Examples	
15	Transformation laws of mass	
16	Transformation laws of velocity	
17	Transformation laws of acceleration	
18	Transformation laws of density	
19	Transformation laws of momentum	
20	Transformation laws of energy	
21	Transformation laws of force	
22	The mass energy relation.	
23	Problems on time dilation	
24	Problems on length contraction	
25	Problems on space and time like intervals	

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Course Plan (June -Dec 2019)

Name of the Teacher: Mukul Buragohain

Course-Honours/ Generic :Honours

Class/Semester : Sem-I

Name of the Paper :C1(Calculus)

Units Assigned: :Unit-II

Marks Assigned- 15

Class	Topic/Unit	Remarks
1	Unit-2 Reduction formulae,	
2	Derivations and illustrations of reduction formulae of the type $\int \sin nx \, dx$.	
3	derivations and illustrations of reduction formulae of the type $\int \cos nx \, dx$	
4	derivations and illustrations of reduction formulae of the type $\int \tan nx \, dx$	
5	derivations and illustrations of reduction formulae of the type $\int \sec nx \, dx$	
6	derivations and illustrations of reduction formulae of the type $\int (\log x)^n \, dx$	
7	derivations and illustrations of reduction formulae of the type $\int \sin^n x \sin^m x \, dx$,	
8	Various Problems and solution of Reduction formula	
9	Volume by slicing method	
10	Problems on Evaluation of volume by slicing method	
11	Volume by disks method	
12	Problems on Evaluation of volume by disks method	
13	Volumes by washer methods	
14	Problems on Evaluation of volume by Washer method	
15	Volumes by cylindricalshells.	

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Course Plan (June -Dec 2019)

Name of the Teacher: Mukul Buragohain

Course-Honours/ Generic: Honours

Class/Semester-: Sem-I

Name of the Paper: C2(Algebra)

Units Assigned: Unit-IV

Marks Assigned: 25

Class	Topic/Unit	Remarks
1	Introduction to linear Algebra	
2	Basic definitions and Examples	
3	Matrix of a linear transformation	
4	Basic properties and examples of linear transformation	
5	Inverse of a matrix	
6	Related theorems with Inverse of a matrix	
7	Solved examples of inverse of a matrix	
8	Characterization of invertible matrices	
9	Examples of invertible matrix	
10	Definition of subspace with examples	
11	Theorems on subspaces	
12	Theorems on subspaces	
13	Linear dependence and independence	
14	Examples related with Linear dependence and independence	
15	Base and dimension	
16	Dimension of subspaces of R^n	
17	Dimension theorem	
18	Examples relates with dimension theorem	
19	rank of a matrix	
20	Rank nullity theorem	
21	Solved examples to find the rank of a matrix	
22	Eigenvalues and Eigenvectors	
23	Theorems on Eigenvalues and Eigenvectors	
24	Characteristic equation of a matrix	
25	Examples related with Characteristic equation of a matrix	

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Course Plan(June-Dec 2019)

Name of the Teacher: Mukul Buragohain

Course-Honours/ Generic: Generic

Class/Semester: Sem-I

Name of the Paper-: GE-1

Units Assigned: Unit-II & III

Marks Assigned: 50

Class	Topic/Unit	Remarks
1	Unit-2 Equation of tangent	
2	Cartesian Equation of tangent with examples	
3	Polar Equation of tangent with examples	
4	Pedal Equation of tangent with examples	
5	Equation of Normal	
6	Cartesian Equation of Normal with examples	
7	Polar Equation of normal with examples	
8	Pedal Equation of normal with examples	
9	Angle of Intersection of Curves	
10	Angle of Intersection of Two Curves in Polar Form	
11	Cartesian Sub-tangent and Sub-normal	
12	Length of Polar Subtangent and Polar Subnormal	
13	Curvature and Radius of Curvature with examples	
14	Curvature at the Origin	
15	Chord of Curvature Through Origin	
16	Asymptotes and its geometrical interpretation	
17	Determination of asymptotes parallel to coordinate axis and not parallel to coordinate axis	
18	Oblique Asymptotes	
19	Determination of Asymptotes of rational algebraic curve	
20	General rule of finding asymptotes of the rational algebraic curve	
21	Asymptote obtained by inspection	
22	Singular points	
23	Various types of singularities	

24	Singular point at the origin of a rational algebraic curve:	
25	Singular points at points other than origin	
26	Parametric representation of curves	
27	tracing of parametric curves	
28	Examples	
29	Polar coordinates	
30	tracing of curves in polar coordinates	
31	Unit-3 Rolle's theorem	
32	Geometrical interpretation of Rolle's Theorem	
33	Application of Roll' Theorem	
34	Application of Roll' Theorem	
35	Lagrange's Mean Value Theorem	
36	Geometrical significance of Lagrange's Mean Value theorem	
37	Application of Lagrange's Mean Value Theorem	
38	Application of Lagrange's Mean Value Theorem	
39	Cauchy's Mean Value Theorem	
40	Solved exaples	
41	Another form of Taylor's Theorem	
42	Taylor's Theorem with Lagrange's Form of Remainder	
43	Taylor's Theorem with Generalised Form of Remainder	
44	Taylor's series	
45	Examples related with Taylor's series	
46	Examples related with Taylor's series	
47	Maclaurin's Theorem	
48	Application of Maclaurin's Theorem	
49	Maclaurin's series of $\sin x$, $\cos x$	
50	Maclaurin's series of $\log(1+x)$, $(1+x)^m$	
51	Maxima and Minima	
52	Determination of Maxima and minima by 1 st derivative test with examples	
53	Determination of Maxima and minima by 2 nd derivative test with examples	
54	Solved examples	
55	Solved examples	
56	Indeterminate forms with various forms	
57	L'Hospital's Rule	
58	Solved examples	
59	Solved examples	
60	Over all Discussion on unit-3	

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DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2019)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Third semester

Name of the Paper: MM301

Units Assigned: UNIT-I, II,III

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	Unit-I: Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, sub normal, polar sub tangent and polar subnormal	
5	Derivative of arc length (Cartesian and polar forms), values of , angle between radius vector and tangent	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals,	
8	Differentiability, Darboux's theorem, Rolle's theorem,	
9	Lagrange mean value theorem, Cauchy's mean value theorem,	
10	Taylor's theorem,	
11	Taylor's series,	
12	Maclaurin's series	
13	Unit II: Function of one variable: Functions continuous on closed intervals,	
14	Differentiability,	
15	Darboux's theorem, Rolle's theorem	
16	Lagrange mean value theorem, Cauchy's mean value theorem,	
17	Taylor's theorem	
18	Taylor's series, Maclaurin's series.	
19	Unit III: Partial derivatives,	
20	Euler's theorem on homogeneous function.	
21	Problems on Euler's theorem on homogeneous function.	

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DEPARTMENT OF MATHEMATICS

Course Plan (Session June-December, 2019)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Pass

Class/Semester: Third semester

Name of the Paper: NM301

Units Assigned: UNIT-I, II,III

Marks Assigned: 25

Class	Topic/ Unit	Remarks
1	Unit-I: Successive differentiation	
2	Leibnitz's theorem	
3	Indeterminate forms	
4	Sub tangent, sub normal, polar sub tangent and polar subnormal	
5	Derivative of arc length (Cartesian and polar forms), values of , angle between radius vector and tangent	
6	Curvature and radius of curvature	
7	Function of one variable: Functions continuous on closed intervals,	
8	Differentiability, Darboux's theorem, Rolle's theorem,	
9	Lagrange mean value theorem, Cauchy's mean value theorem,	
10	Taylor's theorem,	
11	Taylor's series,	
12	Maclaurin's series	
13	Unit II: Function of one variable: Functions continuous on closed intervals,	
14	Differentiability,	
15	Darboux's theorem, Rolle's theorem	
16	Lagrange mean value theorem, Cauchy's mean value theorem,	
17	Taylor's theorem	
18	Taylor's series, Maclaurin's series.	
19	Unit III: Partial derivatives,	
20	Euler's theorem on homogeneous function.	
21	Problems on Euler's theorem on homogeneous function.	

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Course Plan (Session June-December, 2019)

Name of the Teacher: Mr Mukul Buragohain

Course –Major / Pass: Major

Class/Semester: Fifth semester

Name of the Paper: MM502

Units Assigned: (A) Linear Algebra- unit 1 & 2, (B) Number Theory-
unit 1,2,3,4

Marks Assigned: 80

Class	Topic/Unit	Remarks
1	A-Unit-1: System of linear equations	
2	Consistency and inconsistency of System of linear equations	
3	Definitions and examples of Vector space	
4	Properties of Vector space	
5	vector subspace	
6	Theorems on vector subspaces	
7	Linear independence and dependence	
8	Linear Span	
9	Base and dimension	
10	Theorems on base and dimension of vector spaces	
11	Dimension theorem	
12	Solved examples	
13	A-Unit-2: Definition of a line	
14	Theorem on lines	
15	Affine Space	
16	Theorem on Affine Space	
17	Quotient Space	
18	Theorems on Quotient Space	
19	Linear transformation with examples	
20	Properties of linear transformation	
21	Theorem on linear transformation	
22	Representation of Linear maps by Matrices	
23	Kernel and image of a linear transformation	
24	linear isomorphism	
25	Geometric Ideas and some loose ends	
26	B-Unit-1: Peano's axiom and Well ordering property of positive integer	
27	Division Algorithm	
28	G.C.D and LCM	
29	Euclidean Algorithm	
30	Unit-2: Prime numbers	

31	unique factorization theorem	
32	Euclid's theorem	
33	greatest integer function	
34	Unit-3: Definition and Basic properties of congruence	
35	complete residue system and reduced residue system	
36	Application of CRS and RRS	
37	Fermat's little theorem	
38	Euler's theorem	
39	Wilson's theorem	
40	Application of Fermat's, Euler's & Wilson's theorem	
41	Solution of Congruence	
42	Solutions of the problems of type $ax+by+c=0$	
43	Chines Remainder theorem	
44	Solutions of simultaneous equations by using Chines Remainder theorem	
45	Unit-4: Arithmetic Function	
46	Properties of arithmetic	
47	Euler's function	
48	Division function	
49	Mobius function	
50	Mobius inversion formula	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mr Mukul Buragohain

Course –Honours /Generic: Honours

Class/Semester: Second semester

Name of the Paper: C4

Units Assigned: Unit-III,IV

Marks Assigned: 52

Class	Topic/Unit	Remarks
1	General solution of homogeneous equation of second order	
2	Problems and solution	
3	Problems and solution	
4	Principle of super position for homogeneous equation,	
5	Problems and solution	
6	Problems and solution	
7	Wronskian	
8	Wronskian: its properties and applications	
9	Problems and solution related with Wronskian	
10	Problems and solution	
11	,Linear homogeneous equations of higher order with constant coefficients,	
12	Problems and solutions	
13	Problems and solutions	
14	Non- Linear homogeneous equations of higher order with constant coefficients,	
15	Problems and solutions	
16	Problems and solutions	
17	Problems and solutions	
18	Problems and solutions Linear homogeneous and non-homogeneous equations of higher order with constant coefficients,	
19	Problems and solutions Linear homogeneous and non-homogeneous equations of higher order with constant coefficients,	
20	Problems and solutions Linear homogeneous and non-homogeneous equations of higher order with constant coefficients,	

21	Euler's equation, method of undetermined coefficients,.	
22	Various problems on Euler's equation, method of undetermined coefficients	
23	Various problems on Euler's equation, method of undetermined coefficients	
24	Various problems on Euler's equation, method of undetermined coefficients	
25	Various problems on Euler's equation, method of undetermined coefficients	
26	Various problems on Euler's equation, method of undetermined coefficients	
27	method of variation of parameters	
28	Various problems on method of variation of parameters	
29	Various problems on method of variation of parameters	
30	Various problems on method of variation of parameters	
31	Unit- IV: Equilibrium points	
32	Interpretation of the phase plane,	
33	Class Test	
34	predatory-prey model	
35	predatory-prey model and its analysis,	
36	Class Test	
37	Discussion about predatory-prey model	
38	epidemic model of influenza,	
39	epidemic model of influenza and its analysis,	
40	Discussion about epidemic model of influenza	
41	Class Test	
42	battle model	
43	battle model and its analysis.	
44	Discussion about battle model a	
45	Class Test	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS

Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mr Mukul Buragohain

Course –Honours /Generic: Generic

Class/Semester: Second semester

Name of the Paper: GE-2

Units Assigned: Unit-I,II,III

Marks Assigned: 52

Class	Topic/Unit	Remarks
1	Unit-I: First order exact differential equations.	
2	Problems and Solutions	
3	Integrating factors,.	
4	Rules to find an integrating factor	
5	Problems related to find an integrating factor	
6	Unit-I : First order higher degree equations	
7	Solvable for x, y, p.	
8	Methods for solving higher-order differential equations.	
9	Basic theory of linear differential equations,	
10	Problems and solutions	
11	Wronskian, and its properties.	
12	Problems and solutions	
13	Solving a differential equation by reducing its order	
14	Unit-III: Linear homogenous equations with constant coefficients	
15	Linear non-homogenous equations,	
16	The method of variation of parameters,	
17	The Cauchy-Euler equation, Simultaneous differential equations,	
18	Total differential equations.	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mukul Buragohain

Course-Major/ Pass: Major

Class/Semester: Sem-VI

Name of the Paper:- MM602 ((A) Discrete Mathematics & (B) Graph Theory)

Units Assigned: Unit-1 & 2

Marks Assigned: 35

Class	Topic/Unit	Remarks
1	(B) Unit-1: Introduction to graph Theory & definitions	
2	Directed and undirected graphs & basic terminologies	
3	finite and infinite graph	
4	incidence and degree of vertex, isolated and pendent vertices, null graph	
5	Handshaking theorem	
6	types of graphs, sub graphs	
7	graphs isomorphism	
8	Solved examples	
9	operations of graphs	
10	Solved Examples	
11	connected graph, disconnected graphs and components	
12	Theorems on connected graph, disconnected graphs and components	
13	Unit-2: Walk, path and circuits	
14	Eulerian graphs and Hamiltonian graphs	
15	Theorems on Eulerian graphs and Hamiltonian graphs	
16	Dirac's theorem	
17	Ore's, theorem	
18	Konigsberg's Bridge problem	
19	Representation of graphs and matrix representation of graph	
20	adjacency matrix, Incidence matrix	
21	Linked representation of graphs	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mukul Buragohain

Course-Major/ Pass: Major

Class/Semester: Sem-VI

Name of the Paper: MM603

Units Assigned: Algebra-II, Unit -I , II & III

Marks Assigned: 40

Class	Topic/Unit	Remarks
1	Unit I: Automorphism of groups, ,	
2	Examples on Automorphism of groups	
3	Inner automorphism	
4	Inner automorphism related theorem and Examples	
5	external direct products.	
6	external direct products related theorem	
7	internal direct products and theorems	
8	Unit II: Definition and examples of Ring,	
9	Properties of rings	
10	Special kinds of rings	
11	Sub rings and Examples	
12	Theorems on sub rings	
13	Ideals and Examples	
14	Theorems on ideals	
15	Discussion on the whole unit.	
16	Sum and product of ideals.	
17	Unit III: Quotient Ring,	
18	Quotient Ring	
19	Theorems on Quotient Ring	
20	Homomorphism of ring, Imbedding of rings,	
21	Properties of Homomorphism of ring	
22	Imbedding of rings,	
23	Examples Imbedding of rings,	
24	Maximal and Prime ideal	
25	Theorems on Maximal and Prime ideal	

DIGBOI COLLEGE, DIGBOI
DEPARTMENT OF MATHEMATICS
Course Plan (Session June-Dec, 2019)

Name of the Teacher: Dr. J. Changmai
 Course –Honours /Generic: Honours
 Class/Semester: First Semester
 Name of the Paper: C2(Algebra)
 Units Assigned: UNIT -I, II
 Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Unit-I: Polar representation of complex numbers,	L
2	Polar representation of complex numbers,	L
3	Solved problems	L
4	nth roots of unity	L
5	nth roots of unity	L
6	De Moivre's theorem for rational indices and its applications	T
7	Applications De Moivre's theorem for rational indices	L
8	Applications De Moivre's theorem for rational indices	L
9	Applications De Moivre's theorem for rational indices	L
10	Discussion about the whole unit.	T
11	Unit-2: Equivalence relations	L
12	Examples of equivalence relations	L
13	Functions	L
14	Examples	L
15	Composition of functions,	L
16	Invertible functions,	T
17	Examples	L
18	One to one correspondence and cardinality of a set	L
19	Problems and solution	L
20	Well-ordering property of positive integers,	L
21	Well-ordering property of positive integers,	L
22	Division algorithm,	T
23	Application of Division algorithm,	L
24	Divisibility and Euclidean algorithm	L
25	Problems and solution	L
26	Problems and solution	L
27	Congruence relation between integers.	L
28	Properties of Congruence relation	T
29	Problems and solution	L
30	Principles of Mathematical Induction,	L
31	Problems and solution	L
32	Problems and solution	L
33	Problems and solution	L
34	statement of Fundamental Theorem of Arithmetic	T
35	Discussion about the whole unit	T

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DEPARTMENT OF MATHEMATICS
Course Plan (Session June-December, 2019)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: Third semester
 Name of the Paper: MM302
 Units Assigned: Co-ordinate Geometry (2D & 3D)
 Marks Assigned: 45

Class	Topic/ Unit	Remarks
1	2D-Unit I: Transformation of coordinates	
2	Translation of axes, Rotation of axes, Invariants,	
3	Removal of xy-term.	
4	Unit II: Pair of straight lines: Pair of straight lines through origin,	
5	Angle and Bisectors of the angle between the lines given by homogenous equation of 2nd degree,	
6	Condition for the general equation of second degree to represent a pair of straight lines,	
7	Solved problems of second degree to represent a pair of straight lines	
8	Pair of intersecting straight lines,	
9	Pair of parallel straight lines	
10	Unit III: General Equation of second degree	
11	Equation to the conic sections, ,	
12	Centre of a conic	
13	Reduction to central and non central conic,	
14	Tangent to the conic and condition of tangency,	
15	Chord of contact, Pole and Polar	
16	Conjugate diameter	
17	3D-UNIT-I: Equation of planes	
18	Theorems of Equation of planes	
19	Solved problems	
20	Straight lines	
21	Solved problems of Straight lines	
22	UNIT-II: Shortest distance between two lines	
23	Solved problems	
24	Skew lines	
25	Solved problems	

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Course Plan (Session June-December, 2019)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Pass
 Class/Semester: Third semester
 Name of the Paper: NM301
 Units Assigned: Co-ordinate Geometry (2D) UNIT-III
 Marks Assigned: 45

Class	Topic/ Unit	Remarks
1	Unit I: Transformation of coordinates	
2	Translation of axes, Rotation of axes, Invariants,	
3	Removal of xy-term.	
4	Unit II: Pair of straight lines: Pair of straight lines through origin,	
5	Angle and Bisectors of the angle between the lines given by homogenous equation of 2nd degree,	
6	Condition for the general equation of second degree to represent a pair of straight lines,	
7	Solved problems of second degree to represent a pair of straight lines	
8	Pair of intersecting straight lines,	
9	Pair of parallel straight lines	
10	Unit III: General Equation of second degree	
11	Equation to the conic sections, ,	
12	Centre of a conic	
13	Reduction to central and non central conic,	
14	Tangent to the conic and condition of tangency,	
15	Chord of contact, Pole and Polar	
16	Conjugate diameter	
17	3D-UNIT-I: Equation of planes	
18	Theorems of Equation of planes	
19	Solved problems	
20	Straight lines	
21	Solved problems of Straight lines	
22	UNIT-II: Shortest distance between two lines	
23	Solved problems	
24	Skew lines	
25	Solved problems	

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Course Plan (Session June-December, 2019)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: Fifth semester
 Name of the Paper: MM501
 Units Assigned: (A) Logic and Combinatorics- (a) Mathematical Logic Unit-I,II
 (b) Combinatoircs Unit-I,II
 (B) Analysis III (Complex Analysis) Unit-I,II,III,IV
 Marks Assigned: 80

Class	Topic/ Unit	Remarks
1	(a) Mathematical Logic Unit I: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value,	
4	Validity, truth function	
5	Tautology and related theorems,	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Theory of Inference:.,	
8	Theory of Consequence	
9	rule of inference and applications.	
10	Predicate calculus:	
11	symbolizing language	
12	Discussion about the whole unit	
13	(b) CombinatoircsUnit-I: Fundamental Principles of Counting	
14	Binomial Theorem	
15	Pascal and Vander Monde's identity	
16	Multinational theorem	
17	Ramsey number, Catalan numbers, Stirling and Bell number.	
18	Unit II: The principles of Inclusion-Exclusion:	
19	Generalization of the principles of Inclusion-Exclusion,	
20	Pigeon Hole Principle,	
21	Derangement	
22	Generating function	
23	and introductory examples	
24	(B) Analysis III (Complex Analysis) Unit I: Analytic Function and Examples	
25	Limit, Continuity and differentiability	
26	Cauchy-Riemann equations.	
27	Necessary and sufficient condition for a function to be analytic	
28	Polar form of C.R. equation, Harmonic functions	
29	Construction of analytic function.	
30	Unit II: Complex Integrals :	
31	Definite integral,	
32	Jordan arc, contour,	
33	line integrals,	

34	Cauchy's theorem,	
35	Simply and multiply connected domains,	
36	Cauchys' integral formula,	
37	Derivatives of analytic function, Morera's theorem	
38	Liouville's theorem.	
39	Unit III: Power series	
40	Taylor's series.	
41	Laurent's series and their	
42	Power series related problems	
43	Unit IV: Poles & Residues	
44	Definition and statement of the related theorems of isolated singularity	
45	Removable singularity and poles	
46	Removable singularity and poles	
47	calculation of residues	
48	Cauchy's residue theorem	
49	Contour Integration	
50	Contour Integration (Integration round the unit circle, Integration of the type $\int_{-\alpha}^{+\alpha} f(x)dx$ where no poles on the real axis)	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Dr. J. Changmai
Course –Honours /Generic: Honours
Class/Semester: Second Semester
Name of the Paper: C3(Real Analysis)
Units Assigned: UNIT - II
Marks Assigned: 30

Class	Topic/ Unit	Remarks
1	Sequences	L
2	Bounded sequence	L
3	Examples and solved problems	L
4	Exercises and discussion	L
5	Convergent sequence	L
6	Examples and solved problems	T
7	Limit of a sequence	L
8	Examples and solved problems	L
9	Limit Theorems	L
10	Application of limit theorem	T
11	Solved problems on Limit Theorems	
12	Monotone Sequences	
13	Problems on Monotone Sequences	
14	Monotone Convergence Theorem	
15	Problems on Monotone Convergence Theorem	
16	Subsequences	
17	Examples and theorems on Subsequences	
18	Divergence Criteria	
19	Examples and theorems on Divergence Criteria	
20	Monotone Subsequence Theorem	
21	Problems related to Monotone Subsequence Theorem	
22	Bolzano Weierstrass Theorem for Sequences	
23	Application of Bolzano Weierstrass Theorem for Sequences	
24	Problems related to Bolzano Weierstrass Theorem for Sequences	
25	Cauchy sequence	
26	Theorems on Cauchy sequence	
27	Examples and problems on Cauchy sequence	
28	Cauchy's Convergence Criterion.	
29	Application of Cauchy's Convergence Criterion.	
30	Problems and discussion on Cauchy's Convergence Criterion.	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: Sixth Semester
 Name of the Paper: MM601
 Units Assigned: Statistics (UNIT I, II,III,IV,V & VI)
 Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Unit I: Probability: Basic terminology,	
2	Mathematical probability, Statistical probability,	
3	Axiomatic approach to probability. Some theorems on probability	
4	Conditional probability, Multiplication theorem of probability,	
5	independent events, Extension of multiplication theorem of probability	
6	Independent events, Multiplication theorem of probability for independent events, Extension of multiplication theorem of probability	
7	Baye's theorem.	
8	Unit II: Measures of Dispersion: Standard deviation	
9	Quartile deviation	
10	Co-efficient of variation.	
11	Unit IV: Correlation and regression	
12	Karl Pearson's co-efficient of correlation	
13	Spearman Rank correlation co-efficient	
14	Regression lines and equation.	
15	Unit V: Theoretical Probability Distribution	
16	Binomial Distribution and their applications to simple problems.	
17	Binomial Distribution and their applications to simple problems.	
18	Poisson Distribution and their applications to simple problems.	
19	Poisson Distribution and their applications to simple problems.	
20	Normal Distribution and their applications to simple problems.	
21	Normal Distribution and their applications to simple problems.	
22	Unit VI: Time series analysis	
23	Different components of time series,	
24	Analysis of trends (Least Square Method)	
25	Analysis of trends (Moving Average Method)	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Major
 Class/Semester: Sixth Semester
 Name of the Paper: MM602
 Units Assigned: Discrete Mathematics (UNIT I, II,III,)
 Marks Assigned: 45

Class	Topic/ Unit	Remarks
1	Unit I: Logic: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value, Validity	
4	Truth function,	
5	Tautology and related theorems	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Logic: Theory of Inference:	
8	Consequence	
9	Rule of inference and applications	
10	Predicate calculus:	
11	Symbolizing language.	
12	Symbolizing language.	
13	Unit III: Lattice: Definition and examples,	
14	Hasse diagram,	
15	Properties of Lattice,	
16	Lattice as an Algebraic systems,	
17	Sub lattice and lattice isomorphism,.	
18	Special Classes : of lattice,	
19	Distributive lattice and Boolean algebras	
20	Unit IV: Boolean Algebra:.	
21	Boolean algebra as lattice,	
22	Boolean algebra as an algebraic system,	
23	Properties of Boolean algebra ,	
24	Sub-algebra and homomorphism of Boolean algebra,	
25	Boolean expressions	
26	Sum-of-products canonical form,	
27	Values of Boolean expression and Boolean functions	
28	Representation by Karnaugh Maps,	
29	Minimization of Boolean functions using Karnaugh Maps	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Dr. J. Changmai
 Course –Major / Pass: Pass
 Class/Semester: Sixth Semester
 Name of the Paper: NM601
 Units Assigned: Discrete Mathematics (UNIT I, II,III,)
 Marks Assigned: 45

Class	Topic/ Unit	Remarks
1	Unit I: Logic: The Statement Calculus: Introduction,	
2	Sentential Connectives ,	
3	Truth tables, Truth value, Validity	
4	Truth function,	
5	Tautology and related theorems	
6	Arithmetic representation of sentential connectives.	
7	Unit II: Logic: Theory of Inference:	
8	Consequence	
9	Rule of inference and applications	
10	Predicate calculus:	
11	Symbolizing language.	
12	Symbolizing language.	
13	Unit III: Lattice: Definition and examples,	
14	Hasse diagram,	
15	Properties of Lattice,	
16	Lattice as an Algebraic systems,	
17	Sub lattice and lattice isomorphism,.	
18	Special Classes : of lattice,	
19	Distributive lattice and Boolean algebras	
20	Unit IV: Boolean Algebra:.	
21	Boolean algebra as lattice,	
22	Boolean algebra as an algebraic system,	
23	Properties of Boolean algebra ,	
24	Sub-algebra and homomorphism of Boolean algebra,	
25	Boolean expressions	
26	Sum-of-products canonical form,	
27	Values of Boolean expression and Boolean functions	
28	Representation by Karnaugh Maps,	
29	Minimization of Boolean functions using Karnaugh Maps	

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Course Plan (Session June-December, 2019)

Name of the Teacher: Mr K. N. Tinsina
Course –Honours/ Generic: Generic
Class/Semester: First semester
Name of the Paper: GE1
Units Assigned: UNIT-I
Marks Assigned: 30

Class	Topic/ Unit	Remarks
1	Limit and Continuity (ϵ and δ definition)	
2	Types of discontinuities	
3	Differentiability of functions	
4	Successive differentiation	
5	Leibnitz's theorem	
6	Partial differentiation	
7	Euler's theorem on homogeneous functions	
8	Problems and solutions	
9	Problems and solutions	
10	Problems and solutions	

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Course Plan (Session June-December, 2019)

Name of the Teacher: Mr. K. N. Timsina
Course – Major / Pass: Major
Class/Semester: Fifth Semester
Name of the Paper: MM504
Units Assigned: MECHANICS (STATIC AND DYNAMICS)
Marks Assigned: 50

Class	Topic/ Unit	Remarks
1	Reduction of a system of forces on a rigid body	
2	Change of base point	
3	Conditions of equilibrium	
4	Point's central axis	
5	Wrench, pitch, screw, Invariants	
6	Equations of central axis.	
7	Virtual work	
8	Theorems of Virtual work	
9	Problems of Virtual work	
10	Common catenary	
11	Theorems of Common catenary	
12	Problems of Common catenary	
13	Stability of equilibrium	
14	Theorems of Stability of equilibrium	
15	Problems of Stability of equilibrium	
16	Motion in a straight line and plane	
17	Radial and transverse velocities and acceleration	
18	Angular velocity and angular acceleration, tangential and normal acceleration	
19	Simple Harmonic Motion	
20	Central forces	
21	Central forces	
22	Motion under resistance	
23	Motion under resistance	
24	Dynamics of Rigid Body: Moments of inertia,	
25	Theorems of parallel and perpendicular axes, Moment of inertia about a line	
26	Moment and product of inertia of a plane lamina	
27	Moment of inertia and moment of inertia	
28	D'Alembert's principle and general equations of motion	
29	Motion of the centre of inertia and relative to the centre of inertia	

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Course Plan (Session June-December, 2019)

Name of the Teacher: Mr. K. N. Timsina
 Course –Major / Pass: Pass
 Class/Semester: Fifth Semester
 Name of the Paper: NM501
 Units Assigned: MECHANICS (STATIC AND DYNAMICS)
 Marks Assigned: 45

Class	Topic/ Unit	Remarks
1	Reduction of a system of forces on a rigid body	
2	Change of base point	
3	Conditions of equilibrium	
4	Point's central axis	
5	Wrench, pitch, screw, Invariants	
6	Equations of central axis.	
7	Problems and Solutions	
8	Virtual work and its theorems	
9	Problems of Virtual work	
10	Common catenary	
11	Theorems and problems of Common catenary	
12	Motion in a straight line and plane	
13	Radial and transverse velocities and acceleration	
14	Angular velocity and angular acceleration	
15	Tangential and normal acceleration	
16	Simple Harmonic Motion	
17	Central forces	
18	Central forces	
19	Motion under resistance	
20	Motion under resistance	
21	Motion under resistance	
22	Dynamics of Rigid Body: Moments of inertia,	
23	Theorems of parallel and perpendicular axes	
24	Moment of inertia about a line	
25	Moment and product of inertia of a plane lamina	
26	Momental ellipsoid and momental ellipse	
27	Momental ellipsoid and momental ellipse	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mr. K. N. Timsina
Course – Honours/ Generic: Honours
Class/Semester: Second Semester
Name of the Paper: C3
Units Assigned: REAL ANALYSIS (UNIT III)
Marks Assigned: 20

Class	Topic/ Unit	Remarks
1	Infinite series	
2	Convergence and divergence of infinite series	
3	Cauchy Criterion	
4	Tests for convergence: Comparison test	
5	Problems and solutions of Comparison test	
6	Tests for convergence: Limit Comparison test	
7	Problems and solutions of Limit Comparison test	
8	Tests for convergence: RatioTest	
9	Problems and solutions of RatioTest	
10	Tests for convergence: Cauchy's nth root test	
11	Problems and solutions of Cauchy's nth root test	
12	Tests for convergence: Integral test	
13	Problems and solutions of Integral test	
14	Alternating series	
15	Problems and solutions of Alternating series	
16	Leibniz test	
17	Problems and solutions of Leibniz test	
18	Absolute and Conditional convergence	
19	Problems and solutions of Absolute convergence	
20	Problems and solutions of Conditional convergence	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Sixth Semester
Name of the Paper: MM402
Units Assigned: ANALYSIS II (MULTIPLE INTEGRAL)
Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Fourier series: Preliminary & other theorems	
2	Fourier series main theorem	
3	Series for even function	
4	Series for odd functions	
5	Half range series	
6	Interval other than $[-\pi, \pi]$	
7	Exercises	
8	Introduction to Integration over \mathbf{R}^2	
9	Line integrals	
10	Double integrals	
11	Problems on Line integrals	
12	Problems on Double integrals	
13	Double integrals over a region	
14	Double integrals over a closed domain	
15	Green's theorem	
16	Problems on Green's theorem	
17	Introduction to Integration over \mathbf{R}^3	
18	Surface and surface integral	
19	Problems on Surface and surface integral	
20	Stoke's theorem	
21	Problems on Stoke's theorem	
22	Gauss's theorems	
23	Problems on Gauss's theorems	
24	Applications of Stoke's theorem	
25	Applications of Gauss's theorems	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mr. K. N. Timsina
 Course –Major / Pass: Major
 Class/Semester: Sixth Semester
 Name of the Paper: MM601
 Units Assigned: METRIC SPACE (UNIT I, II, III & IV)
 Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Definition and examples of metric spaces	
2	Open spheres and closed spheres	
3	Neighborhoods, Open sets, Equivalent metrics	
4	Interior points, Closed sets	
5	Limit points and isolated points	
6	Closure of a set, Boundary points	
7	Distance between sets and diameter of a set	
8	Subspace of metric space	
9	Product metric spaces (definition only), Bases	
10	Convergent sequences	
11	Examples of Convergent sequences	
13	Cauchy sequences	
14	Examples of Cauchy sequences	
15	Complete & separable spaces, dense sets	
16	Continuous functions	
17	Definition and characterizations	
18	Extension theorem	
19	Uniform continuity (definition only)	
20	Homeomorphism	
21	Examples of Homeomorphism	
22	Compact spaces	
23	Compact sets	
24	Examples of Compact spaces and compact sets	
25	Sequential compactness.	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Pass
Class/Semester: Sixth Semester
Name of the Paper: NM601
Units Assigned: METRIC SPACE (UNIT I, II, III & IV)
Marks Assigned: 35

Class	Topic/ Unit	Remarks
1	Definition and examples of metric spaces	
2	Open spheres and closed spheres	
3	Neighborhoods, Open sets, Equivalent metrics	
4	Interior points, Closed sets	
5	Limit points and isolated points	
6	Closure of a set, Boundary points	
7	Distance between sets and diameter of a set	
8	Subspace of metric space	
9	Product metric spaces (definition only), Bases	
10	Convergent sequences	
11	Examples of Convergent sequences	
13	Cauchy sequences	
14	Examples of Cauchy sequences	
15	Complete & separable spaces, dense sets	
16	Continuous functions	
17	Definition and characterizations	
18	Extension theorem	
19	Uniform continuity (definition only)	
20	Homeomorphism	
21	Examples of Homeomorphism	
22	Compact spaces	
23	Compact sets	
24	Examples of Compact spaces and compact sets	
25	Sequential compactness	

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Course Plan (Session Jan-May, 2020)

Name of the Teacher: Mr. K. N. Timsina
Course –Major / Pass: Major
Class/Semester: Sixth Semester
Name of the Paper: MM604
Units Assigned: SPACE DYNAMICS (UNIT I, II, & III)
Marks Assigned: 40

Class	Topic/ Unit	Remarks
1	Introduction to Spherical Trigonometry	
2	Examples related to Spherical Trigonometry	
3	Spherical triangles and its properties	
4	Spherical triangles and its properties	
5	Examples of Spherical triangles	
6	The sine-cosine formulae	
7	Examples related to the sine-cosine formulae	
8	Four parts formula and examples	
9	Coordinate systems: Position on the earth surface	
10	Horizontal system	
11	Equatorial system	
13	Ecliptic system	
14	Elements of the orbit in space	
15	Rectangular coordinate system	
16	Orbital plane coordinate system	
17	Transformation of systems	
18	Problems and solutions	
19	Gravitation	
20	The one and two body problems	
21	Elliptic motion	
22	Attraction of irregular bodies	
23	Rotational distortion	
24	Coordinates the orbits in space	
25	Problems and solutions	

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic –NON- MAJOR

Class/Semester : 3rd Semester (NM)

Paper Code : M 301, Name of the paper- INDIAN PHILOSOPHY- II

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Samkhya theory of prakriti	Explanation
2	Samkhya theory of purusa	Explanation
3	Samkhya theory of evolution	Note
4	Yoga psychology	Note
5	Visistadvaita Vedanta—Saguna Brahman	Explanation
6	Ramanujas rejection of Sankaras Maya	Explanation
7	Sankaras concept of Jiva and Jagat	Explanation
8	Sankaras concept of Nirguna Brahman and Maya	Note
9	Concept of Dharma in Veda	Note
10	Concept of Dharma in Upanisads	Note
11	Varnasrama in Vedic ethics	Explanation
12	Caturasrama in Vedic ethics	Explanation
13	Four – Noble truth in Buddhism	Explanation
14	Eight fold-path in Buddhism	Note
15	Jaina ethics--- anuvrata and Mahavrata	note
16	Niskama Karma of Bhagavad Gita	Note
17	Ahimsa in Gandhian philosophy	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 502, Name of the paper- WESTERN LOGIC

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature of logic	Explanation
2	Truth and validity of logic	Explanation
3	Nature of proposition , modern classification of proposition	Note
4	Square of proposition	Note
5	Classical and modern logic, use of symbols	Explanation

6	Categorical syllogism—Venn diagram	Explanation
7	Technique of testing the validity of syllogisms	Explanation
8	Truth functions	Note
9	Truth table method of testing the validity of argument—direct, indirect	Note
10	Formal proof of validity	Note
11	Proving invalidity	Explanation
12	Predicate logic—Quantification and its rules	Explanation
13	Symbolization of traditional categorical proposition	Explanation
14	Universal quantifiers	Note
15	Existential quantifiers	note
16	Problem of induction	Note
17	Problem of logical justification of induction	Explanation
18	Probability and induction	Explanation
19	Hypothesis-- conditions	Explanation
20	Hypothesis—proofs and kinds	Explanation
21	Mill's method of Experimental enquiry	Notes
22	Mill's method of Experimental enquiry	Explanation
23	Mill's method of Experimental enquiry	Notes
24	Mill's method of Experimental enquiry	Explanation
25	Mill's method of Experimental enquiry	Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 503, Name of the paper- HISTORY OF WESTERN PHILOSOPHY

Unit Assigned : I & II

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Greek philosophy—philosophy of number	Explanation
2	Greek Atomism	Explanation
3	Sophistic movement	Note
4	Socrates—Virtue is knowledge	Note
5	Plato's theory of ideas	Explanation
6	Aristotle's Form and matter	Explanation
7	Concept of Self in Plato	Explanation
8	Concept of Self in Aristotle	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – NON-MAJOR

Class/Semester : 5th Semester (NM)

Paper Code : NM 501, Name of the paper- INDIAN AND WESTERN LOGIC

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nyaya view of Anumana----	Explanation
2	Definition, Structure and kinds	Explanation
3	Nyaya kinds & ascertainment of Vyapti	Note
4	Hetabhasas	Note
5	Nature of logic	Explanation
6	Definition between traditional and modern logic	Explanation
7	Vharacteristics of symbolic logic	Explanation
8	Use of symbols	Note
9	Modern classification of proposition	Note
10	Truth function, truth table	Note
11	Direct and indirect methods of testing the validity of argument	Explanation
12	Direct and indirect methods of testing the validity of argument	Explanation
13	Categorical syllogism-- rules	Explanation
14	Figures of syllogism	Note

15	Moods and fallacies of syllogism	note
16	Venn diagram technique of testing the validity of syllogistic arguments	Note
17	Problem of induction—Hume's view, Mill's claim	Explanation
18	Problem of induction—Hume's view, Mill's claim	Explanation
19	Hypothesis—nature and kinds	Explanation
20	Conditions of valid hypothesis	Explanation
21	Mill's methods of experimental enquiry	Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019—20, CBCS

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – HONOURS

Class/Semester : C¹ Semester (H)

Paper Code : C1, Name of the Paper: (INDIAN PHILOSOPHY)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Introduction to Indian philosophy	Explanation
2	Common features of Indian philosophical schools	Explanation
3	The Upanisads doctrine of Self	Note
4	Upanisads critique of rituals	Note
5	Carvaka Metaphysics	Explanation
6	Carvaka Ethics epistemology	Explanation
7	Early Buddhism—Four Noble truths	Explanation
8	Doctrine of dependent origination-- buddhism	Note
9	Anekantavada of Jainism	Note
10	Syadvada of Jainism	Note
11	Nature of knowledge—Nyaya philosophy	Explanation
12	Nature of knowledge-- Vaisesika philosophy	Explanation
13	Nature of knowledge—Mimamsa philosophy	Explanation

14	Samkhya theory of purusa and prakriti	Note
15	Samkhya theory of evolution	note
16	Satkaryavada and asatkaryavada debate	Note
17	Advaita Vedanta of Sankara--	Explanation
18	Sankara's nature of Brahman and Maya	Explanation
19	Visistadvaitavada of Ramanuja	Explanation
20	Nature of Brahman of Ramanuja	Explanation
21	Ramanuja's refutation of Sankara's Maya	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 3RD Semester (M)

Paper Code : 302, Name of the Paper:((WESTERN PHILOSOPHY)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Definition and characteristics of Realism	Explanation
2	Different types of Realism	Explanation
3	Naive Realism	Note
4	Scientific Realism	Note
5	Neo- Realism & Neo –critical Realism	Explanation
6	Definition and characteristics of Idealism	Explanation
7	Different types of Idealism	Explanation
8	Subjective Idealism	Note
9	Phenomenalistic Idealism	Note
10	Objective Idealism	Note

11	Origin of the World	Explanation
12	Creative theory of the World	Explanation
13	Evolution theory of World	Explanation
14	Mechanical theory of evolution	Note
15	Teleological theory of evolution	note
16	Emergent theory of evolution	Note
17	Creative theory of evolution	Explanation
18	Nature and attributes of God	Explanation
19	Proofs for the existence of God	Explanation
20	God and World, Deism	Note
21	Theism, Pantheism, Panentheism	Explanation
22	God and the Absolute	Note
23	Pluralism, Monism , Dualism	Explanation
24	Meaning of Value, kinds of Value	Explanation
25	Intrinsic and Extrinsic Value, Subjective –Objective Value	Note
26	Relative and Absolute Value	Explanation

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : 503, Name of the Paper:((History of Western philosophy)

Unit Assigned : I & II

Marks Assigned : 32

Class	Topic/Unit	Remarks
1	Platos theory of Ideas	Explanation
2	Aristotle's Form and Matter	Explanation
3	Concept of Self in Plato and Aristotle	Note
4	Descartes Innate Idea	Note
5	Descartes Cogito Ergo Sum	Explanation
6	Descartes Dualism	Explanation
7	Leibnitz's Monadology	Explanation
8	Pre-established harmony	Note

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 5th Semester (M)

Paper Code : M 504, Name of the paper: (Philosophy of Religion)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and Scope of Philosophy of Religion	Explanation
2	It's Relation to Theology and Morality	Explanation
3	Religious consciousness	Note
4	Foundation of Religious belief- revelation, reason	Note
5	Mystic experience, Ecstasy	Explanation
6	Origin of Religion- anthropological theories	Explanation
7	Origin of Religion- psychological theory	Explanation
8	Development of the Idea of God- Polytheism, Monotheism	Note
9	Divine determinism	Note
10	Human freedom of Will	Note
11	Immortality of Soul----	Explanation

12	Metaphysical argument	Explanation
13	Religious argument	Explanation
14	Problem of Evil	Note
15	Anti-theistic trends—Positivism, Marxism	note
16	Freudian psycho-analysis	Note
17	Acquaintance with Buddhism	Explanation
18	Acquaintance with Christianity and Islam	Explanation
19	Basic features of Hinduism	Explation
20	Principal sects of Hinduism- Saivism, Saktism	Explanation
21	Neo-vaisnavism—Sankardeva, Madhabdeva	Notes
22	Objective of comparative religion	Explanation
23	Value of comparative religion	Notes
24	Possibility of Universal religion	Explanation
25	Secularism	Explanation
26	Religious Understanding	Explanation

DIGBOI COLLEGE, DIGBOI

Course plan (2019-20) CBCS

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 1 st semester

Name of the Paper – Logic (C2)

Units Assigned – Full (4 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Nature of Logic	Explain
2	Nature of Logic	Explain
3	Nature of Logic	Explain & Provided Notes
4	Nature of Argument	Explain
5	Nature of Argument	Provide Notes
6	Argument and Argument form	Explain

7	Argument and Argument form	Explain
8	Argument and Argument form	Explain & Provided Notes
9	Truth and Validity	Explain
10	Truth and Validity	Provide Notes
11	Square of Opposition	Explain
12	Square of Opposition	Provide Notes
13	Mediate Inference	Explain
14	Mediate Inference	Provide Notes
15	Categorical Syllogism	Explain
16	Categorical Syllogism	Provide Notes
17	Figure	Explain
18	Figure	Provide Notes
19	Mood	Explain
20	Mood	Provide Notes
21	Venn-Diagram Techniques for testing Validity of Syllogism	Explain and Practice
22	Venn-Diagram Techniques for testing Validity of Syllogism	Explain and Practice
23	Venn-Diagram Techniques for testing Validity of Syllogism	Explain and Practice
24	Venn-Diagram Techniques for testing Validity of Syllogism	Explain and Practice
25	Venn-Diagram Techniques for testing Validity of Syllogism	Explain and Practice
26	Venn-Diagram Techniques for testing Validity of Syllogism	Explain and Practice
27	Truth Functions	Explain & Provided Notes
28	Kinds of Truth Functions	Explain
29	Kinds of Truth Functions	Provide Notes
30	Truth Table method	Explain & Provided Notes
31	Direct Truth Table method	Explain and Practice
32	Direct Truth Table method	Explain and Practice
33	Direct Truth Table method	Explain and Practice
34	Direct Truth Table method	Explain and Practice
35	Direct Truth Table method	Explain and Practice
36	Indirect truth table Method	Explain and Practice
37	Indirect truth table Method	Explain and Practice
38	Indirect truth table Method	Explain and Practice
39	Indirect truth table Method	Explain and Practice
40	Set theory	Explain
41	Set theory	Provide Notes
42	Null set	Explain & Provided Notes
43	Sub-set	Explain & Provided Notes
44	Proper set	Explain & Provided Notes
45	Union	Explain & Provided Notes
46	Intersection	Explain & Provided Notes
47	Difference	Explain & Provided Notes
48	Formal Proof of Validity	Explain & Provided Notes
49	Rules of Inference	Explain and Practice
50	Rules of Inference	Explain and Practice

51	Rules of Inference	Explain and Practice
52	Rules of Inference	Explain and Practice
53	Rules of Inference	Explain and Practice
54	Rules of Inference	Explain and Practice
55	Rules of Replacement	Explain and Practice
56	Rules of Replacement	Explain and Practice
57	Rules of Replacement	Explain and Practice
58	Rules of Replacement	Explain and Practice
59	Singular Proposition	Explain and Practice
60	Singular Proposition	Explain and Practice
61	General Proposition	Explain
62	Quantifiers	Explain
63	Rules of Quantification	Explain
64	Symbolization of Traditional Categorical Proposition	Explain
65	Symbolization of Traditional Categorical Proposition	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan(2019—2020)

Name of the teacher- Dr. Reepa Sarmah

Course- Major/Non-Major: **Major**

Class/semester – 3rd semester

Name of the Paper – Indian Philosophy (II)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Samkhya theory of Causation	Explain
2	Samkhya theory of Causation	Explain
3	Samkhya theory of Causation	Provide Notes
4	Samkhya theory of Prakriti	Explain

5	Samkhya theory of Prakriti	Explain
6	Samkhya theory of Prakriti	Provide Notes
7	Samkhya theory of Parinamavada	Explain
8	Samkhya theory of Parinamavada	Explain
9	Samkhya theory of Parinamavada	Provide Notes
10	Samkhya theory of Purusa	Explain
11	Samkhya theory of Purusa	Explain
12	Samkhya theory of Purusa	Provide Notes
13	Samkhya theory of Plurality of Purusa	Explain
14	Samkhya theory of Plurality of Purusa	Explain
15	Samkhya theory of Plurality of Purusa	Provide Notes
16	Samkhya theory of bondage	Explain
17	Samkhya theory of bondage	Provide Notes
18	Samkhya theory of liberation	Explain
19	Samkhya theory of Libaration	Provide Notes
20	Yoga concept of Citta	Explain
21	Yoga concept of Citta	Provide Notes
22	Yoga concept of Cittavriti	Explain
23	Yoga concept of Cittavriti	Provide Notes
24	Role of God in Yoga Philosophy	Explain
25	Role of God in Yoga Philosophy	Provide Notes
26	Mimamsa philosophy	Explain
27	Difference between Kumarila and Prabhakara	Explain
28	Difference between Kumarila and Prabhakara	Provide Notes
29	Nature of valid knowledge.	Explain
30	Arthapatti	Explain
31	Arthapatti	Provide Notes
32	Anupalabdhi	Explain
33	Anupalabdhi	Provide Notes
34	Svatahpramanyavada	Explain
35	Svatahpramanyavada	Provide Notes
36	Paratahpramanyavada	Explain
37	Paratahpramanyavada	Provide Notes
38	Vedanta philosophy	Explain
39	Advaita vedanta	Explain
40	Advaita vedanta	Explain
41	Advaita vedanta	Provide Notes
42	jiva	Explain
43	jiva	Provide Notes
44	Jivan mukti	Explain
45	Jivan mukti	Provide Notes
46	Visistaadvaitavada	Explain
47	Visistaadvaitavada	Provide Notes
48	Saguna Brahman	Explain
49	Saguna Brahman	Provide Notes
50	Parinamavada	Explain
51	Parinamavada	Provide Notes
52	Refutation of Maya	Explain

53	Refutation of Maya	Provide Notes
54	Jiva	Explain
55	Bhakti	Explain
56	Prapatti	Explain
57	Rejection of Jivanmukti	Explain
58	Philosophy of Bhagavad Gita	Explain
59	Philosophy of Bhagavad Gita	Provide Notes
60	Concept of Ultimate Reality	Explain
61	Concept of Ultimate Reality	Provide Notes
62	Doctrine of Incarnation	Explain
63	Doctrine of Incarnation	Provide Notes
64	Concept of Soul	Explain
65	Concept of Soul	Provide Notes
66	Immortality of Soul	Explain
67	Immortality of Soul	Provide Notes
68	Sthitaprajna	Explain
69	Sthitaprajna	Explain
70	Sthitaprajna	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2019-20)

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 5 th semester

Name of the Paper – Logic (Indian) (M 501)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Nature of Indian Logic	Explain
2	Nature of Indian Logic	Explain

3	Nature of Indian Logic	Provide Notes
4	Development of Indian Logic	Explain
5	Development of Indian Logic	Explain
6	Development of Indian Logic	Provide Notes
7	Development of Indian Logic	Explain
8	Indian Logic and Epistemology	Explain
9	Indian Logic and Epistemology	Explain
10	Indian Logic and Epistemology	Provide Notes
11	Classification of Knowledge by Nyaya	Explain
12	Classification of Knowledge by Nyaya	Provide Notes
13	Prama	Explain
14	Prama	Explain
15	Prama	Explain
16	Prama	Provide Notes
17	Aprama	Explain
18	Aprama	Explain
19	Aprama	Provide Notes
20	Pramanas as the Karana of Prama	Explain
21	Pramanas as the Karana of Prama	Explain
22	Pramanas as the Karana of Prama	Provide Notes
23	Characteristics of Pramanas	Explain
24	Characteristics of Pramanas	Explain
25	Characteristics of Pramanas	Provide Notes
26	Kinds of Pramanas	Explain
27	Kinds of Pramanas	Explain
28	Kinds of Pramanas	Provide Notes
29	Nyaya pratyaksa	Explain
30	Nyaya pratyaksa	Explain
31	Nyaya pratyaksa	Provide Notes
32	Mimamsa Pratyaksa	Explain
33	Mimamsa Pratyaksa	Explain
34	Mimamsa Pratyaksa	Provide Notes
35	Definition of Anumana	Explain
36	Definition of Anumana	Provide Notes
37	Constituents of Anumana	Explain
38	Constituents of Anumana	Explain
39	Constituents of Anumana	Explain
40	Constituents of Anumana	Provide Notes
41	Kinds of Anumana	Explain
42	Kinds of Anumana	Explain
43	Kinds of Anumana	Provide Notes
44	Paksata	Explain
45	Paksata	Explain
46	Paksata	Provide Notes
47	Vyapti	Explain
48	Vyapti	Provide Notes
49	Ascertainment of Vyapti	Explain
50	Ascertainment of Vyapti	Explain
51	Ascertainment of Vyapti	Provide Notes
52	Types of Vyapti	Explain

53	Types of Vyapti	Explain
54	Types of Vyapti	Provide Notes
55	Marks of Valid Reason	Explain
56	Nyaya Hetabhasa	Explain
57	Nyaya Hetabhasa	Explain
58	Nyaya Hetabhasa	Explain
59	Nyaya Hetabhasa	Explain
60	Nyaya Hetabhasa	Explain
61	Nyaya Hetabhasa	Provide Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 603, Name of the paper- SOCIAL AND POLITICAL PHILOSOPHY

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and scope of social philosophy	Explanation
2	Political philosophy and its relation to Sociology	Explanation
3	Political philosophy and its relation to Political Science	Note
4	Concept of Society	Note
5	Social nature of man	Explanation
6	Different theories regarding the relation between individual and society	Explanation
7	Different theories regarding the relation between individual and society	Explanation
8	Different theories regarding the relation between individual and society	Note
9	Different theories regarding the relation between individual and society	Note
10	Social groups and institutions---Family	Note
11	Social groups and institutions---Education	Explanation

12	Social groups and institutions---Religious institutions	Explanation
13	Social evolution and social progress	Explanation
14	Social evolution and social progress	Note
15	Social Evil	note
16	Relation between State and communities	Note
17	Relation between State and Society	Explanation
18	Elements and function of State	Explanation
19	Theories of State- Greek and Social contract	Explation
20	Theories of State- Greek and Social contract	Explanation
21	Forms of Democracy	Notes
22	Concept of common good	Explanation
23	Concept of justice and equality	Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 604, Name of the paper- PSYCHOLOGY

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature of psychology	Explanation
2	Methods of psychology-----	Explanation
3	Methods of psychology-----	Note
4	Methods of psychology-----	Note
5	Schools of psychology-----	Explanation
6	Schools of psychology-----	Explanation
7	Schools of psychology-----	Explanation
8	Applied psychology-- introduction	Note
9	Psychological basis of mental life	Note
10	Nervous system	Note

11	Doctrine of central localisation	Explanation
12	Sensation- its definition	Explanation
13	Weber-Fechner law of sensation	Explanation
14	Perception—its definition	Note
15	Gestalt theory of perception	note
16	Memory-- factors	Note
17	Condition and marks of good memory	Explanation
18	Forgetting—its causes	Explanation
19	Imagination--- nature and kinds	Explantation
20	Freudian theory of dream	Explanation
21	The nature of feeling, feeling and emotion	Notes
22	James—Lange theory of emotion	Explanation
23	Learning—theories of learning	Notes
24	Personality- traits, factors, kinds	Explanation
25	Intelligence—Nature, Test IQ	Explanation
26	Motivation—Nature and types	Explanation

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COURSE PLAN
SESSION: 2019--20

Name of Teacher: Dr. ITU DAS

Course : Honours/Generic –NON- MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 601, Name of the paper- Social philosophy and psychology

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and scope of social philosophy----	Explanation
2	Its relation to Sociology	Explanation
3	Its relation to psychology	Note
4	Its relation to ethics	Note
5	Relation between individual and society----	Explanation
6	Its different theories	Explanation
7	Its different theories	Explanation
8	Definition and type of Social groups and institutions	Note
9	Definition and type of Social groups and institutions	Note

10	Definition and type of Social groups and institutions	Note
11	Conditions and Social evolution and progress	Explanation
12	Conditions and Social evolution and progress	Explanation
13	Social evil—Crime and punishment	Explanation
14	Different theories of punishment	Note
15	Different theories of punishment	note
16	Different theories of punishment	Note
17	Nature and scope of Yoga psychology	Explanation
18	Physiological basis of mental life- structure of brain	Explanation
19	Physiological basis of mental life- structure of brain	Explation
20	Sensation and perception—a brief outline	Explanation
21	Weber-Fechner law of sensation,	Notes
22	Gestalt theory of perception	Explanation
23	Memory—factors and conditions	Notes
24	Marks of good memory	Explanation
25	Imagination—nature and type	Explanation
26	Freudian theory of dream	Explanation
27	Intelligence—nature, intelligence quotient	Notes
28	Learning--Different theories	Notes
29	Learning--Different theories	Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019—20, CBCS

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – HONOURS

Class/Semester : 2nd Semester (H)

Paper Code : C3, Name of the paper: (Ancient Greek Philosophy)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Pre-Socratic philosophy	Explanation
2	Thales: First principle	Explanation
3	Pythagoras—Number theory	Note
4	Democritus-- Atomism	Note
5	Heraclitus—Doctrine of Flux and Logos	Explanation
6	Permenides—Nature of Being	Explanation
7	Sophists—Pprotagoras (Man is the measure of all things)	Explanation
8	Socrates—Virtue is knowledge	Note
9	Platos theory of Ideas	Note

10	Platos theory of knowledge	Note
11	Platos theory of the immortality of Soul	Explanation
12	Aristotle's concept of Cause	Explanation
13	Aristotle's Form and Matter	Explanation
14	Aristotle's criticism of plato's theory of Ideas	Note

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SESSION: 2019--20

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 4th Semester (M)

Paper Code : M 402, Name of the Paper: (WESTERN ETHICS)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	Nature and Scope of Ethics	Explanation
2	Utility of the study of ethics	Explanation
3	Relation of ethics to psychology, Metaphysics	Note
4	Relation of ethics to politics & Religion	Note
5	Moral consciousness, object of moral consciousness	Explanation
6	Moral sentiment, moral obligation	Explanation
7	Meaning of good, ought, right	Explanation
8	Duty and conflict of duties	Note
9	Virtue ethics of Plato	Note

10	Virtue ethics of Aristotle	Note
11	Teleological ethics –Egoism, Altruism	Explanation
12	Deontological ethics of Kant	Explanation
13	Existential ethics of Kant	Explanation
14	Meta ethical theory of Moore	Note
15	Meta ethical theory of Stevenson	note
16	Meta ethical theory of R.M Hare	Note
17	Professional Ethics	Explanation
18	Environmental ethics	Explanation
19	Postulates of morality	Explation
20	Crime and punishment	Explanation
21	Different theories of punishment	Notes

DIGBOI COLLEGE, DIGBOI
COURSE PLAN
SESSION: 2019--20

Name of Teacher: Bisti Ram Narzary

Course : Honours/Generic – MAJOR

Class/Semester : 6th Semester (M)

Paper Code : M 602, Name of the Paper: (CONTEMPORARY OF WESTERN PHILOSOPHY)

Unit Assigned : Full Paper

Marks Assigned : 80

Class	Topic/Unit	Remarks
1	William James Pragmatism	Explanation
2	James theory of knowledge	Explanation
3	James nature and function of knowledge	Note
4	The conception of truth and error	Note
5	G.E Moore's refutation of Idealism	Explanation
6	Moore's Neo-Realism	Explanation
7	Moore's problem of sense data	Explanation
8	Ayer's Elimination of metaphysics	Note

9	Russell's Logical atomism	Note
10	Wittgenstein's facts and proposition	Note
11	Wittgenstein's picture theory of meaning	Explanation
12	Wittgenstein's language game	Explanation
13	Wittgenstein's refutation of atomism	Explanation
14	Salient features of existentialism	Note
15	Theistic and atheistic existentialism	note
16	J.P. Sartre's humanism	Note
17	Phenomenalism—a movement of thought	Explanation
18	Husserl's phenomenology	Explanation
19	Strawson's concept of person	Explantation

DIGBOI COLLEGE, DIGBOI

Course plan (2019-20) CBCS

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 2nd semester

Name of the Paper –Indian Logic (C4)

Units Assigned – Full (4 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Nature of Indian Logic	Explain
2	Nature of Indian Logic	Explain
3	Nature of Indian Logic	Provide Notes
4	Development of Indian Logic	Explain

5	Development of Indian Logic	Explain
6	Development of Indian Logic	Provide Notes
7	Development of Indian Logic	Explain
8	Indian Logic and Epistemology	Explain
9	Indian Logic and Epistemology	Explain
10	Indian Logic and Epistemology	Provide Notes
11	Classification of Knowledge by Nyaya	Explain
12	Classification of Knowledge by Nyaya	Provide Notes
13	Prama	Explain
14	Prama	Explain
15	Prama	Explain
16	Prama	Provide Notes
17	Aprama	Explain
18	Aprama	Explain
19	Aprama	Provide Notes
20	Pramanas as the Karana of Prama	Explain
21	Pramanas as the Karana of Prama	Explain
22	Pramanas as the Karana of Prama	Provide Notes
23	Characteristics of Pramanas	Explain
24	Characteristics of Pramanas	Explain
25	Characteristics of Pramanas	Provide Notes
26	Kinds of Pramanas	Explain
27	Kinds of Pramanas	Explain
28	Kinds of Pramanas	Provide Notes
29	Nyaya pratyaksa	Explain
30	Nyaya pratyaksa	Explain
31	Nyaya pratyaksa	Provide Notes
32	Mimamsa Pratyaksa	Explain
33	Mimamsa Pratyaksa	Explain
34	Mimamsa Pratyaksa	Provide Notes
35	Definition of Anumana	Explain
36	Definition of Anumana	Provide Notes
37	Constituents of Anumana	Explain
38	Constituents of Anumana	Explain
39	Constituents of Anumana	Explain
40	Constituents of Anumana	Provide Notes
41	Kinds of Anumana	Explain
42	Kinds of Anumana	Explain
43	Kinds of Anumana	Provide Notes
44	Paksata	Explain
45	Paksata	Explain
46	Paksata	Provide Notes
47	Vyapti	Explain
48	Vyapti	Provide Notes
49	Ascertainment of Vyapti	Explain
50	Ascertainment of Vyapti	Explain
51	Ascertainment of Vyapti	Provide Notes
52	Types of Vyapti	Explain
53	Types of Vyapti	Explain
54	Types of Vyapti	Provide Notes

55	Marks of Valid Reason	Explain
56	Nyaya Hetabhasa	Explain
57	Nyaya Hetabhasa	Explain
58	Nyaya Hetabhasa	Explain
59	Nyaya Hetabhasa	Explain
60	Nyaya Hetabhasa	Explain
61	Nyaya Hetabhasa	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2019-20)

Name of the teacher- Dr. Reepa Sarmah

Course:Major/Non-Major: Non- Major

Class/semester – 4th semester

Name of the Paper – Western Philosophy (II)

Units Assigned – Half (2 units)

Marks Assigned – 40

Class	Topic/Unit	Remarks
1	Nature of God	Explain
2	Nature of God	Provide Notes
3	Attributes of God	Explain

4	Attributes of God	Explain
5	Attributes of God	Provide Notes
6	Proofs for Gods Existence	Explain
7	Proofs for Gods Existence	Explain
8	Proofs for Gods Existence	Explain
9	Proofs for Gods Existence	Explain
10	Proofs for Gods Existence	Explain
11	Proofs for Gods Existence	Explain
12	Proofs for Gods Existence	Explain
13	Proofs for Gods Existence	Provide Notes
14	Deism	Explain
15	Deism	Explain
16	Deism	Provide Notes
17	Theism	Explain
18	Theism	Provide Notes
19	Pantheism	Explain
20	Pantheism	Provide Notes
21	Panentheism	Explain
22	Panentheism	Provide Notes
23	Different theories of Moral Obligation	Explain
24	Different theories of Moral Obligation	Explain
25	Different theories of Moral Obligation	Explain
26	Different theories of Moral Obligation	Explain
27	Different theories of Moral Obligation	Explain
28	Different theories of Moral Obligation	Provide Notes
29	Postulates of Morality	Explain
30	Postulates of Morality	Explain
31	Postulates of Morality	Provide Notes

DIGBOI COLLEGE, DIGBOI

Course plan (2019-20)

Name of the teacher- Dr. Reepa Sarmah

Course- - Major/Non-Major: Major

Class/semester – 6 th semester

Name of the Paper – Contemporary Indian Philosophy (M601)

Units Assigned – Full (5 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Contemporary Indian Philosophy	Explain
2	Characteristics of Contemporary Indian Philosophy	Explain
3	Characteristics of Contemporary Indian Philosophy	Explain & Provided Notes
4	Practical Vedanta	Explain
5	Practical Vedanta	Explain & Provided Notes
6	Vivekananda's Universal Religion	Explain
7	Vivekananda's Universal Religion	Explain & Provided Notes
8	Vivekananda's Philosophy of Education	Explain
9	Vivekananda's Philosophy of Education	Explain
10	Vivekananda's Philosophy of Education	Explain & Provided Notes
11	Aurobindo's Evolution	Explain
12	Aurobindo's Evolution	Explain
13	Aurobindo's Evolution	Explain & Provided Notes
14	Aurobindo's Supermind	Explain
15	Aurobindo's Supermind	Explain
16	Aurobindo's Supermind	Explain & Provided Notes
17	Synthesis of Yoga	Explain
18	Synthesis of Yoga	Explain
19	Synthesis of Yoga	Explain
20	Synthesis of Yoga	Explain & Provided Notes
21	Integralism	Explain
22	Integralism	Explain
23	Integralism	Explain
24	Integralism	Explain & Provided Notes
25	Tagore's Humanism	Explain
26	Tagore's Humanism	Explain
27	Tagore's Humanism	Explain
28	Tagore's Humanism	Explain & Provided Notes
29	Nature of Religion	Explain
30	Nature of Religion	Explain
31	Nature of Religion	Explain
32	Nature of Religion	Explain & Provided Notes
33	Iqbal's Intuition	Explain
34	Iqbal's Intuition	Explain
35	Iqbal's Intuition	Explain
36	Iqbal's Intuition	Explain & Provided Notes
37	Human Ego	Explain
38	Human Ego	Explain
39	Human Ego	Explain
40	Human Ego	Explain
41	Human Ego	Explain & Provided Notes
42	Man and his Destiny	Explain
43	Man and his Destiny	Explain
44	Man and his Destiny	Explain & Provided Notes
45	Gandhi's Truth	Explain
46	Gandhi's Truth	Explain
47	Gandhi's Truth	Explain

48	Gandhi's Truth	Explain & Provided Notes
49	Gandhi's Non-violence	Explain
50	Gandhi's Non-violence	Explain
51	Gandhi's Non-violence	Explain
52	Gandhi's Non-violence	Explain & Provided Notes
53	Radhakrishnan's Intellect and Intuition	Explain
54	Radhakrishnan's Intellect and Intuition	Explain
55	Radhakrishnan's Intellect and Intuition	Explain
56	Radhakrishnan's Intellect and Intuition	Explain
57	Radhakrishnan's Intellect and Intuition	Explain & Provided Notes

COURSE PLAN
2019-20

DEPARTMENT OF PHYSICS,
DIGBOI COLLEGE

Course Plan 2019-20

Name of the Teacher-Banjit Kumar Das

Course –Honours

Class/Semester- B.A. 1st Semester

Name of the paper- C 2 (Constitutional Government and Democracy in India)

Units Assigned-III, IV & V

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Organs of Government- The Judiciary- The Supreme Court of India- Composition	
2	Powers and functions of the Supreme Court of India	
3	High Court-Composition, Powers and functions	
4	Judicial Review	
5	Judicial Activism	
6	Relation between Executive and Judiciary	
7	Public Interest Litigation	
8	Federalism- Nature of Indian Federation	
9	Federal and non-federal features of the Indian Constitution	
10	Emergency Provisions	
11	Division of Powers between the Centre and States	
12	Administrative relations between Centre and States	
13	Legislative relations between Centre and States	
14	Financial relations between Centre and States	
15	Causes of Centre State conflicts	
16	Fifth & Sixth Schedule of the Indian Constitution	
17	Panchayatiraj institutions- Village Panchayat-functions	
18	73 rd Amendment	
19	74 th Amendment	
20	11 th & 12 th Schedules	

Name of the Teacher-Banjit Kumar Das

Course –Generic

Class/Semester- B.A. 1st Semester

Name of the paper- GE 1A (Nationalism in India)

Units Assigned-III (Nationalist politics and Expansion of its Social Base)

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	The exploitative role of British rule	
2	Nationalist politics under liberals	
3	Swadeshi Movement	
4	Extremist phase of freedom struggle	
5	Beginning of constitutionalism	
6	Indian Council Act, 1909	
7	Government of India Act, 1919	
8	Government of India Act, 1935	
9	Indian Independence Act, 1947	
10	Gandhi and mass mobilization	
11	The non-co-operation Movement	
12	The Civil Disobedience Movement	
13	Quit India Movement	
14	Crip's Mission Plan	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Honors' / Generic – Honours

Class/Semester- B.A. 2nd Semester

Name of the paper- C-3 (Political Theory-Concepts and Debates)

Units Assigned–II

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Freedom-Introduction, Meaning, Concepts of positive and negative freedom	
2	Kinds of Liberty	
3	Safeguards of liberty	
4	Some dimensions of negative and positive freedom.	
5	Freedom and rights	
6	J.S. Mill on Freedom of Expression	
7	Principles of Utilitarianism	
8	Mill as Utilitarian	
9	Freedom of Expression and Dissent	
10	Discussion	

Course plan

Name of the Teacher-

Course –Honors' / Generic – Honours

Class/Semester-II

Name of the paper- C 4 (Political Process in India)

Units Assigned-I: Political Parties and Party System

III-Regional Aspirations

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Introduction of Party System	
2	Types of Party system	
3	Role of Political parties	
4	Features of Indian party system	
5	The Congress system in India	
6	Activities of Congress after independence	
7	Decline of Congress	
8	Multi Party coalition system	
9	Evolution of multi-party coalition politics in India	
10	Meaning of Regionalism, Indian approach to regional aspirations	
11	The Punjab crisis	
12	The Naga Secessionist Movement	
13	The Mizo Secessionist Movement	
14	Assam and the issue of migration	
15	The Bodo Movement	
16	ULFA issue	
17	The Kashmir Issue	
18	Kargil conflict	

Name of the Teacher-Banjit Kumar Das

Course – Generic

Class/Semester- B.A. 1st Semester

Name of the paper- GE 2A (Feminism: Theory and Practice)

Units Assigned- III (Genesis of Feminist movement in the West)

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Introduction of feminist movement	
2	Status of women from the historic perspective	
3	Seneca Falls Convention	
4	Summary and resolutions of Seneca Falls Convention	
5	Black feminist movement	
6	Reasons for emergence of Black Feminism	
7	Various period of Afro-American Feminism	
8	Suffragist movement in USA	
9	Suffragist movement in Britain	
10	Suffragist movement in France	
11	French Revolution and declaration of the rights of the women	

Course plan

Name of the Teacher-

Course –Honors' / Generic – Honours

Class/Semester-III

Name of the paper- C -5 Introduction to Comparative Government and Politics

Unit's Assigned-II & IV

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Meaning and development of Capitalism	
2	Advantages of Capitalism	
3	Disadvantages of Capitalism	
5	Meaning and development of Globalization	
6	Advantages of Globalization	
7	Disadvantages of Globalization	
8	Impact of Globalization on Government and Politics	
9	Meaning and growth of Socialism	
10	Advantages of Socialism	
11	Disadvantages of Socialism	
12	Constitutional development of Britain	
13	Political economy of Britain	
14	Features of British Constitution	
15	Constitutional development of American Constitution	
16	Political economy of United States of America	
17	Powers and functions of the British King	
18	Powers and functions of the British Prime Minister	
19	Powers and functions of the British Prime Minister	
20	Powers and functions of the American President	
21	Comparison between British Prime Minister and American President	
22	British Parliament and	

	American Congress	
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Course plan

Name of the Teacher-

Course –Honours

Class/Semester-III

Name of the paper-C 6- Perspectives on Public Administration

Unit's Assigned-II & V

Marks Assigned- 16 per Unit

Unit : II Theoretical Perspectives- Classical Theories

Serial number of classes	Topic/ Unit	Remarks
1	Scientific Management theory- Objectives and Characteristics and Principles	
2	Criticism of Scientific Management Theory	
3	Administrative Management theory-Henry Fayol's 14 principles of organisation	
5	Luther Gullick's POSDCORB theory	
6	Criticism of Administrative Management Theory	
7	The Bureaucratic theory	
8	Ideal type of Bureacracy by Max Weber	
9	Criticism of Max Weber's theory of Bureacracy	
10	The Human Relations theory	
11	The Hawthorne Experiment	
12	Criticism of Human Relations Theory	
13	New Public Management- Meaning and emergence of New Public Management	
14	Principles of New Public Management	
15	Elements of New Public Management	
16	Strategy for implementing Public Management Reforms	

17	Meaning of New Public Service Approach	
18	Principles of New Public Service Approach	
19	Good Governance	
20	Characteristics of Good Governance	
21	Importance of Good Governance	
22	Discussion on probable questions	
23	Tutorial	

Name of the Teacher-

Course –Generic

Class/Semester-III

Name of the paper-GE- 3B (Governance: Issues and Challenges)

Unit's Assigned-II & IV

Marks Assigned- 16 per Unit

Unit : II Governance and Development

Serial number of classes	Topic/ Unit	Remarks
1	Western concept of development	
2	Capitalist concept of development	
3	Marxian concept of development	
5	Changing dimensions of Development	
6	Concept of development and United States of America	
7	Concept of development of Third World	
8	Development as regional disparity	
9	United Nations concept of Development	
10	Development as sustainable development	
11	Democracy and Good Governance	
12	Conditions for the success of Democracy	

13	Decentralization: Evolution, significance	
14	Democratic decentralization in India	
15	People's participation in governance	
16	Objectives and types of	

	people's participation in administration	
17	Process people's participation in governance	
18	Problems of people's participation in administration	
19	Importance of people's participation in rural development	
20	Measure to boost people's participation in Governance	
21	discussion	

Course plan

Name of the Teacher- Banjit Kumar das

Course –Honors

Class/Semester-IV

Name of the paper- Political Processes and Institutions in Comparative Perspectives

Units Assigned- –II and IV

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	The concept of election, Types of election	
2	Proportional representation, Advantages and disadvantages	
3	Party system-characteristics	
5	Party System-types	
6	Coalition politics	
7	Critical evaluation of coalition politics	
8	Coalition in the context of India	
9	Coalition in electoral process	
10	Multi party system	
11	Democratisation: Conceptual Understanding	
12	History of democratization	
13	Process of Democratization	
14	Democratization in the post-colonial countries	
15	Democratization in South Asian countries	
16	Democratization in Africa and Middle East	
17	Democratization in post Authoritarian countries	
18	Democratization in post-communist countries	
19	Obstacles to democratization: Reverse wave	
20	How to sustain democratization	
21	Discussion on probable	

	questions	
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Class/Semester-IV

Name of the paper –Public Policy and Administration in India

Units Assigned- IV & V

Marks Assigned- 16

Unit: IV- Citizen and Administration Interface

Serial number of classes	Topic/ Unit	Remarks
1	Public Service Delivery- Meaning	
2	Delivering Local and Municipal Services	
3	Challenges in improving Public Service Delivery	
4	Effective Public Service Delivery	
5	Governance and public service delivery in India	
6	Right to Information Act	
7	Lokpal	
8	Citizen's Charter	
9	Principles of service delivery	
10	Reforming Citizen's Charter to make effective	
11	E-Governance	
12	Concept and approaches of social welfare	
13	Social Welfare Policies	
14	Right to Education	
15	National Health Mission	
16	National Food Security Act	
17	Obligations of the Central and State Government	
18	Challenges to food security	
19	MGNREGA	
20	Discussion	

Class/Semester-IV Generic

Name of the paper – GE 4B (United Nations and Global Conflicts)

Units Assigned- II (The Specialised Agencies)

Marks Assigned- 16

Unit: IV- Citizen and Administration Interface

Serial number of classes	Topic/ Unit	Remarks
1	International Labour Organization	
2	UNESCO	
3	WHO	
4	UN Programmes and Funds	
5	UNICEF	
6	United Nation's Development Programme	
7	United Nation's Environment Programme	
8	United Nation's High Commissioner for Refugees	
9	Discussion	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-V

Name of the paper- PSCM 503 (Indian Foreign Policy)

Units Assigned- –I,II,III,IV & V

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Origin and evolution of Indian foreign Policy	

2	Origin and evolution of Indian foreign Policy	
3	Origin and evolution of Indian foreign Policy	
4	Determinants of Foreign Policy	
5	Domestic determinants of Foreign Policy	
6	External determinants of Foreign Policy	
7	Non-align movement in India's foreign policy	
8	Causes for accepting non-alignment in India's foreign Policy	
9	Principles of India's Foreign Policy	
10	Objectives of India's Foreign Policy	
11	Continuities and Changes of India's Foreign Policy	
12	Continuities and Changes of India's Foreign Policy	
13	Continuities and Changes of India's Foreign Policy	
14	Indo-US relations	
15	Indo-US relations during the time of Nehru	
16	Indo-US relations during the time of Indira Gandhi	
17	Indo-US relations during the time of Rajiv Gandhi	
18	Indo-US relations in post-Cold war period	
19	Indo-US relations in post Cold war period	
20	Indo- Soviet Relations during Cold war period	
21	Indo- Russian Federation Relations after Cold war period	
22	India's relations with China	
23	India's relations with China	
24	Look East Policy and South East Asia	
25	Look East Policy and ASEAN	
26	Indo-Pak Relations	
27	Causes of conflicts of Indo-Pak relations	
28	Causes of Indo-Pak Conflict	
29	Indo-Bangladesh relations	
30	Causes of Indo-Bangladesh	

	Conflict	
31	Indo-Nepal relations	
32	Decline of relationship between India and Nepal	
33	India and UNO	
34	India and UNO	
35	India and Un Peace keeping Mission	
36	Initiatives of UN in India's Development	
37	India's role in UN Peace Keeping Mission	
38	India and SAARC	
39	Evaluation of SAARC	
40	Economic Diplomacy in India's Foreign Policy	
41	Objectives of Economic Diplomacy	
42	Aspects of India's Economic diplomacy	
43	Globalization: Meaning, definition	
44	Economic consequences of Globalization	
45	Globalization and India's Approach , Effects of Globalization in India	
46	Nuclear Issues and India's approach	
47	India's Nuclear Policy	
48	Global Terrorism: India's approach	
49	India's approach to terrorism	
50	Discussion	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Major

Class/Semester-VI

Name of the paper- PSCM 604 (Indian Administration)

Units Assigned- –I,II,III,IV & V

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Administration and Environment	
2	Nature of Indian Administration	
3	Features of Indian Administration	
4	Legacies of Indian Administration	
5	Indian Administration and Cultural Environment	
6	Indian Administration and Cultural Environment	
7	Indian Administration and Social Environment	
8	Indian Administration and Political Environment	
9	Indian Administration and Political Environment	
10	Indian Administration and Economic Environment	
11	Indian Administration and Constitutional Environment	
12	The President of India	
13	Role and position of the President of India	
14	Prime Minister of India	
15	Union Council of Ministers	
16	Central Secretariat: Meaning and Nature of Secretariat	
17	Functions and role of Secretariat	
18	Structures of Central Secretariat	
19	Structures of Central Secretariat	
20	Structures of Cabinet Secretariat	
21	Cabinet Secretary: functions	
22	Cabinet Secretary: Role	
23	State Governor: Powers and functions	
24	State Chief Minister: Powers and functions	
25	Chief Minister as real executive	
26	State Secretariat: Structure	

27	Internal Organizations of Secretariat Department	
28	Chief Secretary: Functions	
29	Secretariat and Field Departments	
30	Relation between V and field departments	
31	Evolution of District Administration	
32	Organization of District Administration	
33	Deputy Commissioner: Duties	
34	Deputy Commissioner: Duties	
35	Position of Deputy Commissioner	
36	District administration and Democratic Decentralization	
37	Relation between Deputy Commissioner and Technical Departments	
38	Role of Deputy Commissioner in District Administration	
39	Role of Deputy Commissioner in District Administration	
40	Sub-Divisional Officer: Duties	
41	Role of Sub-Divisional Officer: in Sub-Divisional Administration	
42	Divisional Commissioner: Functions	
43	Divisional Commissioner: Duties	
44	Public Service: Meaning, Features	
45	Functions of Civil Service	
46	Structure of Central Civil Service	
47	All India Services	
48	Strengthening of All India Services	
49	State Service	
50	Discussion	

COURSE PLAN : APARAJITA GOGOI - DEPARTMENT OF ZOOLOGY : 2019

JANUARYEVEN SEMESTER CLASSES

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
January	1 st	ZOOM 201 Metabolism	ZOOM -401 Mitochondria structure ZOOM 401- Mitochondia function	ZOOM- 601 – Parasitology Types of parasites Zoom 601-Vectors Parasites- Entamoeba histolytica	ZOOG 201- Syllabus given Introductory class	ZOOG 401 Digestion of proteins Digestion of lipids	ZOOG 601 Introductory class
	2 nd	ZOOM 201 Metabolism - Glycolysis	ZOOM 401- Mitochondria function ; Structure and ffunction of Nucleus	ZOOM 601 –Parasitology Parasitic adaptation, effect on host ZOOM 603- Immunity, Types of cells and organs	ZOOG 201- Structure and function of prokaryotic & eukaryotic cells	ZOOG 401 Digestion of lipids	ZOOG 601 Population dynamics
	3 rd	ZOOM 201 Pyruvic acid oxidation, Krebs cycle; ETS	ZOOM 401- Fertilization mechanism	ZOOM 603- -Innate & adaptive immunity	ZOOG 201- Eukaryotic cells	ZOOG-401 Anatomy and Function of adrenal hormones;	ZOOG 601 Population dynamics
	4 th	ZOOM 201 Electron Transport system	ZOOM 401 Fertilization mechanism	ZOOM 606- Cellular and humoral immunity	-	Function of adrenal hormones	ZOOG 601 Population dynamics

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
February	1 st	ZOOM 201 Unit 3 Electron transport system	ZOOM 403-Unit 2 Fertilization significance	ZOOM 604- Unit 2 Bioinformatics	ZOOG 201- Chromosome	ZOOG-401 Blood	-
	2 nd	ZOOM 201 Energetics of ETS	ZOOM 403- Cortical reaction- fertilization membrane	ZOOM 604- Database ZOOM 606- Aquaculture	ZOOG 201- Heterochromatin, euchromatin Packaging	ZOOG-401 Blood coagulation	ZOOG 601 Biotic potential
	3 rd		ZOOM 403- Significance of Fertilization	ZOOM 606 – Aquaculture Induced breeding	ZOOG 201- Mitochondria		
	4 th	ZOOM 201 Beta oxidation of fatty acids	ZOOM 403- Parthenogenesis	ZOOM 601 Management of fish ponds	ZOOG 201- Mitochondria function	ZOOG-401 Coagulation of blood; Mechanism	ZOOG 601 Ecosystems
March	1 st	ZOOM-201 Beta oxidation of fatty acids	ZOOM 401- Unit 4 Cell signalling; Types	ZOOM 601- Unit 5 Communication in animal Trypanosoma		ZOOG-401 Mechanism of coagulation of blood	
	2 nd		ZOOM- 401 GPCR, second messenger	ZOOM 601- Unit 5 Trypanosoma pathogenicity; orientation in animals	ZOOG 201 unit 5 Electron transport syst.		ZOOG 601 Ecosystem food chain
	3 rd		ZOOM- 401 Chromatin ; Heterochromatin	ZOOM 601- Unit 5 Offensive defensive behaviour			

MONTH	WEEK	SEM II H	SEM IV H	SEM VI H	SEM II G	SEM IV G	Sem VI G
March	4 th		ZOOM 401-Unit 5 DNA packaging Nucleosome	ZOOM 601- Unit 5 Offensive behaviour	ZOOG 201 ETS		ZOOG 601- Survivorship curve
April	1 st		ZOOM 403- Bone & Kidney structure; tissues	ZOOM 606 Unit 2- Prawn culture fish by product 603 Unit 4- Antigens –types- properties	ZOOG 201- ETS –ATP formation Unit 2- Nucleus		ZOOG 601- Biotic potential & Env resistance
	2 nd		ZOOM 403- Germ layers Fate maps	ZooM 603 Antigen –antibody interaction Immunodiffusion RIA, ELISA; Vaccine & vaccination	Unit 2- Nucleus function		
	3 rd			ZooM- 601 Fasciola hepatica	Unit 2- Nucleus function		

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **2ndSemester (Non-CBCS)**

Paper Code: **201 (Theory)**

Name of the Paper- **Biochemistry**

Units Assigned- **Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Structure of carbohydrates	
2.	UNIT 2: Classification of carbohydrates	
3.	UNIT 2: Amino acids	
4.	UNIT 2: Amino acids	
5.	UNIT 2: Proteins	
6.	UNIT 2: Proteins	
7.	UNIT 2: Proteins	
8.	UNIT 2: Levels of organization of proteins.	
9.	UNIT 2: Levels of organization of proteins.	
10.	UNIT 5: Structure and forms of DNA	
11.	UNIT 5: Structure and forms of RNA	
12.	UNIT 5: DNA as genetic material	
13.	UNIT 5: DNA replication	
14.	UNIT 5: DNA replication	
15.	UNIT 5: DNA replication	

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Honours**
Class/Semester- **2ndSemester (Non-CBCS)**
Paper Code: **202 (Practical)**
Name of the Paper- **Biochemistry**
Units Assigned- **Unit 1, Unit 2, Unit 3**
Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Preparation of molar, normal and buffer solution.	
2.	UNIT 2: Qualitative test for carbohydrate to identify the common monosaccharides	
3.	UNIT 2: Qualitative test for carbohydrate to identify the common monosaccharides	
4.	UNIT 2: Qualitative test for carbohydrate to identify the common disaccharides	
5.	UNIT 2: Qualitative test for carbohydrate to identify the common disaccharides	
6.	UNIT 3: Essay of enzyme urease by titrimetric method	
7.	UNIT 3: Essay of enzyme peroxidase by titrimetric method	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Generic**
Class/Semester- **2ndSemester (Non-CBCS)**
Paper Code: **201 (Theory)**
Name of the Paper- **Cell Biology and Biochemistry**
Units Assigned- **Unit 1, Unit 3, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Structure of Plasma Membrane	
2.	UNIT 1: Structure of Plasma Membrane	
3.	UNIT 1: Function of Plasma Membrane	
4.	UNIT 1: Membrane transport- Osmosis	
5.	UNIT 1: Membrane transport- Diffusion	
6.	UNIT 1: Membrane transport- Active transport	
7.	UNIT 3: Cell Cycle	
8.	UNIT 3: Basic Concept of Cancer	
9.	UNIT 4: Types of Carbohydrates	
10.	UNIT 4: Types of Proteins	

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Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **2ndSemester (Non-CBCS)**

Paper Code: **201 (Practical)**

Name of the Paper- **Cell Biology and Biochemistry**

Units Assigned- **Unit 1, Unit 3, Unit 4, Unit 5**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Study of Mitosis with the help of permanent slides	

2.	UNIT 1: Study of Meiosis with the help of permanent slides	
3.	UNIT 2: Preparation of Normal and Molar Solutions	
4.	UNIT 3: Qualitative test of Carbohydrate	
5.	UNIT 4: Qualitative test of salivary amylase	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **401 (Theory)**

Name of the Paper- **Cell Biology, Histology and Histochemistry**

Units Assigned- **Unit 1, Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Overview of Prokaryotic and Eukaryotic cells	
2.	UNIT 1: Structure of Plasma Membrane	
3.	UNIT 1: Structure of Plasma Membrane	
4.	UNIT 1: Structure of Plasma Membrane	
5.	UNIT 1: Function of Plasma Membrane	
6.	UNIT 1: Extra Cellular Matrix	
7.	UNIT 1: Receptor Mediated Endocytosis	
8.	UNIT 2: DNA Packaging in prokaryotes	
9.	UNIT 2: DNA Packaging in Eukaryotes	

10.	UNIT 2: Models of Chromosomal movements	
11.	UNIT 5: Types of Staining	
12.	UNIT 5: Vital Staining, Classification and Properties of Dyes	
13.	UNIT 5: Metachromatic Dyes and Staining	
14.	UNIT 5: Histological Structure of Stomach	
15.	UNIT 5: Histological Structure of Intestine	

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Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **402 (Practical)**

Name of the Paper- **Cell Biology, Histology and Histochemistry**

Units Assigned- **Unit 1, Unit 2, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Study of Mitosis in Tadpole tail	
2.	UNIT 2: Study of Meiosis in testes of Grasshopper	
3.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
4.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
5.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
6.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	
7.	UNIT 4: Histological Preparation of Liver, Stomach, Intestine, Kidney, Pancreas, Testes and Ovary	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **403 (Theory)**

Name of the Paper- **Developmental Biology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Cleavage pattern	
2.	UNIT 3: Blastulation in Chick Embryo	
3.	UNIT 3: Blastulation in Chick Embryo	
4.	UNIT 3: Gastrulation in Chick Embryo	
5.	UNIT 3: Gastrulation in Chick Embryo	
6.	UNIT 3: Inductive Substances	
7.	UNIT 5: Development of Eyes	
8.	UNIT 5: Development of Eyes	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **404 (Practical)**

Name of the Paper- **Developmental Biology**

Units Assigned- **Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
2.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
3.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
4.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	
5.	UNIT 2: Study of Permanent Slides of Developmental Stages of Chick Embryo	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Generic

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **401 (Theory)**

Name of the Paper- **Animal Physiology and Endocrinology**

Units Assigned- **Unit 2, Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Physiology of Excretion in Mammals	
2.	UNIT 2: Physiology of Excretion in Mammals	
3.	UNIT 3: Neurons	
4.	UNIT 3: Conduction of Nerve Impulse	
5.	UNIT 3: Conduction of Nerve Impulse	
6.	UNIT 3: Conduction of Nerve Impulse	
7.	UNIT 5: General Characters of Hormones	
8.	UNIT 5: Feedback Mechanism	

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Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – Generic

Class/Semester- **4thSemester (Non-CBCS)**

Paper Code: **402 (Practical)**

Name of the Paper- **Animal Physiology and Endocrinology**

Units Assigned- **Unit 1, Unit 2, Unit 5**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Preparation of Haemin Crystal	
2.	UNIT 2: Counting of RBC	
3.	UNIT 2: Counting of WBC	
4.	UNIT 2: Study of histological Slides of Endocrine glands	
5.	UNIT 2: Study of histological Slides of Endocrine glands	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **601 (Theory)**

Name of the Paper- **Parasitology and Ethology**

Units Assigned- **Unit 1, Unit 2, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Life history mode of infection and pathogenicity of <i>Trichomonas vaginalis</i>	
2.	UNIT 1: Life history mode of infection and pathogenicity of	

	<i>Plasmodium</i> spp.	
3.	UNIT 2: life history, parasitic adaptation and pathogenicity of <i>Ancylostoma duodenale</i>	
4.	UNIT 4: Introduction to Animal Behaviour	
5.	UNIT 4: Brief History of Ethology	
6.	UNIT 4: Patterns of Behaviour	
7.	UNIT 4: Patterns of Behaviour	
8.	UNIT 4: Patterns of Behaviour	
9.	UNIT 4: Genetical aspects of behaviour	
10.	UNIT 4: Ecological aspects of Behaviour	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **602 (Practical)**

Name of the Paper- **Parasitology and Ethology**

Units Assigned- **Unit 1, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of mosquito species causing malaria, encephalitis and dengue fever	
2.	UNIT 3: Study of geotactic, phototactic, chemotactic and sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	
3.	UNIT 3: Study of geotactic, phototactic, chemotactic and	

	sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	
4.	UNIT 3: Study of geotactic, phototactic, chemotactic and sociotactic behaviour of earthworm, cockroach, <i>Paramecium</i> and fish	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **603 (Theory)**

Name of the Paper- **Molecular Biology and Immunology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Recombination in prokaryotes	
2.	UNIT 3: Transformation	
3.	UNIT 3: Conjugation	
4.	UNIT 3: Transduction	
5.	UNIT 3: Concept of transposons and plasmids	
6.	UNIT 3: Regulation of gene expression in prokaryotes	
7.	UNIT 3: Operon concept (Lac operon).	
8.	UNIT 5: Major histocompatibility complex- structure	
9.	UNIT 5: Major histocompatibility complex- functions	
10.	UNIT 5: Immune system in health and disease	

11.	UNIT 5: Immune system in health and disease	
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DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **604 (Theory)**

Name of the Paper- **Biotechnology and Bioinformatics**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: DNA sequencing	
2.	UNIT 2: Human genome project	
3.	UNIT 4: Nucleic acid and protein sequence database	
4.	UNIT 4: NCBI	
5.	UNIT 4: Gene bank	
6.	UNIT 4: SWISS- PROT	
7.	UNIT 4: Data mining and data mining tools (ENTREZ).	
8.	UNIT 4: Data mining and data mining tools (ENTREZ).	

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Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **605 (Practical)**

Name of the Paper- **Molecular Biology and Immunology**

Units Assigned- **Unit 3, Unit 7, Unit 8**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Estimation/Detection of RNA	
2.	UNIT 7: Different E resources and Database search	
3.	UNIT 8: Similarity search in sequence such as BLAST	
4.	UNIT 8: Similarity search in sequence such as FASTA	

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Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**
 Course –Honours / Generic – **Honours**
 Class/Semester- **6thSemester (Non-CBCS)**
 Paper Code: **606 (Theory)**
 Name of the Paper- **Economic Zoology**
 Units Assigned- **Unit 2,Unit 5**
 Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
2.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
3.	UNIT 2: Life histories of silkworm (eri, muga and mulberry); culture technique of silkworms; diseases of silkworms and its prevention	
4.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
5.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
6.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
7.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	
8.	UNIT 5: poultry: selection of breed (chicken and duck) and their scientific rearing methods; poultry diseases and its prevention/control	

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **607 (Practical)**

Name of the Paper- **Economic Zoology**

Units Assigned- **Unit 1, Unit 2, Unit 7, Unit 8**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of silkworms (eri, muga& mulberry), immature and adult stages	
2.	UNIT 2: Submission of life cycles of eri/ muga/ mulberry silkworms	
3.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	
4.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	
5.	UNIT 8: Analysis of nutrients (Carbohydrate, Protein and Lipid) of Honey	

DIGBOI COLLEGE, DIGBOI

Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **601 (Theory)**

Name of the Paper- **Animal Ecology and Biostatistics**

Units Assigned- **Unit 3**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Environmental pollution and types	
2.	UNIT 3: Sources, causes and control of Air pollution	
3.	UNIT 3: Sources, causes and control of water pollution	
4.	UNIT 3: Sources, causes and control of soil pollution	
5.	UNIT 3: Biogeochemical cycle (carbon)	
6.	UNIT 3: Biogeochemical cycle (Nitrogen)	
7.	UNIT 3: Green House Effect	
8.	UNIT 3: Ozone depletion and its impact	

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Course Plan

(January – June, 2019, Even Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **6thSemester (Non-CBCS)**

Paper Code: **602 (Practical)**

Name of the Paper- **Animal Ecology and Biostatistics**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: To find out abundance and density of soil fauna by quadrat method	
2.	UNIT 1: To find out abundance and density of soil fauna by quadrat method	
3.	UNIT 2: To find out the biotic components of pond ecosystem	
4.	UNIT 2: To find out the biotic components of pond ecosystem	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (CBCS)**

Paper Code: **ZC101T (Theory)**

Name of the Paper- **NON-CHORDATES I: PROTISTS TO PSEUDOCOELOMATES**

Units Assigned- **Unit 1**

Marks Assigned- **14/53**

Class	Topic/ Unit	Remarks
1.	UNIT 1: General characteristics and Classification up to Classes of Protista	
2.	UNIT 1: General characteristics and Classification up to Classes	

	of Protista	
3.	UNIT 1: Structural organization & nutrition of <i>Euglena</i>	
4.	UNIT 1: Structural organization & nutrition of <i>Amoeba</i>	
5.	UNIT 1: Structural organization & nutrition of <i>Paramecium</i>	
6.	UNIT 1: Life cycle pathogenicity of <i>Plasmodium vivax</i>	
7.	UNIT 1: Locomotion in Animal protista (Protozoa)	
8.	UNIT 1: Reproduction in Animal protista (Protozoa)	
9.	UNIT 1: Evolution of symmetry and segmentation of Metazoa	
10.	UNIT 1: Evolution of symmetry and segmentation of Metazoa	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (CBCS)**

Paper Code: **ZC101P (Practical)**

Name of the Paper- **NON-CHORDATES I: PROTISTS TO PSEUDOCOELOMATES**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **07/27**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Study of whole mount of <i>Euglena</i> , <i>Amoeba</i> and <i>Paramecium</i> , Binary fission and Conjugation in <i>Paramecium</i>	
2.	UNIT 1: Study of whole mount of <i>Euglena</i> , <i>Amoeba</i> and <i>Paramecium</i> , Binary fission and Conjugation in <i>Paramecium</i>	
3.	UNIT 1: Study of whole mount of <i>Euglena</i> , <i>Amoeba</i> and <i>Paramecium</i> , Binary fission and Conjugation in <i>Paramecium</i>	
4.	UNIT 2: Examination of pond water collected from different	

	places for diversity in Animal protista (Protozoa)	
5.	UNIT 2: Examination of pond water collected from different places for diversity in Animal protista (Protozoa)	
6.	UNIT 2: Examination of pond water collected from different places for diversity in Animal protista (Protozoa)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (CBCS)**

Paper Code: **ZC102T (Theory)**

Name of the Paper- **PRINCIPLES OF ECOLOGY**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **14/53**

Class	Topic/ Unit	Remarks
1.	UNIT 1: History of ecology, Autecology and synecology, Levels of organization, Laws of limiting factors, Study of abiotic factors	
2.	UNIT 1: History of ecology, Autecology and synecology, Levels of organization, Laws of limiting factors, Study of abiotic factors	
3.	UNIT 1: History of ecology, Autecology and synecology, Levels of organization, Laws of limiting factors, Study of abiotic factors	
4.	UNIT 1: History of ecology, Autecology and synecology, Levels of organization, Laws of limiting factors, Study of abiotic factors	
5.	UNIT 2: Unitary and Modular populations	
6.	UNIT 2: Unique and group attributes of population: Density,	

7.	UNIT 2: Unitary and Modular populations Unique and group attributes of population: natality, mortality	
8.	UNIT 2: Unitary and Modular populations Unique and group attributes of population: life tables, fecundity tables	
9.	UNIT 2: Unitary and Modular populations Unique and group attributes of population: survivorship curves, age ratio, sex ratio	
10.	UNIT 2: Unitary and Modular populations Unique and group attributes of population: dispersal and dispersion	
11.	UNIT 2: Exponential and logistic growth,	
12.	UNIT 2: Equation and patterns, r and K strategies.	

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Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **1st Semester (CBCS)**

Paper Code: **ZC102P (Practical)**

Name of the Paper- **PRINCIPLES OF ECOLOGY**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **07/27**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Study of life tables and plotting of survivorship curves of different types from the hypothetical/real data provided.	
2.	UNIT 1: Study of life tables and plotting of survivorship curves of different types from the hypothetical/real data provided.	
3.	UNIT 1: Study of life tables and plotting of survivorship curves of different types from the hypothetical/real data provided.	
4.	UNIT 2: Report on a visit to National Park/Biodiversity Park/Wild life sanctuary/Reserved forest	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **301 (Theory)**

Name of the Paper- **Chordate Diversity and Comparative Anatomy**

Units Assigned- **Unit 4, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: General characters of Aves	
2.	UNIT 4: Classification of Aves upto super orders with examples	
3.	UNIT 4: Mechanisms of bird flight	
4.	UNIT 4: Perching mechanism in birds	
5.	UNIT 4: Flight adaptation in bird	
6.	UNIT 4: Migration in Birds	
7.	UNIT 5: Comparative Anatomy of Brain in Animals	
8.	UNIT 5: Comparative Anatomy of Brain in Animals	
9.	UNIT 5: Comparative Anatomy of Cranial Nerves in Animals	
10.	UNIT 5: Comparative Anatomy of Cranial Nerves in Animals	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **302 (Practical)**

Name of the Paper- **Chordate Diversity and Comparative Anatomy**

Units Assigned- **Unit 1, Unit 2, Unit 3, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
2.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
3.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
4.	UNIT 1: Identification of Vertebrate specimens with reasons (As per syllabus)	
5.	UNIT 2: Dissection: Weberian Ossicles of Carp fish	
6.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
7.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
8.	UNIT 3: Preparation of permanent slides & mounting of minimum five suitable slides of vertebrate's exoskeleton (scale, feather etc.)	
9.	UNIT 4: Study of vertebral column of mammals; pectoral and pelvic girdle of reptiles, bird and amphibian	
10.	UNIT 4: Study of vertebral column of mammals; pectoral and pelvic girdle of reptiles, bird and amphibian	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **303 (Theory)**

Name of the Paper- **Bioinstrumentation and Biostatistics**

Units Assigned- **Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: Principles and uses of Kymography	
2.	UNIT 4: microtomy and ultramicrotomy	
3.	UNIT 4: principles and practices of centrifugation	
4.	UNIT 4: principles and practices of autoradiography	

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Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **304 (Practical)**

Name of the Paper- **Bioinstrumentation and Biostatistics**

Units Assigned- **Unit 1**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Demonstration of instruments (As per syllabus)	
2.	UNIT 1: Demonstration of instruments (As per syllabus)	
3.	UNIT 1: Demonstration of instruments (As per syllabus)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **301 (Theory)**

Name of the Paper- **Chordate Diversity and Developmental Biology**

Units Assigned- **Unit 3, Unit 4**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: General characters of Aves	

2.	UNIT 3: Classification of Aves upto super orders with examples	
3.	UNIT 3: Beaks and Claws in Birds	
4.	UNIT 3: Perching mechanism in birds	
5.	UNIT 3: Flight adaptation in bird	
6.	UNIT 3: Migration in Birds	
7.	UNIT 4: Fertilization types	
8.	UNIT 4: Fertilization Mechanisms	
9.	UNIT 4: Parthenogenesis	

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Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **3rdSemester (Non-CBCS)**

Paper Code: **302 (Practical)**

Name of the Paper- **Chordate Diversity and Developmental Biology**

Units Assigned- **Unit 1, Unit 2, Unit 3, Unit 4**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Dissection: Efferent Branchial System of Carp fish	
2.	UNIT 2: Identification of Museum specimens (As per syllabus)	
3.	UNIT 2: Identification of Museum specimens (As per syllabus)	
4.	UNIT 2: Identification of Museum specimens (As per syllabus)	
5.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
6.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	
7.	UNIT 3: Preparation of Permanent slides with suitable vertebrate materials	

8.	UNIT 4: Study of Chick embryo development upto 72 hours	
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DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **501 (Theory)**

Name of the Paper- **Genetics and Evolution**

Units Assigned- **Unit 2, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Linkage	
2.	UNIT 2: Crossing over	
3.	UNIT 2: Basic knowledge of gene mapping	
4.	UNIT 5: Concept of population- gene pool	
5.	UNIT 5: Concept of population- gene frequency (Hardy- Weinberg law)	
6.	UNIT 5: Change in gene frequency (genetic drift)	
7.	UNIT 5: Change in gene frequency (gene flow)	
8.	UNIT 5: Change in gene frequency (genetic load)	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **502 (Practical)**

Name of the Paper- **Genetics and Evolution**

Units Assigned- **Unit 1**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Study of Chromosomal slides of suitable materials	
2.	UNIT 2: Study of Chromosomal slides of suitable materials	
3.	UNIT 2: Study of Chromosomal slides of suitable materials	
4.	UNIT 2: Study of Chromosomal slides of suitable materials	
5.	UNIT 2: Study of Chromosomal slides of suitable materials	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Honours**
Class/Semester- **5thSemester (Non-CBCS)**
Paper Code: **503 (Theory)**
Name of the Paper- **Animal Physiology**
Units Assigned- **Unit 4, Unit 5**
Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 4: Circulation- coronary circulation	
2.	UNIT 4: origin and conduction of cardiac impulse	
3.	UNIT 4: cardiac cycle	
4.	UNIT 4: Cardiac output and its regulation	
5.	UNIT 4: Disorders of cardio-vascular system	
6.	UNIT 4: Haemostasis	
7.	UNIT 4: Respiration- structure and functions of haemoglobin	
8.	UNIT 4: O ₂ and CO ₂ Transport by blood	
9.	UNIT 4: Regulation of respiration	
10.	UNIT 4: Carbon monoxide poisoning	
11.	UNIT 4: Tracheal respiration in insects	
12.	UNIT 5: Drug addiction and its physiological and social implications	
13.	UNIT 5: Drug addiction and its physiological and social implications	
14.	UNIT 5: Drug addiction and its physiological and social implications	

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Honours**
Class/Semester- **5thSemester (Non-CBCS)**
Paper Code: **504 (Practical)**
Name of the Paper- **Animal Physiology**
Units Assigned- **Unit 1, Unit 3**
Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Determination of RQ of Cockroach	
2.	UNIT 3: Preparation of Haemin crystals	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**
Course –Honours / Generic – **Honours**
Class/Semester- **5thSemester (Non-CBCS)**
Paper Code: **505 (Theory)**
Name of the Paper- **Environmental Biology and wildlife Biology**
Units Assigned- **Unit 1, Unit 3, Unit 5**
Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Concepts pertaining to ecosystem, species	
2.	UNIT 1: Community, biome and ecotone	
3.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
4.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
5.	UNIT 1: Biotic and abiotic environmental factors and their effect on animals	
6.	UNIT 3: Biogeochemical cycles (carbon)	
7.	UNIT 3: Biogeochemical cycles (Nitrogen)	
8.	UNIT 5: IUCN status of species category	
9.	UNIT 5: Important endangered species of N.E. India - rhinoceros	
10.	UNIT 5: Important endangered species of N.E. India - tiger	
11.	UNIT 5: Important endangered species of N.E. India - golden langur	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **506 (Practical)**

Name of the Paper- **Environmental Biology and Wildlife Biology**

Units Assigned- **Unit 2, Unit 6**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 2: Find out the abundance and density of insect pests in some essential food commodities	
2.	UNIT 6: Field study: To visit a National park/ Wildlife Sanctuary to	

	study the habitat/ forest types and prepare a full note on it.	
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DIGBOI COLLEGE, DIGBOI
Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**
 Course –Honours / Generic – **Honours**
 Class/Semester- **5thSemester (Non-CBCS)**
 Paper Code: **507 (Theory)**
 Name of the Paper- **Endocrinology**
 Units Assigned- **Unit 1, Unit 5**
 Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
2.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
3.	UNIT 1: Comparative anatomy of pituitary in fish, amphibia, birds and mammals	
4.	UNIT 5: Neuroendocrine system in insects	
5.	UNIT 5: Neuroendocrine system in insects	
6.	UNIT 5: Role of Hormones in growth and development of insects	
7.	UNIT 5: Role of Hormones in growth and development of insects	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Honours**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **508 (Practical)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 3**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Histological preparation of thyroid gland	
2.	UNIT 1: Histological preparation of thyroid gland	
3.	UNIT 1: Histological preparation of thyroid gland	
4.	UNIT 1: Histological preparation of thyroid gland	
5.	UNIT 3: Study of permanent slides of endocrine glands	
6.	UNIT 3: Study of permanent slides of endocrine glands	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **501 (Theory)**

Name of the Paper- **Molecular Biology**

Units Assigned- **Unit 3, Unit 5**

Marks Assigned- **12/48**

Class	Topic/ Unit	Remarks
1.	UNIT 3: Nucleic Acids	
2.	UNIT 3: DNA as a Genetic Material	
3.	UNIT 3: Structure and functions of DNA	
4.	UNIT 3: Structure and functions of RNA	
5.	UNIT 5: Genetic engineering	
6.	UNIT 5: Basic Steps in cloning	
7.	UNIT 5: Cloning Vectors	
8.	UNIT 5: Restriction Enzymes	

DIGBOI COLLEGE, DIGBOI

Course Plan

(July – December, 2019, Odd Semester)

Name of the Teacher- **Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester- **5thSemester (Non-CBCS)**

Paper Code: **502 (Practical)**

Name of the Paper- **Endocrinology**

Units Assigned- **Unit 1, Unit 2**

Marks Assigned- **08/32**

Class	Topic/ Unit	Remarks
1.	UNIT 1: Construction of Nucleotides using Ball and Stick Model	
2.	UNIT 2: Preparation of slides for study of Mitosis using suitable material	
3.	UNIT 2: Preparation of slides for study of Mitosis using suitable material	
4.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	
5.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	
6.	UNIT 2: Preparation of slides for study of Meiosis using suitable material	

COURSE PLAN

2020-21

**DEPARTMENT OF ASSAMESE,
DIGBOI COLLEGE**

COURSE PLAN FOR MAJOR COURSE (NON-CBCS & CBCS)

SESSION 2020-21

Course: Honour

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: C1

Unit Assignes: Unit-5 (Shankarottar Jug)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Sankarottar Jugar Patabhumi	
2	Sankarottar Jugar Sahityar Boishistya	
3	Bhattadevor chamu parichoy	
4	Bhattadevor Sahityakriti	
5	Bhattadevor gadya	
6	Charit Sahityor Utpatti	
7	charit Sahityar Chamu arichoy	
8	Gadya Charit	
9	Charit Puthir Bhasha	
10	Buranji Sahityar Utpatti	
11	Buranjir Gadya	
12	Byaboharik Sahityar Parichoy	
13	Bhattdevor Gadya, Charit Puthir Gadya aru Buranji Gadyar Tulona	
14	Revision	
15	Revision	
16	Revision	

Course: Honour

Class: BA 1st Semester

Name of the paper: History of Assamese Literature

Paper Code: C2

Unit Assignes: Unit-2 (Adhunik Asomiya Bhasha Sahityar Pratishtha)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Adhunik Asomiya Bhasha Sahityar Patabhumi	
2	Missionery Sakalor Asom Agomon	
3	Asomiya Bhashar Sankat kal	
4	Missioonerri sakalar Bhumika	
5	Arunody prakash	
6	Arunodyr Chrishtian likhok sakalor Parichoy Aru Abadan	
7	Arunodyr Asomiya Likhok sakalar Parichoy Aru Abadan	
8	Arunodyar Bhasha aru Gadya	
9	Hemchandra Baruar Parichoy	
10	Hemchandra Baruar Asomiya Sahityaloi Abadan	
11	Gunabhiram Baruar Parichoy	
12	Gunabhiram Baruar Asomiya Sahityaloi Abadan	
13	Revision	
14	Revision	
15	Revision	

Course: Honour

Class: BA 2nd Semester

Name of the paper: Poetics

Paper Code: C4

Unit Assignes: Unit-2 (Classicism, Mysticism, Romanticsm, Realism, Modernism)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Deinition of Classicism and its evolution	
2	characteristcs of Classicism	
3	differenes between Classicism neoclassicism and Romanticism	
4	Definition of Mysticism	
5	Characteristics of Mysticism	
6	Romanticism and its evolution	
7	Characteristics of Romanticism	
8	Definition of Realism and its evvolution	
9	Characteristics of realms	
10	Modernsm: its evolution	
11	Characteristics of modernism	
12	Revision	
13	Revision	
14	Revision	

Course: Honour

Class: BA 3rd Semester

Name of the paper: Literary Criticism

Paper Code: C5

Unit Assignes: Unit-1 (Definition of literature, Classification of Literature)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Definition of Literature	
2	Types of Literature	
3	Classification of Literature	
4	Inspiration of Literature	
5	Aim and objective of Literature	
6	Source of Literature	
7	Revision	
8	Revision	
9	Revision	
10	Revision	

Course: Honour

Class: BA 3rd Semester

Name of the paper: Literary Criticism

Paper Code: C5

Unit Assignes: Unit-3 (Bibhinna Sahitya Rupor Sanjnya aru swarup:
Poetry, Drama, One act play)

Marks Assign: 22

Class	Topic/Unit	Remarks
1	Definition of Poetry	
	Elemnts of Poetry	
2	Types of Poetry	
3	Definition of Drama	
4	Elements of Drama	
5	Types of Drama	
6	Origin o Drama: a short history	
7	Origin of One act Play	
8	Characteristics of One act Play	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Honour

Class: BA 4th Semester

Name of the paper: Selection from Assamese Prose

Paper Code: C 10

Unit Assignes: Unit-2 (Old Assamese Prose: Katha Gita, Tunkhungia Buranji, Guru Charit Katha – slected Prose)

Marks Assign: 14

Class	Topic/Unit	Remarks
1	Bhattadevor Chamu Paricoy	
2	Geetar chamu paricoy	
3	Katha Geetar tattik dish	
4	Bhattadevor Gadyar Boishistya	
5	Buranji Sahityar Utpatti aru Bikash	
6	Buranjir Gadya	
7	Tunkhungia Buranjir Bishoybastur alochona	
8	Charity Sahityar Utpatti aru Bikash	
9	Charit puthir Gadya	
10	Nirbachito pathyanshor alochona	
11	Revision	
12	Revision	
13	Revision	
14	Revision	

Course: Honour

Class: BA 4th Semester

Name of the paper: Selection from Assamese Prose

Paper Code: C 10

Unit Assignes: Unit-3 (Orunudoy jugar Asomiya Gadya:Nirbachita Path
– Jatrikar Jatra, Asomiya lorar Mitra,)

Marks Assign: 14

Class	Topic/Unit	Remarks
1	Arunudoy jugar patabhumi	
2	Arunudoy just Bhasha are Gadya	
2	Jatrikar Jattrar alochona	
3	Anandaram Chemical Phukanar Chamu Parichoy	
4	Asomiya lorar mitrar alochona	
5	Arunudoy jugar Sahityar Boishistya	
6	Arunudoy starar gadyariti	
7	Missionary Gadyar Boishistya	
8	Revision	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Honour

Class: BA 4th Semester

Name of the paper: Selection from Assamese Prose

Paper Code: C 10

Unit Assignes: Unit-4 (Jonaki jugar Gadya:Nirbachita Path – Bahire rongchong Bhitore Kuabhatouri, Dhanar Byabohar, Jatiya Choitanya, Satawan Sal)

Marks Assign: 14

Class	Topic/Unit	Remarks
1	Jonaki jugar patabhumi	
2	Hemchandra Baruar Sahitya kriti	
3	Hemchandra Baruar Gadyariti	
4	Bahire rongchong bhitore kuabhatourir alochona	
5	Satyanath Borar chamu porichoy	
5	Satyanath Borar gadyariti	
6	Dhanar byboharr alochona	
7	Banikanta Kakatir parichoy	
8	Banikanta Kakatir Gadyarti	
9	Jatiya Choitanya: eti Alochana	
10	Benudhar Rajkhuar chamu porichoy	
11	Satawan Saal: Eti Alochona	
12	BenudarRajkhuwar Gadyariti	
13	Jonakir Gadyar Boishistya	
14	Revision	
15	Revision	
16	Revision	
17	Revision	

Course: Honour

Class: BA 5th Semester

Name of the paper: Assamese Drama

Paper Code: C 11

Unit Assignes: Unit-1 (Assamese Drama: Short History)

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Background of Assamese Drama	
2	Assamese drama in 19th century	
3	Assamese drama in 20th century	
4	Assamese Drama in 20th century	
5	Post war Assamese drama	
6	Post war Assamese Drama	
7	Post war Assamese Drama	
8	Importance of stage in development of drama	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Honour

Class: BA 5th Semester

Name of the paper: Assamese Drama

Paper Code: C 11

Unit Assignes: Unit-4 (Modern Assamese Drama): Kukurnechia
Manuh, Dhantu Potantu)

Marks Assign: 24

Class	Topic/Unit	Remarks
1	Arun Sharma as a Dramatist	
2	Contribution of Arun Sharma to Assamese Drama	
3	Kukurnechia Manuh: an analytcal duscussion	
4	Main Character of Kukurnechia manuh	
5	Jugen Chetia as a dramatist	
6	Contribution of Jugen Chetia to Assamese Drama	
7	Dhantu Potantu: an analytical discussson	
8	Dhant Potantu as a one act play	
9	Characteristics of one act play	
10	Revision	
11	Revision	
12	Revision	
13	Revision	
14	Revision	

Course: Major - XI

Class: BA 6th Semester (Non-CBCS)

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit–2 (Electronic and Print Media, language of advertisement))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Definition of mass media	
2	Types of media	
3	Types of electronics media	
4	Types of print media	
5	Merits and demerits of electronic media	
6	Merits and demerits of print media	
7	Use of language in advertisement	
8	Revision	
9	Revision	
10	Revision	
11	Revision	
12	Revision	

Course: Major - XI

Class: BA 6th Semester (Non-CBCS)

Name of the paper: Bhasha Sahitya Adhyanar Bibhinna Dish

Paper Code: ASMM - 601

Unit Assignes: Unit-3 (Editing of Manuscript: Print and Hand written))

Marks Assign: 16

Class	Topic/Unit	Remarks
1	Preparation of manuscript	
2	Various process of manuscript editing	
3	Importance of manuscript editing	
4	Various sources of manuscript editing	
5	Problems in manuscript editing	
6	Revision	
7	Revision	
8	Revision	
9	Revision	

Course: Major - XII

Class: BA 6th Semester (Non-CBCS)

Name of the paper: Bharatiya Arya Bhasha Aru Asomiya Bhasha

Paper Code: ASMM - 602

Unit Assignes: Unit-5 (Asomiya Bhashar Bikash)

Marks Assign: 20

Class	Topic/Unit	Remarks
1	Origin of Assamese language	
2	Development of Assamese language	
3	Language in ancient Assam	
4	Language in medieval Assam	
5	Language in modern period of Assam	
6	Language in Arunudoy stage	
7	Language in Jonaki stage	
8	Post war Assamese language	
9	Assamse language in recent time	
10	Revision	
11	Revision	
12	Revision	
13	Revision	

DIGBOI COLLEGE, DIGBOI

COURSE PLAN (Jan'2020-June'2020)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –MIL .

Class/Semester - B A 4th Semester (Old) .

Name of the paper – ASM 401 (Selection from Assamese Literature) .

Units Assigned – Unit – 5

Marks Assigned - 15 Classes : 08

Class .	Topic/ Unit .	Remarks	
1	Novel : “Sansipator Puthi” By Trolokya Bhattacharya		

2	History of Assamese Novel		
3	About Trolokya Bhattacharya		
4	Theme of the Novel-1		
5	Theme of the Novel-2		
6	Characters Of The Novel-1		
7	Characters Of The Novel-2		
8	Language of the Novel		
9	Rivision		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN (Jan'2020-June'2020)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –MIL .

Class/Semester - B A 4th Semester (Old) .

Name of the paper – ASM 401 (Selection from Assamese Literature) .

Units Assigned – Unit – 5

Marks Assigned - 15 Classes : 08

Class .	Topic/ Unit .	Remarks	
1	Novel : “Sansipator Puthi” By Trolokya Bhattacharya		
2	History of Assamese Novel		
3	About Trolokya Bhattacharya		
4	Theme of the Novel-1		
5	Theme of the Novel-2		
6	Characters Of The Novel-1		
7	Characters Of The Novel-2		
8	Language of the Novel		
9	Rivision		

DIGBOI COLLEGE , DIGBOI

COURSE PLAN(Jan'2020-June'2020)

Name of the Teacher – DR . Mrinal Kumar Gogoi (ASSAMESE Dept.) .

Course - Honours /GENERIC –HONOURS .

Class/Semester - B A 2nd Semester (CBCS) .

Name of the paper – C-4 (Poetics) .

Units Assigned – Unit – 3 , 4 & 5 .

Marks Assigned - 16+16 +16 .

Class .	Topic/ Unit .	Remarks	
1	What is Poetics		
2	Relation between Alamkara and Chanda		
3	What is Alamkara and its definition		
4	Different types of Alamkara		
5	Different types of Sabdalamkara and Athalamkara -1		
6	Different types of Sabdalamkara and Athalamkara -2		
7	Sabdalamkara : Anupras, Jamak		
8	Sabdalamkara : Punaruktabadabhas		
9	Athalamkara : Upama, Rupak -1		
10	Athalamkara : Upama, Rupak -2		
11	Utpekhyā, Apohnuti		
12	Sandes, Otiyokti		
13	Samasokti, Byatirek etc		
14	What is Rhyme and Metre		
15	Elements of Rhyme		
16	Porba		
17	Charan		
18	Stobak		
19	Mora		
20	Assamese Rhyme and its Characters		
21	Different types of Assamese Rhyme		
22	Unit of Assamese Chanda-Riti		
23	Swarabritta, Matrabritta & Jaogik Riti		
24	Old Assamese Rhyme		
25	Muktak Chanda and its Characters-1		
26	Muktak Chanda and its Characters-2		
27	Amitakhyor Chanda-1		
28	Amitakhyor Chanda-2		
29	Revision		
30	Class test		

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dipesh Mandal

Course – Generic (GE-1)

Class/Semester- I

Name of the Paper – Byabaharik Gyan O Prayoger Sahitya .

Units Assigned : 1 & 3

Marks Assigned: 30 & 10

Class	Topic/ Unit	Remarks
B.A.SEM I (GE)	Unit : 1: Pratibedan Likhan O Paribhasha Prayog Unit: 3: Bangla Banan O Prayog (C.U.)	NIL

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dipesh Mandal

Course – Generic (GE-2)

Class/Semester- II

Name of the Paper: – Byaboharik Bhasa Likhan Kaushal

Units Assigned: 2 & 4

Marks Assigned: 20 & 15

Class	Topic/ Unit	Remarks
B.A. SEM II(GE)	Unit : 2: Karyalay Sankranta O anyanyo Likhan Kaushal, Unit : 4: Likhan Kaushal	NIL

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher:- Dipesh Mandal

Course – Generic (GE-3)

Class/Semester:-III

Name of the Paper:- Bangla Sanskriti O Anubad Sahitya

Unit Assigned: 1

Marks Assigned: 40

Class	Topic/ Unit	Remarks
B.A. SEM III(GE)	Unit: 1: Bangla Samajik O Sanskriti Parichay	NIL

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dipesh Mandal

Course –Generic : Generic (GE-4)

Class/Semester-IV

Name of the Paper – Banglabhashay Kalpa Bigyan Sahitya

Units Assigned:2

Marks Assigned: 50

Class	Topic/ Unit	Remarks
B.A. SEM IV (GE)	Unit: 2: Kalpabigyan Sahityer Path(Nirbachit)	NIL

COURSE PLAN

2020-21

**DEPARTMENT OF BOTANY,
DIGBOI COLLEGE**

Name: Dr. Dimpy Das

Course Plan; June 2020 to July 2021

Semester: 1st Semester (Honours)

Name of Paper: BC102T; Biomolecules and Cell Biology

Units Assigned: 3 (unit 1, 2,3)

Marks Assigned: 27

Class	Topic/Unit	Remarks
20	Unit 1: Biomolecules Types and significance of chemical bonds; structure and properties of water, pH and buffers Carbohydrates: nomenclature and classification; monosaccharides; disaccharides; oligosaccharides and polysaccharides. Lipids: Definition and major classes of storage and structural lipids; fatty acids structure and functions; essential fatty acids, triacyl glycerols structure, functions and properties, phosphoglycerides. Proteins: structure of amino acids; levels of protein structure- Primary, secondary, tertiary and quaternary; protein denaturation and biological roles of proteins. Nucleic acids: structure of nitrogenous bases; structure and function of nucleotides, types of nucleic acids, structure of A,B,Z types of DNA; types of RNA; structure of tRNA.	
4	Unit 2: Bioenergetics Laws of thermodynamics, concept of free energy, endergonic and exergonic reactions, coupled reactions, redox reactions, ATP structure, its role as a energy currency molecule.	
6	Unit 3: Enzymes Structure of enzymes, holoenzymes, apoenzymes, cofactors, coenzymes and prosthetic group. Classification of enzymes; features of active site, substrate specificity, mechanism of action (activation energy, lock and key hypothesis, induced-fit theory), Michaelis – Menten equation, enzyme inhibition and factors affecting enzyme activity.	

Semester: 1st Semester (Generic)

Name of Paper: BG101T; Biodiversity

Units Assigned: 2 (Unit 6,7)

Marks Assigned: 15

Class	Topics/Unit	Remarks
10	Unit 6: Bryophytes General characteristics, adaptations to land habit, classification, range of thallus organization. Classification (up to family), morphology, anatomy and reproduction of Marchantia and Funaria. Ecological and economic importance of bryophytes with special mention of Sphagnum.	

8	Unit 7: Pteridophytes General characteristics, classification, Early land plants (Cooksonia and Rhynia). Classification (up to family), morphology, anatomy and reproduction of Selaginella, Equisetum and Pteris. Heterospory and seed habit, stelar evolution. Ecological and economical importance of Pteridophytes.	
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Semester: 3rd Semester (Honours)

Name of Paper: BC306T; Economic Botany

Units Assigned: Whole paper

Marks Assigned: 53

Class	Topic/Unit	Remarks
6	Unit 1: Origin of cultivated plants Concept of centres of origin, their importance with reference to Vavilov's work. Indigenous Knowledge System (IKS). Examples of major plant introductions; crop domestication and loss of genetic diversity; evolution of new crops/varieties, importance of germplasm diversity.	
6	Unit 2: Cereals Wheat and rice (origin, morphology, processing and uses); brief account of wheat	
6	Unit 3: Legumes Origin, morphology and uses of chick pea, pigeon pea and fodder legumes. Importance to man and ecosystem.	
4	Unit 4: Sources of sugars and starches Morphology and processing of sugarcane, products and by-products of sugarcane industry. Potato – morphology, propagation and uses.	
6	Unit 5: Spices Listing of important spices, their family and part used. Economic importance with special reference to fennel, saffron, clove, cinnamomum, cardamom and black pepper.	
4	Unit 6: Beverages Tea, Coffee (morphology, processing and uses)	
8	Unit 7: Sources of oils and fats General description, classification, extraction, their uses and health implications groundnut, coconut, linseed, soybean, mustard and coconut (Botanical name, family and uses). Essential oils: general account, extraction methods, comparison with fatty oils and their uses.	
3	Unit 8: Natural rubber Para rubber; tapping, processing and uses.	
8	Unit 9: Drug-yielding plants Therapeutic and habit forming drugs with special reference to Cinchona, Rauwolfia, Andrographis, Aloe vera and Phyllanthus (Morphology, processing, uses and health hazards).	

3	Unit 10: Timber plants General account with special reference to teak, sal, pine and sisu.	
3	Unit 11: Fibres Classification based on the origin of fibres; cotton, coir and jute (morphology, extraction and uses)	
4	Unit 12: Aromatics and petrocrops General account and special reference to Aquilaria, Cymbopogon, Vetiveria, Jetropa, Ricinus, Pogostemon.	

Semester: 3rd Semester (Generic)

Name of Paper: BG303T; Plant anatomy and embryology

Units Assigned: 2 (Unit 6 and 7)

Marks Assigned: 10

Class	Topic/Unit	Remarks
8	Unit 6: Pollination and fertilization Pollination mechanisms and adaptations, double fertilization; seed structure appendages and dispersal mechanisms	
8	Unit 7: Embryo and endosperm Endosperm types, structure and functions; dicot and monocot embryo; embryo-endosperm relationship.	

Semester: 5th Semester (Major, Non CBCS)

Name of Paper: BOTMT 505; Functional and chemical biology

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
10	Unit 1: Concept of biomolecules, polymeric substances in plants- a brief study of polysaccharides, lipids, proteins, nucleic acids, chlorophylls with special reference to their functions	
4	Unit 2: Metabolic concept – anabolism and catabolism	
10	Unit 3: Secondary plant products- Terpenoids, phenols, flavonoids, anthocyanins, alkaloids, non-protein amino acids	
10	Unit 4: General account of – plant hormones and their role (Auxins, gibberellins, cytokinins, florigen, abscisic acid), phytochrome and storage products.	
3	Unit 5: Mechanism of source sink relationship	

Semester: 5th Semester (General, Non CBCS)

Name of Paper: BOTGT 501; Cytogenetics, evolution and biostatistics

Units Assigned: 3 (unit 2,3 and 4).

Marks Assigned: 30

Class	Topic/Unit	Remarks
15	Cytogenetics Unit 2: Concept of ploidy and its application, Mendel's laws, linkage, crossing over and chromosome mapping, concept of gene, allele and mutation.	
8	Unit 3: Knowledge of non-chromosomal inheritance, concept of genetic engineering and crop improvement.	
4	Unit 4: Concept of protoplast, cell and organ culture, tissue culture techniques and its application and somatic hybridization.	

Semester: 2nd Semester (Honours)

Name of Paper: Archegoniate

Units Assigned: 2 (Unit 4 and 5)

Marks Assigned: 15

Class	Topic/Unit	Remarks
6	Unit 4: Pteridophytes General characteristics, classification; early land plants (Psilophyton and Rhynia).	
14	Unit 5: Type studies – Pteridophytes Classification (up to family). Morphology, anatomy and reproduction of Psilotum, Selaginella, Equisetum and Ophioglossum, Marselia. Apospory and apogamy, heterospory and seed habit, telome theory, stelar evolution, Ecological and economic importance.	

Semester: 2nd Semester (Generic)

Name of Paper: Plant physiology and metabolism

Units Assigned: 2 (Unit 8 and 9)

Marks Assigned: 15

Class	Topic/Unit	Remarks
6	Unit 8: Plant growth regulators Discovery and physiological roles of auxins, gibberellins, cytokinins, ABA, ethylene.	Virtual seminar presentation on "Auxin and its physiological significance".
6	Unit 9: Plant response to light and temperature Photoperiodism (SDP, LDP, Day neutral plants); phytochrome (discovery and structure), red and far red light response on photomorphogenesis; Vernalization.	

Semester: 4th Semester (Honours)

Name of Paper: BC410T, Plant systematics

Units Assigned: Whole Paper

Marks Assigned: 53

Class	Topic/Unit	Remarks
12	Unit 1: Significance of plant systematic Introduction to systematic; kingdom concept, plant identification, classification, nomenclature. evidences from palynology, cytology, phytochemistry and molecular data; Field inventory; functions of herbarium, important herbaria and botanical gardens of the world and India, Virtual herbarium; E-flora; Documentation; flora, monographs, journals; Keys: single access and multi access.	
6	Unit 2: Taxonomic hierarchy Concept of taxa (family, genus, species); categories and taxonomic hierarchy; species concept (taxonomic, biological evolutionary).	
10	Unit 3: Morphology and botanical nomenclature Angiosperm morphology, principles and rules (ICN= International Code of Nomenclature of Algae, fungi and plants); Ranks and nams; typification, author citation, valid publication, rejection of names, principle of priority and its limitations; Names of hybrids.	Virtual seminar presentation on "Principles of ICN of algae, fungi and plants".
12	Unit 4: Systems of classification Major contributions of Theophrastus, Bauhin, Tournefort, Linnaeus, Adanson, de Candolle, Bessey, Hutchinson, Takhtajan and Cronquist; Classification systems of Bentham and Hooker (up to series), Engler and Prantl (up to series); Brief reference of Angiosperm Phylogeny Group (APG III) classification.	
10	Unit 5: Biometrics, numerical taxonomy and cladistics Characters; variations; OTUs, character weighting and coding; cluster analysis; phenograms, cladograms (definitions and differences)	
12	Unit 6: Phylogeny of Angiosperms Terms and concepts (primitive and advanced, homology and analogy, parallelism and convergence, monophyly, paraphyly, polyphyly and clades). Origin and evolution of life (mechanism and theories), Origin and evolution of angiosperms; co-evolution of angiosperms and animals; Methods of illustrating evolutionary relationship (phylogenetic tree, cladogram).	

Semester: 4th Semester (Generic)

Name of Paper: BG404T, Plant ecology and taxonomy

Units Assigned: 7 (Unit 6, 7, 8, 9, 10, 11 and 12)

Marks Assigned: 30

Class	Topic/Unit	Remarks
2	Unit 6: Introduction to plant taxonomy Identification, classification, nomenclature.	
4	Unit 7: Identification Functions of herbarium, important herbaria and botanical gardens of the world and India; Documentation: Flora, Keys: single access and multi access	
6	Unit 8: Taxonomic evidences from palynology, cytology, phytochemistry and molecular data.	
2	Unit 9: Taxonomic hierarchy Ranks, categories and taxonomic groups	
6	Unit 10: Botanical nomenclature Principles and rules (ICN); ranks and names; binomial system, typification, author citation, valid publication, rejection of names, principle of priority and its limitatuins.	
6	Unit 11: Classification Types of classification – artificial, natural and phylogenetic. Bentham and Hooker (up to series), Engler and Prantl (up to series).	
4	Unit 12: Biometrics, numerical taxonomy and cladistics Characters; variations; OTUs, character weighting and coding; cluster analysis; phenograms, cladograms (definitions and differences)	

Semester: 6th Semester (Major)

Name of Paper: Biophysics and Bioinformatics

Units Assigned: Whole Paper

Marks Assigned: 48

Class	Topic/Unit	Remarks
3	Biophysics Unit 1: Scope and development of biophysics. pH and buffer solution in details.	
4	Unit 2: Laws of thermodynamics, concept of free energy, redox potential and bioenergetics (only high energy compound).	
8	Unit 3: X-ray crystallography (XRD), Chromatography, laser and its biological applications. Florescence and its application, basic concept of NMR and ultra sound.	
3	Unit 4: Isotopes, types, their importance in biological studies, measure of radioactivity.	Virtual seminar presentation on "Radioisotopes- its importance in biological studies".
4	Bioinformatics Unit 1: Fundamentals of bioinformatics: introduction, history and scope of bioinformatics, sources of information, internet, world wide web and web brouers.	
6	Unit 2: Biological database: introduction, basic concepts of	

	primary and secondary databases; nucleic acid and protein sequence database (NCBI, genbank and SWISS-PROT); data mining and data mining tools (ENTREZ).	
8	Unit 3: Database search and sequence alignment, tools of sequence alignment – FASTA and BLAST; methods of sequence alignment.	
5	Unit 4: Phylogenetic analysis: basic concept, steps in evaluation of phylogeny and constructing phylogenetic trees.	

Semester: 6th Semester (General)

Name of Paper: BOTGT 601; Biochemistry, plant ecology and plant geography

Units Assigned: 2 (Unit 1 and 2)

Marks Assigned: 16

Class	Topic/Unit	Remarks
8	Biochemistry Unit 1: Basic principles of biochemistry, acid, base, pH and buffer (inorganic and organic) enzymes, (physiological properties), vitamins and coenzymes and their importance.	
12	Unit 2: General account of carbohydrates, fats, proteins, nucleic acids and their importance.	Virtual seminar presentation on “RNA its types and functions”.

Course plan August to December 2020

Course- Honours

Class: 1st Semester

Name of the paper: Core Course-102

Units Assigned: Unit 4, 5 & 6

Marks Assigned: 26

Class	Unit/Course	
	Unit 4: The cell, Cell wall and plasma membrane	30 classes
	Cell as a unit of structure and function;	
1	Cell theory and its exception;	
2	Characteristics of prokaryotic and eukaryotic cells;	

3	Origin of eukaryotic cell (End symbiotic theory); Chromosome (types, structure and function).	
4	Chemistry, structure and function of Plant cell wall.	
5	Overview of membrane function; fluid	
6	mosaic model;	
7	Chemical composition of membranes;	
8	Membrane transport – Passive, active and	
	facilitated transport, endocytosis and	
	exocytosis.	
	Unit 5: Cell organelles	
	Nucleus: Structure-nuclear envelope,	
	nuclear pore complex, nuclear lamina,	
1	molecular organization of chromatin;	
2	nucleolus.	
3	Cytoskeleton: Role and structure of	
4	microtubules, microfilaments and	
	intermediary filament.	
	Chloroplast, mitochondria and	
5	peroxisomes: Structural	
6	organization;	
	Function; Semiautonomous nature	
	of mitochondria and chloroplast.	
	Endomembrane system: Endoplasmic	
7	Reticulum –	
8	Structure, targeting and insertion of	
	proteins in the ER, protein folding,	
9	processing;	
	Smooth ER and lipid synthesis, export	
	of proteins and lipids; Golgi Apparatus	

10	– organization,	
11	protein glycosylation, protein sorting and export from Golgi Apparatus; Lysosomes	
	Unit 6: Cell division	
12	Phases of eukaryotic cell cycle,	
13	mitosis and	
14	meiosis;	
15	Regulation of cell cycle-	
16	checkpoints, role of protein kinases.	

Course- GE

Class: 1st Semester

Name of the paper: Generic elective-101

Units Assigned: Unit 2&4

Marks Assigned:10

Class	Unit/Course	Remarks
1 st Sem(GE)	Unit 2: Algae (10 lectures) General characteristics; Ecology and distribution; Range of thallus organization and reproduction;	Total 12 classes
1		
2		
3		

4	Classification of algae;	
5	Morphology and life-cycles of the	
6	following: <i>Nostoc</i> ,	
7	<i>Chlamydomonas</i> ,	
8	<i>Oedogonium</i> , <i>Vaucheria</i> ,	
9	<i>Fucus</i> , <i>Polysiphonia</i> .	
10	Economic importance of algae.	
	Unit 4: Lichen	
	(2 lectures)	
	General account,	
11	types and importance	
12		

Course- Honours

Class: 3rd Semester

Name of the paper: -C-VII(Genetics)

Units Assigned: Unit1,2,3,4,5,6&7

Marks Assigned:48

Class	Unit/Course	Remark
	Unit 1: Mendelian genetics and its extension	Total 59 classes
1	Mendelism: History; Principles of inheritance;	

2	Chromosome theory of inheritance;	
3	Autosomes and sex chromosomes,	
4	euchromatin & herterochomatin;	
5	Probability and pedigree analysis;	
6	Incomplete dominance and	
7	codominance;	
8	Multiple alleles,	
9	Lethal alleles, Epistasis,	
10	Pleiotropy,	
11	Recessive and Dominant traits,	
12	Penetrance and Expressivity,	
13	Numericals;	
14	Polygenic inheritance.	
15		
16	Unit 2: Extrachromosomal Inheritance	
	Chloroplast mutation:	
	Variegation in Four o'clock plant;	
17	Mitochondrial mutations in yeast;	
18	Maternal effects-	
19	shell coiling in snail; Infective heredity-	
20	Kappa particles in <i>Paramecium</i> .	
21		
22	Unit 3: Linkage, crossing over and chromosome mapping	
	Linkage and	
	crossing over-	

23	Cytological basis of crossing over;	
24	Recombination frequency,	
25	two factor and	
26	three factor crosses;	
27	Interference and coincidence;	
28	Numericals based on gene mapping;	
29	Sex Linked,	
30	sex-limited and	
31	sex-influence traits	
32	Unit 4: Variation in chromosome	
33	number and structure	
34	Deletion,	
	Duplication,	
	Inversion,	
	Translocation,	
	Position effect,	
35	Euploidy and	
36	Aneuploidy,	
36	hereditary abnormalities in human due to aneuploidy	
37		
38	Unit 5: Fine structure of gene	
39		
40	Classical vs	
	molecular concepts of gene;	
	Cis-Trans complementation	
	test for functional allelism;	

	Structure of Phage	
41	T4, rII Locus.	
42		
43	Unit 6: Gene mutations	
44		
45	Types of mutations;	
46	Molecular basis of Mutations; Mutagens	
	—	
	physical and chemical (Base analogs,	
	deaminating, alkylating and	
	intercalating agents);	
	Detection of mutations: CIB method.	
47	Role of Transposons in mutation.DNA	
48	repair mechanisms.	
49		
50		
51	Unit 7. Population and Evolutionary	
	Genetics	
52		
	Allele frequencies,	
	Genotype frequencies,	
	Hardy-Weinberg Law,	
	role of natural selection,	
	mutation, genetic drift.	
53	Genetic variation and	
54	Speciation.	
55		
56		
57		

58		
59		

Course- Generic Elective

Class: 3rd Semester

Name of the paper: -GE301

Units Assigned: Unit1&2

Marks Assigned:13

Class	Unit/Course	Remarks
	Unit 1: Introduction (2 lectures)	10 classes
	Unit 2: Ecological factors (10 lectures)	
1	Soil: Origin,	
2	formation, composition,	
3	soil profile.	
4	Water: States of water in the environment,	
5	precipitation types.	
6	Light and temperature:	
7	Variation Optimal and	
8	limiting factors;	
9	Shelford law of tolerance.	
10	Adaptation of hydrophytes and xerophytes	

Course- Major

Class: 5th Semester

Name of the paper: 503(Genetics)

Units Assigned: Unit4,5&6

Marks Assigned:48

Class	Unit/Course	Remark
1	Genetics;Unit-1;	Total 35 classes
2	Mendel's laws, there critical appreciation,	
3	gene interactions and modified	
4	monohybrid and dihybrid ratios ;	
5	concept of alleles, multiple alleles,	
6	Linkage, crossing over and	
7	basic knowledge of gene mapping.	
8	Unit-2:	
9	Determination of sex, Sex linked and	
10	Sex limited traits. Cytoplasmic inheritance	
11	with reference to plastid inheritance and	
12	kappa particles inheritance.	
13	Unit-3:	
14	Chromosomal Mutation(Numerical	
15	&Structural) and Gene mutation,	

16	concept of biochemical mutation.	
17	Unit-4: Basic ideas of Gene and	
18	its fine structure, Genetic engineering and gene cloning concept.	
19	Unit-5: Human genetics, Karyotype, important Symptoms and disorders.	
20	Plant breeding; Unit-1Methods of reproduction, Sexual , vegetative ,	
21	apomixis, Principles and methods of Plant Breeding-Introduction,	
22	Selection, Hybridization,	
23	Heterosis breeding and concept of	
24	mutation breeding.	
25	Unit-2: In-vitro culture, requirements, techniques	
26	application in crop improvement.	
27	Biostatistics: Unit-1:	
28	Application of statistics in Biological Science,	
29	collection and classification of data for	
30	frequency distribution.	
31	Unit -2: Measurement of central Tendency,	
32	Mean, Median, Mode,	
33	Standard error and standard deviation.	
34	Unit-3: Test of significance and Probability test.	

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Course Plan(Jan-June)2021

Course-Honours

Class: 2nd Semester

Name of the paper: C-IV (Archegoniate)

Units Assigned: Unit-2,3

Marks Assigned:10

Class	Unit/Course	Remarks
	Unit-2:	Total 23 classes
1	General characteristics;	
2	Adaptations to land habit;	
3	Classification;	
4	Range of thallus organization.(6-lectures)	
5 &6	Unit-3: Type Studies- Bryophytes (12 lectures)	
	Classification (up to family),	
	morphology, anatomy and	
7	reproduction of <i>Riccia</i> ,	
8		
9	<i>Marchantia</i> , <i>Pellia</i> ,	
10	<i>Porella</i> , <i>Anthoceros</i> ,	
11	<i>Sphagnum</i> , <i>Funaria</i> and	

12		
13	<i>Polytrichum</i> ; Reproduction and	
14	evolutionary trends in	
15	<i>Riccia</i> , <i>Marchantia</i> ,	
16	<i>Anthoceros</i> and	
17	<i>Funaria</i> (developmental stages not	
18	included).	
19	Ecological and	
20	economic importance of bryophytes with	
21	special reference to <i>Sphagnum</i> .	
22		
23		

Course-Generic elective

Class: 2nd Semester

Name of the paper: GE-II(Plant physiology)

Units Assigned: Unit-4

Marks Assigned

Class	Unit/Course	Remarks
1 2 3 4 5 6 7 8	Unit 1: Plant-water relations Importance of water, water potential and its components; Transpiration and its significance; Factors affecting transpiration; Root pressure and guttation.	

Course-Honours

Class: 4th Semester

Name of the paper: -C-VIII(Molecular Biology)

Units Assigned: Unit-1,2,3,4,5&6

Marks Assigned:53

Class	Unit/Course	Remarks
1 2 3	Unit 1: Nucleic acids : Carriers of genetic information Historical perspective; DNA as the carrier of genetic information (Griffith's,	49 classes

4	Hershey & Chase, Avery, McLeod & McCarty	
5	Unit 2. The Structures of DNA and RNA / Genetic Material	
6	DNA Structure: Miescher to Watson and Crick-	
7	historic perspective, DNA structure,	
8	Salient features of double helix,	
9	Types of DNA (DNA, RNA),	
10	Types of genetic material, denaturation and	
11	renaturation,; Organization of DNA-	
12	Prokaryotes, Viruses,	
13	Eukaryotes.RNA	
14	Structure Organelle DNA -- mitochondria and chloroplast DNA.	
15	Unit 2:The replication of DNA	
16	Chemistry of DNA synthesis (Kornberg's discovery);	
17	General principles – bidirectional,	
18	semi-conservative and	
19	semi discontinuous replication,	
20	RNA priming;	

21	Various models of DNA replication,	
22	including rolling circle,	
23	θ (theta) mode of replication,	
24	replication of linear ds-DNA.	
25		
	Unit 3: Central dogma and genetic code	
	Key experiments establishing-The Central Dogma (Adaptor hypothesis and discovery of mRNA template),	
26	Genetic code; experimental proof of triplet codon (deciphering & salient features)	
27		
	Unit 4: Transcription	
	Transcription in prokaryotes and eukaryotes.	
28	Principles of transcriptional regulation;	
29	Prokaryotes: lac operon in <i>E.coli</i> .	
30	Eukaryotes: transcription factors,	
31	Gene silencing.	
32		
33	Unit 5: Processing and modification of RNA	
	Split genes-concept of introns and exons,	
	removal of introns,	
34	spliceosome machinery,	

35	splicing pathways, group I and	
36	group II intron splicing,	
37	eukaryotic mRNA processing(5' cap, 3'	
38	polyA tail);	
39	Ribozymes;	
40	RNA editing; mRNA transport.	
41	Unit 6: Translation	
	Ribosome structure and assembly,	
	mRNA; Charging of tRNA,	
	aminoacyl tRNA synthetases;	
42	Various steps in protein synthesis,	
43	proteins involved in initiation,	
44	elongation and	
45	termination of polypeptides;	
46	Fidelity of translation; Inhibitors of	
47	protein synthesis;	
48	Post-translational modifications of	
49	proteins.	

Course-Generic elective

Class: 4th Semester

Name of the paper:Plant Physiology

Units Assigned: Unit-1

Marks Assigned:7

Class	Unit/Course	Remarks
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	Unit 4: Ecosystem (8 lectures)	Total 8 classes
1	Structure; energy flow trophic organisation;	
2	Food chains and food webs,	
3	Ecological pyramids production and productivity;	
4	Biogeochemical cycling;	
5	Cycling of carbon,	
6	nitrogen and	
7	phosphorous	
8		

Course-Major

Class: 6th Semester

Name of the paper: Molecular Biology

Units Assigned: Unit-7

Marks Assigned:48

Class	Unit/Course	Remarks
6 th Sem.Major	Molecular Biology;Unit-1: Nucleic acids,DNA as genetic material,structure and functions of DNA &RNA, Watson & Crick Model of DNA,other form of DNA(A&Z),Genome organization in prokaryotes and eukaryotes. Unit-2: Replication of DNA-prokaryotes and eukaryotes.	

	<p>Unit-3:Features of genetic code,wobble hypothesis,protein biosynthesis in prokaryotes and eukaryotes.</p> <p>Unit-4: Recombination in prokaryotes,Transformation,Conjugation and Transduction;Concept of Transposons and Plasmids.</p> <p>Unit-5: Regulation of gene expression in prokaryotes-operon concept(Lac)</p> <p>Immunology;Unit-1: Plant health management.</p> <p>Unit-2: Immunity and resistant in mammals,principle of antigens and antibody reactions.</p> <p>Unit-3: Interaction of plant with bacteria,virus and fungi;breeding for disease resistance,environment and immunity,Laws in the distribution of immunity from infectious diseases in plants</p>	
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Course-General

Class: 6th Semester

Name of the paper: Plant Ecology

Units Assigned: Unit-5

Marks Assigned:7

Class	Unit/Course	Remarks
6 th Sem.General	<p>Plant Ecology,Unit-5:</p> <p>Pollution:Air ,Water,Soil,Global Climate Change:Green house effect,Ozone Depletion,Acid rain,Deforestation and</p>	

	Consequences of Deforestation. Plant Geography:Unit-2: Endemism and Endemic flora-a general account.	
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Course Plan(August to December,2021

Course-Honours

Class: 1st Semester

Name of the paper: C-102

Units Assigned: Unit-4,5,6&7

Marks Assigned:26

Class	Unit/Course	Remarks
	Unit4: The cell, Cell wall and plasma membrane	
	Cell as a unit of structure and function;	
1	Cell theory and its exception;	
2	Characteristics of prokaryotic and eukaryotic cells;	
3	Origin of eukaryotic cell (End symbiotic theory); Chromosome (types, structure and function).	
4	Chemistry, structure and function of Plant cell wall.	
5		
6	Overview of membrane function; fluid mosaic model;	
7	Chemical composition of membranes;	
8	Membrane transport – Passive, active and facilitated transport, endocytosis and exocytosis.	
	Unit 5: Cell organelles	

	<p>Nucleus: Structure-nuclear envelope, nuclear pore complex, nuclear lamina, molecular organization of chromatin; nucleolus.</p> <p>Cytoskeleton: Role and structure of microtubules, microfilaments and intermediary filament.</p> <p>Chloroplast, mitochondria and peroxisomes: Structural organization;</p> <p>Function; Semiautonomous nature of mitochondria and chloroplast.</p> <p>Endomembrane system:</p> <p>Endoplasmic Reticulum – Structure, targeting and insertion of proteins in the ER, protein folding, processing;</p> <p>Smooth ER and lipid synthesis, export of proteins and lipids;</p> <p>Golgi Apparatus – organization, protein glycosylation, protein sorting and export from Golgi Apparatus;</p> <p>Lysosomes</p> <p>Unit 6: Cell division</p> <p>Phases of eukaryotic cell cycle, mitosis and meiosis;</p> <p>Regulation of cell cycle-checkpoints,</p>	
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	role of protein kinases.	
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Course-Generic elective

Class: 1st Semester

Name of the paper: C-101

Units Assigned: Unit-2&4

Marks Assigned:10

Class	Unit/Course	Remarks
1 st Sem(GE)	<p>Unit 2: Algae</p> <p>(10 lectures)</p> <p>General characteristics; Ecology and distribution; Range of thallus organization and reproduction; Classification of algae; Morphology and life-cycles of the following: <i>Nostoc</i>,</p> <p><i>Chlamydomonas</i>, <i>Oedogonium</i>, <i>Vaucheria</i>, <i>Fucus</i>, <i>Polysiphonia</i>. Economic importance of algae.</p> <p>Unit 4: Lichen</p> <p>(2 lectures)</p> <p>General account, types and importance</p>	

Course- Honours

Class: 3rd Semester

Name of the paper: C-VII(Genetics)

Units Assigned: Unit1,2,3,4,5,6&7

Marks Assigned:53

Class	Unit/Course	Remarks
	<p>Unit 1: Mendelian genetics and its extension</p> <p>Mendelism: History; Principles of inheritance; Chromosome theory of inheritance; Autosomes and sex chromosomes, euchromatin & heterochromatin; Probability and pedigree analysis; Incomplete dominance and codominance; Multiple alleles, Lethal alleles, Epistasis, Pleiotropy, Recessive and Dominant traits, Penetrance and Expressivity, Numericals; Polygenic inheritance.</p> <p>Unit 2: Extrachromosomal Inheritance</p> <p>Chloroplast mutation: Variegation in Four o'clock plant; Mitochondrial mutations in</p> <p>yeast; Maternal effects-shell coiling in snail; Infective heredity- Kappa particles in <i>Paramecium</i>.</p> <p>Unit 3: Linkage, crossing over and chromosome mapping</p> <p>Linkage and crossing over- Cytological basis of crossing over; Recombination frequency, two factor and three factor crosses; Interference and coincidence; Numericals based on gene mapping; Sex Linked, sex-limited and sex-</p>	

	<p>influence traits</p> <p>Unit 4: Variation in chromosome number and structure</p> <p>Deletion, Duplication, Inversion, Translocation, Position effect, Euploidy and Aneuploidy, hereditary abnormalities in human due to aneuploidy</p> <p>Unit 5: Fine structure of gene</p> <p>Classical vs molecular concepts of gene; Cis-Trans complementation test for functional allelism; Structure of Phage T4, rII Locus.</p> <p>Unit 6: Gene mutations</p> <p>Types of mutations; Molecular basis of Mutations; Mutagens – physical and chemical (Base analogs, deaminating, alkylating and intercalating agents); Detection of mutations: CIB method. Role of Transposons in mutation. DNA repair mechanisms.</p> <p>Unit 7. Population and Evolutionary Genetics</p> <p>Allele frequencies, Genotype frequencies, Hardy-Weinberg Law, role of natural selection, mutation, genetic drift. Genetic variation and</p>	
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	Speciation.	
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Course- Generic Elective

Class: 3rd Semester

Name of the paper: GE-301

Units Assigned: Unit1,&2

Marks Assigned:13

Class	Unit/Course	Remarks
	<p>Unit 1: Meristematic and permanent tissues (8 lectures)</p> <p>Root and shoot apical meristems; Simple and complex tissues</p> <p>Unit 2: Organs (4 lectures)</p> <p>Structure of dicot and monocot root stem and leaf.</p>	

Course- Honours

Class: 5th Semester

Name of the paper: Core Course-511

Units Assigned: Unit1,2,3,4,5,6&7

Marks Assigned:53

Class	Unit/Course	Remarks
5 th Sem.Honours	<p>Unit 1: Introduction</p> <p>History (contributions of G.B. Amici, W. Maheshwari, B.M. Johri, W.A. Jensen, J. Hofmeister, E. Strasburger, S.G. Nawaschin, P. Heslop-Harrison) and scope.</p> <p style="text-align: right;">(4 lectures)</p> <p>Unit 2: Reproductive development</p> <p>Induction of flowering; flower as a modified determinate shoot.</p> <p>Unit 3: Anther and pollen biology</p> <p>Anther wall: structure and functions, microsporogenesis, callose deposition and its significance. Microgametogenesis; pollen wall structure, MGU (male germ unit) structure, NPC system; palynology and scope (a brief account); pollen wall proteins; pollen viability, storage and germination.</p> <p>Unit 4: Ovule</p> <p>Structure; types; special structures—endothelium,</p>	

	<p>obturator, aril, caruncle and hypostase; female gametophyte– megasporogenesis (monosporic, bisporic and tetrasporic) and megagametogenesis (details of <i>Polygonum</i> type).</p> <p>Unit 4: Pollination and fertilization</p> <p>Pollination types and significance; adaptations; structure of stigma and style; path of pollen tube in pistil; double fertilization.</p> <p>Unit 5: Self incompatibility</p> <p>Basic concepts (interspecific, intraspecific, homomorphic, heteromorphic, GSI and SSI); Methods to overcome self- incompatibility: mixed pollination, bud pollination, stub pollination.</p> <p>Unit 6: Embryo, Endosperm and Seed</p> <p>Structure and types; general pattern of development of dicot and monocot embryo and endosperm; suspensor: structure and functions; embryo-endosperm relationship; nutrition of embryo; unusual features; embryo development in <i>Paeonia</i>. seed structure, importance and dispersal mechanisms</p> <p>Units 7: Polyembryony, apomixes and parthenocarpy Introduction; classification; causes and applications.</p>	
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	(6 lectur	
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MSC 1st Semester

Paper Name:DSE-106 cyto-genetics and crop improvement

Units Assigned: Unit1,2,3,4,5,6

Marks Assigned:100

MSc 1 st Sem.	Units/course	Remarks
1	Unit1: Cell theory and exceptions, Gross structure and chemistry of eukayotic and prokaryotic	Total 21 classes
2	chromosomes, specialized chromosomes and their cytogenetic significances, mitotic	
3	apparatus. Synaptenemal complex, chromosome theory of inheritance, concept of	
4	karyotype and idiogram.	
5	Unit 2: Polygenic inheritance: Previous knowledge of mendelism and modifications,	
6	inheritance of kernal colour of wheat, corolla length in tobacco, transgressive	
7	variation.	
8	Unit 3: Multiple alleles: alleles, multiple alleles and isoalleles, sexual incompatibility in	
9	plants, blood group alleles in man,	
10	multiple alleles and complex loci.	
	Unit 4:	

12	Linkage, recombination and gene mapping: Morgan's works on Drosophila, Coupling	
14	and repulsion hypothesis, cytological evidence of crossing over, gene mapping, interference and coincidence.	
15	Unit 5: Genetical control of sex: Chromosomal basis of sex determination, balanced theory of	
16	sex determination, environmental and hormonal control of sex, concept of sex linked,	
17	sex limited and sex influenced characters.	
18	Unit 6: Extranuclear transmission of traits; maternal effect and maternal inheritance, Killer trait	
19	in paramecium, Co ₂ sensitivity in Drosophila, plastid inheritance and male sterility in	
20	plants, organeller genetics - episomes, mitochondria and chloroplast.	
21		

DIGBOI COLLEGE, DIGBOI
Course Plan(2020-2021)
SESSION JUN,2020 TO DEC,2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – 1S HONOURS

Class/Semester- 1st Sem Honours, CBCS

Name of the Paper- C- 101

Units Assigned- All

Marks Assigned-53

Class	Topic/ Unit	Remarks
1.	Unit I: Atomic Structure Wave mechanics: Bohr's Theory de Broglie equation	
2.	Heisenberg's Uncertainty Principle and its significance	
3.	Schrödinger's wave equation	
4.	Normalized and orthogonal wave functions. Sign of wave functions.	
5.	Radial and angular wave functions for hydrogen atom.	
6.	Radial and angular distribution curves.	
7.	Shapes of s, p, d and f- orbitals.	
8.	Contour boundary and probability diagrams.	
9.	Pauli's Exclusion Principle, Hund's rule of maximum multiplicity	
10.	Aufbau's principle and its limitations.	
11.	Variation of orbital energy with atomic number	
12.	Numericals	
13.	significance of Ψ and Ψ^2 .	
14.	Quantum numbers and their significance.	
15.	Unit II: Periodicity of Elements: Effective nuclear charge, shielding or screening effect	
16.	Variation of effective nuclear charge in periodic table.	
17.	Slater rules, It's applications	
18.	Atomic radii (van der Waals) and it's periodic variation	
19.	Ionic and crystal radii. Covalent radii (octahedral and tetrahedral)	
20.	Ionization enthalpy. Applications of ionization enthalpy.	

21.	Successive ionization enthalpies and factors affecting ionization energy.	
22.	Electron gain enthalpy, trends of electron gain enthalpy.	
23.	Electronegativity and its periodic trend	
24.	Pauling's electronegativity scales, Numericals	
25.	Mulliken's electronegativity scales, Numericals	
26.	Allred Rachow's electronegativity scales, Numericals	
27.	Mulliken-Jaffé's electronegativity scales	
28.	Factors affecting Electronegativity	
29.	Applications of Electronegativity	
30.	Unit III: Chemical Bonding i) <i>Ionic bond</i> : General characteristics, types of ions, size effects	
31.	radius ratio rule and its limitations.	
32.	Packing of ions in crystals.	
33.	Lattice energy, Born-Lande's equation with derivation, Madelung constant	
34.	Born-Haber cycle and its application, Solvation energy.	
35.	<i>Covalent bond</i> : Lewis structure, Valence Bond theory (Heitler-London approach).	
36.	Energetics of hybridization, equivalent and non-equivalent hybrid orbitals.	
37.	Resonance and resonance energy,	
38.	Molecular orbital theory. Molecular orbital diagrams of diatomic molecules N ₂	
39.	Molecular orbital diagrams of O ₂ , C ₂ , B ₂ , F ₂ , CO, NO, and their ions; HCl, BeF ₂	
40.	Molecular orbital diagrams of simple polyatomic molecules CO ₂ , (idea of s-p mixing and orbital interaction to be given).	
41.	Formal charge, Valence shell electron pair repulsion theory (VSEPR)	
42.	Shapes of simple molecules and ions containing lone pairs and bond pairs of electrons.	
43.	Multiple bonding (σ - and π - bond approach) and bond lengths.	
44.	Covalent character in ionic compounds, polarizing power and polarizability	
45.	Fajan's rules and consequences of polarization.	
46.	Ionic character in covalent compounds: Bond moment and dipole moment.	
47.	Percentage ionic character from dipole moment	

	and electronegativity difference.	
48.	<i>Metallic Bond</i> : Qualitative idea of valence bond	
49.	Band theories.	
50.	Semiconductors and insulators,	
51.	Defects in solids.	
52.	<i>Weak Chemical Forces</i> : van der Waals forces, ion-dipole forces, dipole-dipole interactions	
53.	Induced dipole interactions, Instantaneous dipole-induced dipole interactions	
54.	Hydrogen bonding (theories of hydrogen bonding, valence bond treatment).	
55.	Unit IV: Oxidation-Reduction : Redox equations	
56.	Standard Electrode Potential and its application to inorganic reactions.	
57.	Principles involved in volumetric analysis	

DIGBOI COLLEGE, DIGBOI

Course Plan Session-Jun to Dec,2020

Name of the Teacher-Neelakshi Hazarika

Course –Honours / Generic – Generic

Class/Semester- 1s Semester CBCS, C-Ge-101

Name of the Paper-Atomic Structure, Bonding,General Organic Chemistry and Aliphatic Hydrocarbons

Units Assigned- Section A: Inorganic Chemistry (Unit :I, II)

Marks Assigned- 26

Class	Topic/ Unit	Remarks
1.	Unit I: Atomic Structure Review of: Bohr's theory and its limitations	
2.	Dual behaviour of matter and radiation:de-Broglie's relation, Heisenberg Uncertainty principle.	
3.	Hydrogen atom spectra. Need of a new approach to Atomic structure	
4.	Quantum mechanics, Time independent Schrodinger equation and meaning of various terms in it.	
5.	Significance of Ψ and Ψ^2 .	
6.	Schrödinger equation for hydrogen atom	

7.	Radial and angular parts of the hydrogenic wave functions (atomic orbitals) and their variations for 1s, 2s, 2p, 3s, 3p and 3d orbitals (Only graphical representation).	
8.	Radial and angular nodes and their significance.	
9.	Radial distribution functions and the concept of the most probable distance with special reference to 1s and 2s atomic orbitals.	
10.	Significance of quantum numbers	
11.	Orbital angular momentum and quantum numbers m_l and m_s .	
12.	Shapes of s, p and d atomic orbitals, nodal planes	
13.	Discovery of spin, spin quantum number (s) and magnetic spin quantum number (m_s).	
14.	Rules for filling electrons in various orbitals, Electronic configurations of the atoms.	
15.	Stability of half-filled and completely filled orbitals, concept of exchange energy.	
16.	Relative energies of atomic orbitals, Anomalous electronic configurations	
17.	Unit II: Chemical Bonding and Molecular Structure Ionic Bonding: General characteristics of ionic bonding.	
18.	Energy considerations in ionic bonding, lattice energy and solvation energy and their importance in the context of stability and solubility of ionic compounds.	
19.	Statement of Born-Landé equation for calculation of lattice energy,	
20.	Born-Haber cycle and its applications,	
21.	Polarizing power and polarizability	
22.	Fajan's rules, ionic character in covalent compounds,	
23.	Bond moment, dipole moment and percentage	

	ionic character.	
24.	Covalent bonding: VB Approach	
25.	Shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements.	
26.	Concept of resonance and resonating structures in various inorganic and organic compounds.	
27.	MO Approach: Rules for the LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combinations of atomic orbitals, nonbonding combination of orbitals	
28.	MO treatment of homonuclear diatomic molecules of 1st and 2 nd periods (including idea of s-p mixing) and heteronuclear diatomic molecules such as CO, NO and NO ⁺	
29.	Comparison of VB and MO approaches.	

DIGBOI COLLEGE, DIGBOI

Course Plan , Session JUN to DEC, 2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – HONOURS

Class/Semester- 3rd Semester, CBCS

Name of the Paper- Inorganic Chemistry

Units Assigned- All

Marks Assigned- 53

Class	Topic/ Unit	Remarks
1.	Unit I: General Principles of Metallurgy :Chief modes of occurrence of metals based on standard electrode potentials.	
2.	Ellingham diagrams for reduction of metal oxides using carbon and carbon monoxide as reducing agent.	
3.	Electrolytic Reduction,	

4.	Hydrometallurgy.	
5.	Methods of purification of metals: Electrolytic Kroll process,	
6.	Parting process, van Arkel-de Boer process	
7.	Mond's process, Zone refining	
8.	Unit II: Acids and Bases: Brönsted-Lowry concept of acid-base reactions, solvated proton.	
9.	relative strength of acids, types of acid-base reactions,	
10.	levelling solvents	
11.	Lewis acid-base concept,	
12.	Classification of Lewis acids,	
13.	Hard and Soft Acids and Bases (HSAB) Application of HSAB principle	
14.	Unit III: Chemistry of <i>s</i> and <i>p</i> Block Elements: Inert pair effect, Relative stability of different oxidation states	
15.	Diagonal relationship and anomalous behaviour of first member of each group. Allotropy and catenation.	
16.	Complex formation tendency of <i>s</i> and <i>p</i> block elements.	
17.	Study of the following compounds with emphasis on structure, bonding, preparation, properties and uses of Boric acid and borates	
18.	boron nitrides,	
19.	borohydrides (diborane),	
20.	Silanes	
21.	carboranes and graphitic compounds	
22.	Oxides and oxoacids of nitrogen, Phosphorus and chlorine.	
23.	Peroxoacids of sulphur, interhalogen compounds,	
24.	Polyhalide ions, pseudohalogens and basic properties of halogens.	
25.	Unit IV: Noble gases : Occurrence and uses	
26.	rationalization of inertness of noble gases	
27.	Clathrates; preparation and properties of XeF ₂ , XeF ₄ and XeF ₆ ;	
28.	Nature of bonding in noble gas compounds (Valence bond treatment and MO	

	treatment for XeF ₂).	
29.	Molecular shapes of noble gas compounds (VSEPR theory).	
30.	Unit V: Inorganic Polymers: Types of inorganic polymers, comparison with organic polymers	
31.	Synthesis, structural aspects and applications of silicones	
32.	Siloxanes.	
33.	Borazines	
34.	Silicates.	
35.	Phosphazenes	
36.	Polysulphates	

DIGBOI COLLEGE, DIGBOI
Course Plan (Session Jun-Dec, 2020)

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Non-Major

Class/Semester- 5th Sem (Non-CBCS)

Name of the Paper- NM 501, Inorganic Chemistry-II + Physical Chemistry-II

Units Assigned- I

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit–I Nuclear Chemistry: Mass defect and binding energy, packing fraction	
2.	Stability of nucleus, neutron-proton ratio	
3.	Artificial radioactivity, nuclear fission	
4.	Nuclear reactors, separation of isotopes	
5.	Detection and measurement of radioactivity by GM counter.	
6.	Application of radio-isotopes in agriculture, medicine and industry.	
7.	Radiocarbon dating.	
8.	Unit-II Preparative Chemistry Preparation, properties and uses of the	

	following compounds : Lithium aluminium hydride	
9.	potassium ferro and ferricyanide	
10.	sodium cobaltinitrite	
11.	Sodium thiosulphate, Nessler's reagent,	
12.	Sodium borohydride, silica gel,	
13.	Pb containing paints	
14.	Zn containing paints	
15.	Unit-III Bioinorganic Chemistry: Role of zinc	
16.	Role of iron	
17.	Role of cobalt	
18.	Role molybdenum	
19.	Sodium, potassium in biological system.	
20.	Role of Mg^{++} in chlorophyll.	
21.	Role of Ca in blood clotting	
22.	Poisoning due to heavy metal ion -Mercury	
23.	Cadmium poisoning	
24.	Lead poisoning	
25.	Arsenic poisoning	

DIGBOI COLLEGE, DIGBOI
Course Plan Session Jun-Dec, 2020

Name of the Teacher- NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Sem, Non-CBCS

Name of the Paper-MM 503, Inorganic Chemistry II

Units Assigned- All

Marks Assigned-48

Class	Topic/ Unit	Remarks
1.	UNIT –I: Organometallic compounds: Definition, electron count, 18 electron rule	
2.	Isolobal analogy	
3.	Compounds in catalysis ,Wilkinson's catalyst	
4.	Vaska's compound	

5.	HCo(CO) ₄)	
6.	Metal carbonyls: Structure, bonding	
7.	IR spectral studies of terminal and bridged carbonyls.	
8.	Structure and bonding in some Metal – Olefins compound,	
9.	Structure and bonding in metal – ligand σ -bonded compounds	
10.	Structure and bonding in ferrocene	
11.	Oxidative addition	
12.	Reductive elimination reaction.	
13.	Uses of some organometallic	
14.	UNIT – II: Transition metal clusters: Definition of cluster, metal – metal bond in cluster,	
15.	Synthesis of metal carbonyl cluster of Cr, Fe and Mo (only low nuclearity clusters up to 4 metal atoms).	
16.	Closed shell electronic requirement for cluster compounds –rules for Polyhedral Skeletal Electron Pair Theory.	
17.	Nitrosyl compounds: Synthesis, properties and structures of nitrosyls of Fe, Co and Ni.	
18.	UNIT – III: Error in quantitative analysis: Accuracy, precession	
19.	Deviation, standard deviation, Numericals	
20.	Classification of errors, minimization of errors,	
21.	Significant figures.	
22.	Indicators: Choice of indicators in neutralization reactions.	
23.	Redox, adsorption and complexometric	
24.	Adsorption indicator	
25.	Complexometric indicator	
26.	UNIT – IV: Organic reagents in inorganic analysis :- Cupferron, dithizone oxime	
27.	benzoin- α - oxime,	
28.	1- nitroso-2- naphthol, diphenyl carbazide,	
29.	Diphenyl carbazone, salicylaldoxime,	
30.	1,10- phenanthroline, magneson,	
31.	thiourea, zinc uranyl acetate,	

DIGBOI COLLEGE, DIGBOI
Course Plan Session JUN- DEC, 2020

Name of the Teacher-NEELAKSHI HAZARIKA

Course –Honours / Generic – Major

Class/Semester- 5th Semester, NON-CBCS

Name of the Paper- MM 507, Symmetry and Quantum Chemistry

Units Assigned- Unit I

Marks Assigned- 15

Class	Topic/ Unit	Remarks
1.	Unit – I: Symmetry and Group theory: Symmetry elements and symmetry operations	
2.	Definition of group, symmetry group	
3.	point group and space group.	
4.	Perspective sketch and point group of some common molecules, H ₂ , HF,	
5.	CO ₂ , C ₂ H ₂ ,	
6.	C ₂ H ₄ , CHCl ₃ ,	
7.	PCl ₅ , NH ₃	
8.	BF ₃ , [PtCl ₄] ²⁻ , BrF ₅	
9.	symmetry and mathematical tools, matrix algebra,	
10.	reducible and irreducible representation, great orthogonality theorem	
11.	Character table for C _{2v}	
12.	Character table for C _{3v}	
13.	Determination of Γ_i for C _{2v}	
14.	Determination of Γ_i C _{3v} point groups.	

DIGBOI COLLEGE, DIGBOI

June 2020 to December 2021

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 5th Semester

Name of the Paper- 501 (Physical Chemistry)

Units Assigned- I +IV + V

Marks Assigned- 15 + 07 + 08

Unit I: Chemical Kinetics		Marks Assigned- 15
Class	Topic	Remarks
1.	Rate and rate law of a chemical reaction	
2.	Molecularity and order of chemical reactions,	
3.	Elementary and complex reactions	
4.	differential and integral forms of rate equations of zero order , 1 st order and 2 nd order reactions, & half life periods	
5.	Determination of order of reaction by method of integration, half life period, differential method & isolation method,	
6.	Evaluation of rate constant by integrated equation method & graphical method, Guggenheim method (1st order reaction),	
7.	Rate equation of first order, opposite, parallel, consecutive reaction,	
8.	Rate equation of chain reactions, chain branching, explosion limit, hydrogen – bromine thermal reaction,	
9.	Effect of temperature on reaction velocities, Arrhenius equation, energy of activation,	
10.	Collision theory of bimolecular reactions, its limitation,	
11.	Activated complex theory, Eyring equation, Lindeman's theory of unimolecular gas phase reaction.	
12.	Question paper discussion	
Unit IV: Surface Chemistry		Marks Assigned- 07
1	Adsorption and types of adsorption	
2	Physical and chemical adsorption of gases on solid surface	
3	Adsorption isotherms & types of adsorption isotherm	
4	Freundlich equation, Langmuir adsorption equation.	
5	Gibbs adsorption equation	
6	Determination of surface area of an adsorbent	
7	Application of adsorption in chemical analysis and in industry,	
Unit V: Colloidal State		Marks Assigned- 08
1	Colloid and their properties	
2	Electrical double layer and zeta potential, theory of stabilities of colloids,	
3	Protective action of Lyophilic sol-gold number, Avogadro's number	
4	Coagulation of colloids, Schultz – Hardy rule, association of colloids, emulsions	
5	Micelles and their structure, critical micelles concentration, Donnan membrane equilibria	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher-

Dr NAYAN JYOTI KHOUND

Course – Non Major (Non CBCS)
 Class/Semester- 5th Semester
 Name of the Paper- 501 (Physical Chemistry)
 Units Assigned- I + III + IV
 Marks Assigned- 05 + 05 + 04

Unit I: Conductance		Marks Assigned- 05
Class	Topic	Remarks
1.	Specific, equivalent and molar conductivity	
2.	Their variation with dilution for weak and strong electrolytes.	
3.	Kohlrausch's law of independent migration of ions.	
4.	Transference number and its experimental determination using Hittorf and Moving boundary methods, Ionic mobility.	
5.	Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts,	
6.	Applications of conductance measurements: determination of degree of ionic product of water, hydrolysis constant of a salt, Conductometric titrations of acid - base	
Unit III: Adsorption & Catalysts		Marks Assigned- 05
1	Adsorption & types of adsorption.	
2	Differences between chemisorptions and Physical adsorption	
3	Freundlich adsorption isotherm and Langmuir adsorption isotherm, application of adsorption.	
4	Catalysis & Types of catalysis, homogeneous & heterogeneous catalysis, acid-base catalysis, catalytic promoter, poisoning, negative catalysis ,	
5	Enzyme catalysis characteristics of enzyme catalysis ,Theories of catalysis.	
Unit IV: Phase rule		Marks Assigned- 04
1	Statement of phase rule, definition of phase, components and degrees of freedom with examples	
2	Application of phase rule	
3	Phase diagram of water and sulphur system.	
4	Phase diagram of Pb –Ag system.	

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Major (Non CBCS)

Class/Semester- 6th Semester

Name of the Paper- 601 (Physical Chemistry)

Units Assigned- II + III + IV

Marks Assigned- 08 + 08 + 12

Unit II: Macromolecules		Marks Assigned- 08
Class	Topic	Remarks
1.	Polymer and their classification	
2.	Step reaction polymerization & Addition polymerization,	
3.	Mechanism and kinetics of free radical polymerization,	
4.	Mechanism and kinetics anionic polymerization	
5.	Mechanism and kinetics of cationic polymerization	
6.	Weight and Number average molecular weight,	
7.	Viscometric and Osmometric methods of molecular weight determination,	
8.	Degree of polymerization & Carother equation,.	
9.	Zeigler Natta catalysts, Co-polymerisation	
10.	Question paper discussion	
Unit III: Catalysis		Marks Assigned- 08
1	Catalysis and its types	
2	Criteria of catalysis, Autocatalysis & catalytic poison,	
3	Homogeneous and heterogeneous catalysis,.	
4	Acid – Base catalysis, Enzyme catalysis-mechanism, Michaelis-Menten equation	
5	Effect of temperature on surface reactions, Effect of particle size and efficiency of nano particles as catalysts,	
Unit IV: Phase Equilibria		Marks Assigned- 12
1	Definition of phase components, degree of freedom	
2	application of phase rule to one component-water and sulphur,	
3	Phase diagram of simple eutic Pb-Ag, & KI-H ₂ O system	
4	Phase diagram of two component systems with congruent melting point (Zn-Mg) system, Phase diagram of two component systems incongruent melting point (Na ₂ SO ₄ -H ₂ O) system	
5	Interpretation of vapour pressure composition and temperature-composition phase diagram, Distillation of liquid mixtures and azeotropic mixture	
6	Clapeyron equation, Clausius - Clapeyron equation, their derivation and application	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- First Semester

Name of the Paper- C-102 (Physical Chemistry)

Units Assigned- I + II

Marks Assigned- 18 + 08

Unit 1: Gaseous State		Marks Assigned- 18
Class	Topic	Remarks
1.	Kinetic Theory of gases	
2.	Collision frequency, collision number, mean free path	
3.	Viscosity of gases and its pressure and temperature dependence	
4.	Maxwell distribution of velocities	
5.	Most probable velocity, average velocity, RMS velocity	
6.	Degree of freedom	
7.	Law of equipartition of energy	
8.	Deviation from ideal behaviour Cause of deviation	
9.	Numerical and questions	
10.	Compressibility of factor Z	
11.	Vander Waal equation & Other equation of real gases	
12.	Boyle's temperature, Isotherm of real gases, Continuity of states	
13.	Critical state and Vander Waal constants, Reduced equation of states, Law of corresponding states	
14.	Viscosity of gases and effect of Pressure & Temperature on it	
15.	Previous year question paper solved	
Unit 2: Liquid State		Marks Assigned- 08
Class	Topic	Remarks
1.	Qualitative treatment of structure of liquid, Qualitative discussion of structure of water, Units and significance of physical properties of liquid	
2.	Vapour pressure and surface tension of liquid, Cleaning action of detergents	
3.	Coefficient of viscosity and effect of various solutes on it	
4.	Viscosity of liquid and comparison with gases	

5.	Previous year question paper discussion	
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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 3rd Semester

Name of the Paper- C-303 (Physical Chemistry)

Units Assigned- I +II + III

Marks Assigned- 15 + 12 +12

Unit 1: Phase Equilibria		Marks Assigned- 15
Class	Topic	Remarks
1.	Phase Rule & Concept of phases, components & degree of freedom	
2.	Phase diagram of Water & Sulphur system	
3.	Phase diagram of Lead Silver system,	
4.	Phase diagram of Zinc Magnesium system,	
5.	Phase diagram of Sodium Sulphate Water system	
6.	Phase diagram of Sodium Sulphate Water system	
7.	Clausius Clayperon Rule	
8.	Previous year question paper discussion	
Unit 2 Chemical Kinetics		Marks Assigned- 12
1	Rate and Unit of a chemical Reaction	
2	Order and Molecularity of a reaction	
3	Differential and integrated form of Zero & 1 st order reaction	
4	Differential and integrated form of 2 nd order reaction	
5	Kinetics of Opposing reaction & Parallel & Consecutive reaction	
6	Kinetics of Consecutive reaction	
7	Steady state approximation and Chain Reactions	
8	Discussion and problem/ question of the studied topic	
9	Previous year question paper discussion	
Unit 3: Catalysis		Marks Assigned- 12
Class	Topic	Remarks
1.	Definition and types of catalysts	

2.	Specificity and selectivity of catalysts	
3.	Effect of particle size and efficiency of nano particles as catalysts	
4.	Enzyme catalysis, Michaelis Menten catalysis	
5.	Acid base catalysis, question discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Generic (CBCS)

Class/Semester- 3rd Semester

Name of the Paper- C-303 (Physical Chemistry)

Units Assigned- II + III

Marks Assigned- 06 + 06

Unit 2: Phase Equilibria		Marks Assigned- 6
Class	Topic	Remarks
1.	Phases, components and degrees of freedom of a system, application	
2.	Gibbs Phase Rule and its thermodynamic deviation.	
3.	Phase diagrams of water and sulphur system	
4.	Phase diagram of lead –silver & FeCl ₃ -H ₂ O system	
5.	Phase diagram of Na-K only system, question discussion	
Unit 3: Conductance		Marks Assigned- 6
1	Conductivity, equivalent and molar conductivity	
2	Their variation with dilution for weak and strong electrolytes.	
3	Kohlrausch's law of independent migration of ions.	
4	Transference number and its experimental determination using Hittorf and Moving boundary methods.	
5	Applications of conductance measurements (i) determination of degree of ionization of weak electrolyte, (ii) solubility and solubility products of sparingly soluble salts,	
6	(iii) determination of degree of ionic product of water & (iv) hydrolysis constant of a salt.	

7	(v) Conductometric titrations of acid - base	
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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 5th Semester

Name of the Paper- C-502 (Physical Chemistry)

Units Assigned- III

Marks Assigned- 11

Unit 3: Photochemistry		Marks Assigned- 11
Class	Topic	Remarks
1.	Characteristics of electromagnetic radiation	
2.	Lambert – Beer's law and its limitations	
3.	Physical significance of absorption coefficients	
4.	Laws of photochemistry, low and high quantum yield	
5.	Actinometry	
6.	Photochemical equilibrium	
7.	Differential rate of photochemical reaction	
8.	Photosensitized reaction	
9.	Quenching	
10.	Photochemical reaction in biochemical processes	
11.	Photo stationary states	
12.	Chemiluminescence	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 5th Semester

Name of the Paper- C-DSE 501 (Analytical Methods in Chemistry)

Units Assigned- I +II + III

Marks Assigned- 20 + 08 +10

Unit 1: UV Visible and IR spectrometry		Marks Assigned- 20
Class	Topic	Remarks
1.	Origin of spectra, interaction of radiation with matter, Fundamental laws of spectroscopy and selection rules, Beer-Lambert's law and its validity	
2.	UV-Visible Spectrometry: source, monochromator and detector for single and double beam instrument	
3.	Geometrical isomers, Keto-enol tautomers.	
4.	Determination of composition of metal complexes using Job's method of continuous variation and mole ratio method.	
5.	Flame Atomic Absorption and Emission Spectrometry: source, monochromator, detector, choice of flame and Burner designs.	
6.	Techniques of atomization and sample introduction,	
7.	Sources of chemical interferences and their method of removal, Techniques for the quantitative estimation of trace level of metal ions from water samples.	
8.	Question paper discussion	

Unit 4 Electro-analytical methods		Marks Assigned- 08
1	Electro-analytical methods,	
2	Classification of electro-analytical methods,	
3	basic principle of pH metric titration	
4	basic principle of potentiometric & conductometric titration.	
5	Techniques used for the determination of equivalence points.	
6	Techniques used for the determination of pKa values.	
Unit 5: Separation Techniques		Marks Assigned- 10
Class	Topic	Remarks
1.	Solvent extraction & Classification,	
2.	Solvent extraction: principle and efficiency of the technique.	
3.	Mechanism of extraction: extraction by solvation and chelation.	
4.	Technique of extraction: batch, continuous and counter current extractions.	
5.	Qualitative and quantitative aspects of solvent extraction, Extraction of metal ions from aqueous solution,	
6.	Extraction of organic species from the aqueous and non-aqueous media.	
10	Question discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 2nd Semester

Name of the Paper- C-202 (Physical Chemistry)

Units Assigned- I +II + III

Marks Assigned- 26 + 06

Unit 1: Chemical Thermodynamics		Marks Assigned- 26
Class	Topic	Remarks
1.	Introduction to Thermodynamics	
2	Intensive and extensive variables; State and Path functions; Zeroth law of thermodynamics.	
3	Statement of first law; Concept of heat, q, work, w, internal energy, U, Enthalpy, H, relation between heat capacities	
4	Calculations of q, w, U and H for reversible, irreversible and free expansion of gases (ideal and van der Waals) under isothermal condition	
5	Calculations of q, w, U and H for reversible, irreversible and free expansion of gases (ideal and van der Waals) under adiabatic condition	
6	Thermo chemistry: Heats of reactions, Standard states; enthalpy of	

	formation of molecules	
7	Bond energy, bond dissociation energy and resonance energy & their calculation from thermo chemical data	
8	Adiabatic flame temperature & explosion temperature.	
9	Concept of entropy; thermodynamic scale of temperature,	
10	Statement of the second law of thermodynamics;	
11	Molecular and statistical interpretation of entropy.	
12	Calculation of entropy change for reversible and irreversible processes.	
13	Statement of third law, Concept of residual entropy,	
14	Gibbs and Helmholtz energy;	
15	Variation of S, G, A with T, V, P	
16	Joule-Thomson coefficient	
17	Question discussion	
Unit 2: Systems of Variable Composition		Marks Assigned- 06
1	Partial molar quantities,	
2	Dependence of thermodynamic parameters on composition	
3	Gibbs- Duhem equation,	
4	Chemical potential of ideal mixtures,	
5	Question and problems discussion	

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Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Generic (CBCS)

Class/Semester- 2nd Semester

Name of the Paper- C-201 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 10

Unit 1: Chemical Energetics		Marks Assigned- 10
Class	Topic	Remarks
1.	Review of thermodynamics	
2.	System and Functions of thermodynamics	
3.	Laws of Thermodynamics.	
4.	Laws of Thermodynamics.	

5.	Important principles and definitions of thermochemistry.	
6.	Concept of standard state	
7.	Standard enthalpies of formations, integral and differential enthalpies of solution and dilution.	
8.	Bond energy, bond dissociation energy and resonance energy	
9.	Calculation of bond energy, bond dissociation energy and resonance energy from thermo chemical data.	
10.	Variation of enthalpy of a reaction with temperature– Kirchhoff's equation.	
11	Question paper discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Honours (CBCS)

Class/Semester- 4th Semester

Name of the Paper- C-403 (Physical Chemistry)

Units Assigned- I

Marks Assigned- 22

Unit 1: Conductance

Marks Assigned- 22

Class	Topic	Remarks
1.	Arrhenius theory of electrolytic dissociation.	
2.	Conductivity, equivalent and molar conductivity	
3.	Their variation with dilution for weak and strong electrolytes.	
4.	Molar conductivity at infinite dilution.	
5.	Kohlrausch law of independent migration of ions.	
6.	Debye-Huckel-Onsager equation,	
7.	Wien effect, Debye-Falkenhagen effect,	
8.	Walden's rules.	
9.	Ionic velocities, mobilities and their determinations,	
10.	Transference numbers and their relation to ionic mobilities,	
11.	Determination of transference numbers using Hittorf method	
12.	Determination of transference numbers using Moving Boundary methods.	
13.	Applications of conductance measurement: (i) degree of dissociation of weak electrolytes,	
14.	(ii) ionic product of water	
15.	(iii) solubility and solubility product of sparingly soluble salts,	
16.	(iv) conductometric titrations,	
17.	(iv) conductometric titrations,	
18.	& (v) hydrolysis constants of salts.	
19.	Numerical	
20.	Question paper discussion	

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Course Plan

Name of the Teacher- Dr NAYAN JYOTI KHOUND

Course – Generic (CBCS)

Class/Semester- 4th Semester

Name of the Paper- C-401 (Physical Chemistry)

Units Assigned- I (Section B)

Marks Assigned- 08 + 06

Unit 1: Kinetic Theory of Gases		Marks Assigned- 08
Class	Topic	Remarks
1.	Kinetic Theory of Gases: Postulates of Kinetic Theory of Gases and derivation of the kinetic gas equation.	
2.	Deviation of real gases from ideal behaviour, compressibility factor, causes of deviation.	
3.	Van der Waals equation of state for real gases. Boyle temperature	
4.	Critical phenomena, critical constants and their calculation from Van der Waals equation, Andrews isotherms of CO ₂	
5.	Maxwell Boltzmann distribution laws of molecular velocities and molecular energies and their importance, Collision number and mean free path of molecules.	
6.	Temperature dependence of these distributions. Most probable, average and root mean square velocities.	
7.	Viscosity of gases, effect of temperature & pressure on coefficient of viscosity	
8.	Questions paper discussion	
Unit 2: Liquids		Marks Assigned- 06
1	Liquid and its physical properties	
2	Surface tension and its determination using stalagmometer.	
3	Viscosity of a liquid and determination of coefficient of viscosity using Ostwald viscometer.	
4	Effect of temperature on surface tension & viscosity of a liquid	
5	Questions paper discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **5th Semester**

Name of the Paper: **MM-505**

Units Assigned: **I + III**

Marks Assigned: **8 + 10**

Class	Topic	Remarks
Unit I: Pericyclic reactions		
1.	Definition of pericyclic reaction	
2.	The conservation of orbital symmetry	
3.	Woodward-Hofmann Rules	
4.	HOMO-LUMO approach	

5.	(2+2) and (2+4) cycloadditions	
6.	Diels Alder Reaction	
7.	1,3- dipolar cycloaddition	
8.	Sigma tropic rearrangements -Cope rearrangement	
9.	Sigma tropic rearrangements -Claisen rearrangement	
10.	Electrocyclic reactions	
Unit III: Nucleic acids & Enzymes		
1.	Components of Nucleic acids	
2.	Nucleosides and Nucleotides	
3.	Structure Synthesis and Reactions of Adenine and Guanine	
4.	Structure Synthesis and Reactions of Cytosine, Uracil & Thymine.	
5.	Structure of DNA (Watson – Crick Model)	
6.	Structure of RNA, Genetic code	
7.	Biological roles of DNA and RNA	
8.	Replication	
9.	Transcription and Translation (elementary idea only)	
10.	Classifications of enzyme and active site	
11.	Specificity, Mechanism of Enzyme action	
12.	Co-enzyme, Application of Enzymes	

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Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Major**

Class/Semester: **6th Semester**

Name of the Paper: **MM-605**

Units Assigned: **I + II + V**

Marks Assigned: **10 + 10 + 10**

Class	Topic	Remarks
Unit I: Disconnection approach in organic synthesis		

1.	Elementary idea about disconnection	
2.	Functional group interchange (FGI)	
3.	Functional group addition (FGA)	
4.	Synthon and synthetic equivalent	
5.	Simple examples of retrosynthesis of C-C bond formation by using Corey House reaction	
6.	Simple examples of retrosynthesis of C-C bond formation by using Grignard reaction	
7.	Simple examples of retrosynthesis of C-C bond formation by using aldol condensation	
8.	Retrosynthesis of monofunctionalised compounds	
Unit II: Applications of UV, IR and NMR spectroscopy		
1.	Application of Woodward rules for calculation of λ_{max}	
2.	α,β -unsaturated aldehydes, ketones	
3.	Application in functional group analysis by IR	
4.	Anisotropic Effects in Alkenes	
5.	Anisotropic Effects in Alkynes	
6.	Anisotropic Effects in carbonyl compounds and benzene	
7.	Study of simple NMR spectra	
8.	Applications of IR, NMR and UV in Structural Identification of Simple Organic Molecules	
Unit V: Polymers		
1.	Types of polymers- Isotactic, syndiotactic and atactic polymers	
2.	Urea-formaldehyde polymers	
3.	Phenol- formaldehyde polymers	
4.	Polyurethanes and thermo softening (PVC, Polythene)	
5.	polymer additives	
6.	Synthetic fibers: Rayon, Nylon-6 and terylene	
7.	Fabrics- natural and synthetic (acrylic, polyamido, polyester)	
8.	Rubbers-natural and synthetic: Buna-S, chloroprene and neoprene	
9.	Vulcanization	

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Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Non-Major**

Class/Semester: **6^h Semester**

Name of the Paper: **NM-601**

Units Assigned: **I + II + III**

Marks Assigned: **4 + 5 + 7**

Class	Topic	Remarks
Unit I: Active Methylene Compounds		
1.	Synthesis of ethylacetoacetate (Claisen ester condensation)	
2.	Diethylmalonate	
3.	Synthetic uses of ethylacetoacetate	
4.	Synthetic uses of diethylmalonate	
5.	Keto – enol Tautomerism	
Unit II: Preparation, properties and reaction of the following Organic Compounds		
1.	Lactic and Tartaric acids	
2.	Oxalic, Malonic	
3.	Succinic and Pthalic acid	
4.	Citric acid	
5.	Acrolein, Crotonaldehyde	
6.	Cinnamaldehyde, Acrylic acid	
7.	Crotonic acid, Maleic acid and Fumaric acid	
Unit III: Preparation, properties and reaction of the following Organic Compounds		
1.	Benzene sulphonic acid, nitro sulphonic acid	
2.	Amino sulphonic acid, sulphonyl chloride	
3.	Saccharin, chloramines-T	
4.	Nitrobenzene, Dinitrobenzene	
5.	Nitro toluene, TNT	
6.	Reduction of nitro compounds in different conditions	
7.	Preparation and properties of five and six membered heterocyclic compounds: pyrrole	
8.	Thiophene, furan	
9.	Pyridine	
10.	Preparation and properties of $\alpha\beta$ -Naphthalene and anthracene	

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Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Generic**

Class/Semester: **1st Semester**

Name of the Paper: **GE-101 (Section B)**

Units Assigned: **IV**

Marks Assigned: **10**

Class	Topic	Remarks
Unit IV: Stereochemistry		
1.	Conformation of ethane	
2.	Conformation of butane	
3.	Conformation of cyclohexane	
4.	Interconversion of wedge to Newmann projection	
5.	Interconversion of Newmann to Sawhorse and Fischer projection	
6.	Geometrical and optical isomerism	
7.	Enantiomerism and diastereoisomerism	
8.	Threo and Erythro and Cis and Trans isomerism	
9.	CIP rule for R/S nomenclature	
10.	CIP rule for E/Z nomenclature	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Honours**

Class/Semester: **2nd Semester**

Name of the Paper: **C-201**

Units Assigned: **I + II**

Marks Assigned: **8 + 12**

Class	Topic	Remarks
Unit I: Basic Organic Chemistry		
1.	Classification and Nomenclature, Hybridization	
2.	Inductive effect, electromeric effect and their applications	
3.	Resonance, hyperconjugation and their applications	
4.	Dipole moment, Organic acids and bases	
5.	Hard acids/bases soft acid/base	
6.	Homolytic and heterolytic fission, curly arrow rule, formal charge	
7.	Electrophiles and nucleophiles	
8.	Nucleophilicity and basicity	
9.	Carbocation, Carbanion	
10.	Free radicals, carbene	
11.	Energy profile diagram of single, two and three step reactions	
12.	Activation energy, thermodynamically and kinetically controlled reactions	
Unit II: Stereochemistry		
1.	Fischer and sawhorse projection formula and their interconversions	
2.	Newmann and sawhorse projection formula and their interconversions	
3.	Geometrical isomerism and their properties	
4.	Cis/trans and syn/anti isomerism	
5.	CIP rule for E/Z notation	
6.	Optical activity, specific rotation, chirality/asymmetry	
7.	Enantiomers with examples and their properties	
8.	Diastereoisomers with examples and their properties	
9.	Meso compounds and Epimers	
10.	Racemic mixture and resolution	
11.	Threo and Erythro forms	
12.	Relative and absolute configurations	
13.	D/L designation	
14.	R/S designation	

Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Generic**

Class/Semester: **2nd Semester (Section B: Organic Chemistry)**

Name of the Paper: **GE-201**

Units Assigned: **IV + V**

Marks Assigned: **8 + 8**

Class	Topic	Remarks
Unit IV: Aromatic Hydrocarbons		
1.	Preparation of benzene from phenol	
2.	Preparation of benzene by decarboxylation, from acetylene	
3.	Preparation of benzene from benzene sulphonic acid.	
4.	Nitration	
5.	Halogenation	
6.	Sulphonation	
7.	Friedel-Craft's reaction (alkylation and acylation)	
8.	Side chain oxidation of alkyl benzenes	
Unit V: Alkyl and Aryl Halides		
1.	SN1, SN2 and SNi	
2.	Preparation: from alkenes and alcohols	
3.	Hydrolysis reaction	
4.	Nitrite & nitro formation	
5.	Nitrile & isonitrile formation	
6.	Williamson's ether synthesis	
7.	Elimination vs substitution	
8.	Preparation of aryl halide from benzene	
9.	Sandmeyer & Gattermann reactions, Aromatic nucleophilic substitution (replacement by -OH group) and effect of nitro substituent	
10.	Benzyne Mechanism: KNH_2/NH_3 (or $\text{NaNH}_2/\text{NH}_3$). Reactivity and Relative strength of C-Halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Honours**

Class/Semester: **3rd Semester**

Name of the Paper: **C-302**

Units Assigned: **I + III + V**

Marks Assigned: **14 + 14 + 4**

Class	Topic	Remarks
Unit I: Chemistry of Halogenated hydrocarbons		
1.	Hunsdiecker reaction	
2.	SN1 reactions and their mechanisms	
3.	SN2 reactions and their mechanisms	
4.	SNi reactions and their mechanism	
5.	Nucleophilic substitution vs elimination reaction	
6.	Preparation of alkyl halide from diazonium salt	
7.	Nucleophilic aromatic substitution	
8.	Benzyne mechanism	
9.	Relative reactivity of alkyl, aryl, benzyl and vinyl halides towards nucleophilic substitution reaction	
10.	Organometallic compounds of Mg	
11.	Organometallic compounds of Li	
Unit III: Carbonyl compounds		
1.	Nucleophilic addition and elimination reactions	
2.	Mechanisms of aldol and benzoin condensation	
3.	Mechanisms of Knoevenagel condensation, Claisen-Schmidt and Perkin reactions	
4.	Mechanism of Cannizzaro, Wittig and Beckmann reactions	
5.	Mechanism of Benzil-Benzilic acid rearrangements, haloform reaction and Baeyer Villiger oxidation	
6.	α -substitution reactions	
7.	Oxidations and reductions (Clemmensen, Wolff-Kishner	
8.	LiAlH_4 , NaBH_4 , MPV	
9.	PDC, PCC, SeO_2	
10.	$\text{Pb}(\text{OAc})_4$ & HIO_4	
11.	Addition reactions of unsaturated carbonyl compounds: Michael addition	
12.	Unsaturated Aldehydes (Acrolein, Crotonaldehyde, Cinnamaldehyde)	
13.	Unsaturated Ketone (MVK)	
14.	Active methylene compounds: Keto-enol tautomerism	
15.	Preparation and synthetic applications of diethyl malonate	
16.	Preparation and synthetic applications of ethyl acetoacetate	

Unit III: Sulphur containing compounds		
1.	Preparation and reactions of thiols	
2.	Preparation and reactions of thioethers	
3.	Preparation and reactions of sulphonic acids	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Generic**

Class/Semester: **3rd Semester**

Name of the Paper: **GE-301 (Section B: Organic Chemistry)**

Units Assigned: **V + VI**

Marks Assigned: **6 + 6**

Class	Topic	Remarks
Unit V: Carboxylic acids and their derivatives		
1.	Preparation of carboxylic acids (aliphatic and aromatic)	
2.	Acidic and Alkaline hydrolysis of esters	
3.	Hell – Vohlard - Zelinsky Reaction	
4.	Preparation of Carboxylic acid derivatives (aliphatic)	
5.	Acid chlorides, anhydrides, Esters and their interconversion	
6.	Amides from acids and their interconversion	
7.	Comparative study of nucleophilicity of acyl derivatives	
8.	Reformatsky Reaction, Perkin Condensation	
Unit VI: Amines and Diazonium Salts		
1.	Gabriel's Phthalimide synthesis	
2.	Hofmann Bromamide reaction, Schotten – Baumann Reaction	
3.	Hofmann vs. Saytzeff elimination, Carbylamine test, Hinsberg test, with HNO ₂	
4.	Electrophilic substitution (case aniline): nitration, bromination, sulphonation	
5.	Diazonium salts: Preparation: from aromatic amines	
6.	Reactions: conversion to benzene, phenol, dyes	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Honours**

Class/Semester: **4th Semester**

Name of the Paper: **C-402**

Units Assigned: **I + II + V**

Marks Assigned: **14 + 12 + 6**

Class	Topic	Remarks
Unit I: Nitrogen Containing Functional Groups		
1.	Preparation and important reactions of nitro and compounds	
2.	Nitriles and isonitriles	
3.	Effect of substituent and solvent on basicity of amines	
4.	Gabriel phthalimide synthesis	
5.	Carbylamine reaction, Mannich reaction	
6.	Hoffmann's exhaustive methylation	
7.	Hofmann-elimination reaction	
8.	Distinction between 1°, 2° and 3° amines with Hinsberg reagent	
9.	Distinction between 1°, 2° and 3° amines with nitrous acid	
10.	Preparation of diazonium salt	
11.	Synthetic applications of diazonium salt	
12.	Diazomethane	
13.	Diazoacetic Ester	
Unit II: Polynuclear Aromatic Hydrocarbons		
1.	Preparation and structure elucidation of naphthalene	
2.	Reactions of naphthalene	
3.	Preparation and structure elucidation of phenanthrene	
4.	Reactions of phenanthrene	
5.	Preparation and structure elucidation of anthracene	
6.	Reactions of anthracene	
7.	Important derivatives of naphthalene	
8.	Important derivatives of anthracene	
Unit V: Terpenes		
1.	Occurrence of terpenes	
2.	Classification of terpenes	

3.	Isoprene rule	
4.	Elucidation of structure and synthesis of Citral	
5.	Elucidation of structure and synthesis of Neral	
6.	Elucidation of structure and synthesis of α -terpeneol	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Honours**

Class/Semester: **5th Semester**

Name of the Paper: **C-501**

Units Assigned: **I + V + VI**

Marks Assigned: **8 + 10 + 10**

Class	Topic	Remarks
Unit I: Nucleic Acids		
1.	Components of nucleic acids, Nucleosides and nucleotides	
2.	Structure, synthesis and reactions of: Adenine, Guanine	
3.	Structure, synthesis and reactions of: Cytosine, Uracil and Thymine	
4.	Structure of polynucleotides	
5.	Structure of DNA (Watson & Model) and RNA	
6.	Genetic Code Biological role of DNA and RNA	
7.	Replication, Transcription	
8.	Translation	
Unit V: Disconnection approach in Organic Synthesis		
1.	Elementary idea about disconnection,	
2.	Synthon and Synthetic equivalent	
3.	Functional group interconversion (FGI)	
4.	Functional group addition (FGA)	
5.	Simple examples of retrosynthesis of C-C bond formation by using Corey House reaction	
6.	Simple examples of retrosynthesis of C-C bond formation by using Grignard reaction	
7.	Simple examples of retrosynthesis of C-C bond formation by using aldol condensation	
8.	Retrosynthesis of monofunctionalised compounds	
	Retrosynthesis of Bi-functionalized compounds	
Unit VI: Pharmaceutical Compounds: Structure and Importance		
1.	Classification, structure and therapeutic uses of antipyretics:	

	Paracetamol and its synthesis	
2.	Analgesics: Ibuprofen (with synthesis), Antimalarials	
3.	Ranitidine, Providone-Iodine Solution	
4.	Synthesis and mode of action of Sulphanilamides and other Sulphadruugs (sulphapyridine, sulphathiazole)	
5.	Chloroquine (with synthesis)	
6.	An elementary treatment of Antibiotics and detailed study of chloramphenicol	
7.	Medicinal values of curcumin (haldi)	
8.	Medicinal values of azadirachtin (neem) and vitamin C	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher: **Dr. Bishwajit Saikia**

Course: **Honours**

Class/Semester: **5th Semester**

Name of the Paper: **DSE-502**

Units Assigned: **I + II**

Marks Assigned: **4 + 27**

Class	Topic	Remarks
Unit I: Introduction to Green Chemistry		
1.	What is Green Chemistry	
2.	Need for Green Chemistry	
3.	Goals of Green Chemistry	
4.	Limitations	
5.	Obstacles in the pursuit of the goals of Green Chemistry	
Unit II: Principles of Green Chemistry and Designing a Chemical synthesis		
1.	Twelve principles of Green Chemistry	
2.	Explanations and examples and special emphasis of principles of Green chemistry	
3.	Prevention of Waste/ byproducts	
4.	Maximum incorporation of the materials used in the process into the final products	
5.	Atom Economy	
6.	Calculation of atom economy of the rearrangement	
7.	Calculation of atom economy of the addition reaction	
8.	Calculation of atom economy of the substitution reaction	
9.	Calculation of atom economy of the elimination reactions	
10.	Prevention/ minimization of hazardous/ toxic products reducing toxicity	
11.	Green solvents- supercritical fluids	

12.	Water as a solvent for organic reactions	
13.	Ionic liquids	
14.	Fluorous biphasic solvent	
15.	PEG, solventless processes	
16.	Immobilized solvents	
17.	How to compare greenness of solvents	
18.	Energy requirements for reactions- alternative sources of energy	
19.	Use of microwaves and ultrasonic energy	
20.	Selection of starting materials	
21.	Avoidance of unnecessary derivatization	
22.	Careful use of blocking/ protecting groups	
23.	Use of catalytic reagents (wherever possible) in preference to stoichiometric reagents	
24.	Catalysis and green chemistry	
25.	Comparison of heterogeneous and homogeneous catalysis	
26.	Prevention of chemical accidents designing greener processes	
27.	Inherent safer design	
28.	Principle of ISD “ What you don’t have cannot harm you	
29.	Greener alternative to Bhopal Gas Tragedy (safer route to carbaryl) and Flixborough accident (safer route to cyclohexanol)	
30.	Subdivision of ISD	
31.	Minimization, simplification, substitution, moderation and limitation of ISD	
32.	Strengthening/ development of analytical techniques to prevent and minimize the generation of hazardous substances in chemical processes	

DIGBOI COLLEGE, DIGBOI
COURSE PLAN

Name of the Teacher- Dr. Deborshee Gogoi
Stream: Commerce

Course –Honours

Class/Semester- B. Com 1stSemester

Name of the Paper- **Business Law**

Units Assigned- Unit 4 (Part B) and Unit 5

Marks Assigned- 8+16 = 24

Class	Topic/ Unit	Remarks
1.	Introduction to LLP	Unit 4 Part B
2.	Salient Features of LLP	
3.	Differences between LLP & Partnership, LLP & Company	
4.	LLP Agreement	
5.	Partners and Designated Partners	
6.	Incorporation Document	
7.	Incorporation by Registration	
8.	Partners and their Relationship	
9.	Dissolution of LLP	
1.	Introduction, Meaning, Characteristics	Unit 5
2.	Essentials of a Negotiable Instrument	
3.	Presumptions	
4.	Promissory Note, features, parties to a promissory note	
5.	Bills of Exchange, features, parties to a bill of exchange	
6.	Cheque, features, parties to a cheque, crossing, types of crossing	
7.	Promissory Note vs Bills of Exchange; Bills of Exchange vs Cheque	

Course – Honours

Class/Semester- B. Com 2ndSemester

Name of the Paper- **Corporate Law**

Units Assigned- Unit 3

Marks Assigned- 18= 18

Class	Topic/ Unit	Remarks
1.	Board of Directors, Directors	Unit 2
2.	women directors, independent director, small shareholder's director	
3.	Appointment of directors	
4.	Disqualification of Directors	
5.	Legal provisions associated with Director's Identification Number	
6.	Power and duties of a Director	
7.	Removal of Director	
8.	Managing Director, definition, appointment of MD, duties of MD	
9.	Meeting: Meetings of shareholders and board of directors	
10.	types of meetings, convening and conduct of meetings, requisites of a valid meeting,	
11.	postal ballot, meeting through video conferencing, e- voting	

Course – Honours

Class/Semester- B. Com 3rd Semester

Name of the Paper- **Human Resource Management**

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1.	HRP- Introduction, Quantitative & Qualitative dimensions	Unit 2
2.	Job analysis – job description and job specification, need, features	
3.	Recruitment – Concept	
4.	Recruitment- Need and Importance	
5.	Sources of Recruitment- Internal and External	
6.	Selection – Concept and process	
7.	Methods of selection	
8.	test and interview	
9.	placement and induction	

Course – Honours

Class/Semester- B. Com 3rd Semester

Name of the Paper- **Management Principles and Applications**

Units Assigned- Unit 1

Marks Assigned- 16= 16

Class	Topic/ Unit	Remarks
1.	Concept: Need for Study	Unit 1
2.	Managerial Functions – An overview	
3.	Co-ordination: Essence of Managership	
4.	Evolution of the Management Thought	
5.	Classical Approach – Taylor, Fayol	
6.	Neo-Classical and Human Relations Approaches – Mayo, Hawthorne Experiments, Behavioural Approach	
7.	Systems Approach, Contingency Approach – Lawrence & Lorsch	
8.	MBO - Peter F. Drucker, Re-engineering - Hammer and Champy	
9.	Michael Porter – Five-force analysis	
10.	Three generic strategies and value chain	
11.	Senge's Learning Organisation,	
12.	'Fortune at the Bottom of the Pyramid' – C.K. Prahalad	
13.	Re-engineering - Hammer and Champy	

Course – SEC

Class/Semester- B. Com 4th Semester

Name of the Paper- **Retail Management**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Store based retailing: Meaning, Characteristics, Merits, Demerits	Unit 3
2.	Non-Store based retailing: Meaning, Characteristics, Merits, Demerits	
3.	Vertical Marketing System	
4.	Vertical Marketing System	
5.	Retailing Life Cycle	
6.	Retailing Life Cycle	

Course – Honours

Class/Semester- B. Com 5th Semester

Name of the Paper- **Principles of Marketing**

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Introduction: Nature and scope of marketing	Unit 1
2.	Marketing Concepts	
3.	Marketing vs Selling	
4.	Marketing Environment	
5.	Marketing Research	
6.	Importance of Marketing	
7.	Online Marketing	
8.	Case studies	
9.	Product- Introduction and Characteristics	Unit 3
10.	Types of Products- Consumer, shopping and speciality	
11.	Product Mix	
12.	Packaging, Branding and labeling	
13.	New Product Development	
14.	Marketing strategies with regard to NPD	
15.	Price- Importance	
16.	Factors influencing pricing decisions	
17.	Objectives of Pricing	
18.	Methods of Pricing	

Course – DSE

Class/Semester- B. Com 5th Semester

Name of the Paper- **Consumer Behaviour**

Units Assigned- Unit 1, 2,3 and 4

Marks Assigned- 20=20

Class	Topic/ Unit	Remarks
1.	Socio-Cultural Factors of Consumer Behaviour	Unit 3
2.	Socio-Cultural Factors of Consumer Behaviour	
3.	Buyers' Black Box	
4.	Role of Culture in Consumer Behaviour	
5.	Role of Sub-Culture in Consumer Behaviour	
6.	Role of Social Class in Consumer Behaviour	
7.	Reference groups and their role in consumer behaviour	
8.	Family and its role in consumer behaviour	
9.	Role of rules and status in consumer behaviour	
10.	Revision and doubt clearing	
11.	Discussion of important questions and answers	

Course –CBCS

Class/Semester- B. Com 5th Semester

Name of the Paper- **Retail Management**

Units Assigned- Unit 1 and Unit 2

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Retailing Concept	Unit 1
2.	Indian Retailing Overview	
3.	Nature and Scope of Retailing	
4.	Significance of Retailing	
5.	Reasons for growth of retailing	
6.	Emerging trends in retailing	
7.	Emerging trends in retailing	
8.	Concept and overview of e-tailing	
9.	Logistic issues	Unit 3
10.	Inventory Management	
11.	Warehousing	
12.	Transportation	
13.	Store Location	
14.	Revision and doubt clearing	

Course –Non-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- **Advertising Management**

Units Assigned- Unit 1 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Advertising Planning	Unit 1
2.	Decision Making in Advertising	
3.	Development of advertising programme	
4.	Market Segmentation	
5.	Selection of Advertising Media	
6.	Types of advertising media	
7.	Relative advantages of advertising media	
8.	Relative disadvantages of advertising media	
9.	Doubt Clearing and Revision	
10.	Doubt Clearing and Revision	
11.	Advertising Agency	Unit 4
12.	Role of advertising agency	
13.	Services provided by advertising agency	
14.	Types of advertising agency	
15.	Selection of advertising agency	
16.	Relationship with clients	
17.	Doubt clearing and revision	
18.	Ad-made show	
19.	Ad-made show	
20.	Ad-made show	

Course –NON-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- **Rural Marketing**

Units Assigned- Unit 1, 2, 3 and 4

Marks Assigned- 20+20+20+20=80

Class	Topic/ Unit	Remarks
1.	Indian Rural Market Overview	Unit 1
2.	Rural Marketing Meaning and Significance	
3.	Nature and Scope of Rural Marketing	
4.	Evolution of Rural Marketing	
5.	Dynamics in rural marketing	
6.	Dynamics in rural marketing	
7.	Revision and doubt clearing	
8.	Group Discussion	
9.	Class Assignment	
10.	Class Assignment	
11.	Rural Marketing Environment	
12.	Rural Marketing Environment	
13.	Rural Marketing Environment	
14.	Influence of geographical factors on marketing operations	
15.	Influence of geographical factors on marketing operations	

16.	Influence of economic factors on marketing operations	Unit 2
17.	Influence of economic factors on marketing operations	
18.	Influence of socio-cultural factors on marketing operations	
19.	Influence of socio-cultural factors on marketing operations	
20.	Influence of other factors on marketing operations	
21.	Market Segmentation	Unit 3
22.	Rural Market Segmentation	
23.	Pre-requisites of effective segmentation	
24.	Pre-requisites of effective segmentation	
25.	Approaches to rural segmentation	
26.	Approaches to rural segmentation	
27.	Influence of market segmentation in rural marketing	
28.	Influence of market segmentation in rural marketing	
29.	Case studies	
30.	Doubt clearing and revision	
31.	Rural Marketing Strategies	Unit 4
32.	Product Planning for rural marketing	
33.	Product features for rural marketing	
34.	Distribution channels	
35.	Pricing issues in rural marketing	
36.	Logistics issues in rural marketing	
37.	Doubt clearing and revision	

Course – Non-CBCS

Class/Semester- B. Com 6thSemester

Name of the Paper- **Basics of Academic Project Preparation**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Introduction to Research:	Unit 1
2.	Types of research projects	
3.	Fact, concept and theories;	
4.	Planning the research project-essential ingredients of planning;	
5.	Developing research questions.	
6.	Research Design-Components.	

Course – Non-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- **Small Business Management**

Units Assigned- Unit 1

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Small Business – Micro and small enterprise – concept, definition, characteristics and rationale.	Unit 1
2.	Relationship between large and small enterprise.	
3.	Different types of micro and small enterprise and their distinctive characteristics.	
4.	Role of small business – a brief global perspective with special reference to Indian economy.	
5.	Features of Micro, small and medium enterprise Act 2006, governing the promotion and management of Micro and small enterprise in India.	
6.	Industrial policies of the Central and state Govt. governing the promotion and management of Micro and small enterprise in N. E. India with special reference to Assam	

Course – Non-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- **International Business**

Units Assigned- Unit 1 and 4

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	India's Foreign Trade- An Introduction	Unit 1
2.	Trends and Developments; Commodity composition and direction;	
3.	India's Foreign Trade in global context.	
4.	Infrastructure Support for Export Promotion: Export Promotion Councils; Commodity boards/ product export development authorities;	Unit 4
5.	Specific service institutions;	
6.	State trading organizations;	
7.	Export and Trading Houses.;	
8.	Export Processing Zones/Special Economic Zone (EPZ/SEZ);	
9.	Export Oriented units (EOUs).	

DIGBOI COLLEGE, DIGBOI
COURSE PLAN

Name of the Teacher- Samrat Bharadwaj
Stream: Commerce

Course – Honours

Class/Semester- B. Com 1st Semester

Name of the Paper- Business Law

Units Assigned- Unit 1 and Unit 2

Marks Assigned- 16+16 = 32

Class	Topic/ Unit	Remarks
1.	Contract: Meaning and Characteristics	Unit 1
2.	Types of Contracts	
3.	Offer and Acceptance, Consideration, Contractual Capacity	
4.	Free Capacity, Free Consent, Legality of Objects	
5.	Void Agreements	
6.	Discharge of Contract	
7.	Discharge of Contract	
8.	Discharge of Contract	
9.	Contingent Contracts	
10.	Contingent Contracts	
11.	Quasi Contracts	
12.	Quasi Contracts	
13.	Revision and Doubt Clearing	
14.	Questions and Answers Discussion	
15.	Contract of Indemnity	Unit 2
16.	Contract of Indemnity	
17.	Contract of Guarantee	
18.	Contract of Bailment	
19.	Contract of Bailment	
20.	Contract of Agency	
21.	Contract of Agency	
22.	Questions and Answers Discussion	
23.	Revision and Doubt Clearing	
24.	Revision and Doubt Clearing	

Course – Honours

Class/Semester- B. Com 2nd Semester

Name of the Paper- Corporate Law

Units Assigned- Unit 2 and Unit 5

Marks Assigned- 18+8 = 26

Class	Topic/ Unit	Remarks
1.	Memorandum of Association	Unit 2
2.	Characteristics of Memorandum of Association	
3.	Articles of Association	
4.	Clauses of Articles of Association	
5.	Doctrine of Constructive Notice	
6.	Doctrine of Indoor Management	
7.	Prospectus: Meaning and Importance	
8.	Red Herring and Shelf Prospectus	
9.	Misstatement in Prospectus	
10.	Global Depository Receipts, Book Building	
11.	Issue, Allotment and Forfeiture of Share	
12.	Transmission of shares	
13.	Buyback of Shares, Provisions of buyback, Issue of Bonus Shares	
14.	Revision and Doubt Clearing	
15.	Depositories Act, 1996: Definition and Basics	Unit 5
16.	Rights and Obligations of Depositories	
17.	Participants, issuers and beneficial owners	
18.	Enquiry, inspections and penalty.	
19.	Revision and Doubt Clearing	

Course – Honours

Class/Semester- B. Com 3rd Semester

Name of the Paper- Human Resource Management

Units Assigned- Unit 1 and Unit 3

Marks Assigned- 16+16 = 32

Class	Topic/ Unit	Remarks
1.	Meaning of Human Resource Management	Unit 1
2.	Functions and Role of HRM	
3.	HR manager: Competencies and Status	
4.	HR Policies	
5.	History and Evolution of HRM	
6.	HRM vs HRD	
7.	Emerging Challenges of HRM	
8.	Workforce Diversity	
9.	Empowerment	
10.	Downsizing	
11.	Voluntary Retirement Scheme	
12.	Human Resource Information System	
13.	Revision and Doubt Clearing	
14.	Revision and Doubt Clearing	
15.	Basic Concept of Training and its Importance	Unit 3
16.	Training Needs Identification and Development Needs	
17.	Designing Training Programme	
18.	Role Specific and Competency Based Training	
19.	Evaluating Training Effectiveness	
20.	Training Process Outsourcing	
21.	Management Development	
22.	Career Development	
23.	Revision and Doubt Clearing	
24.	Flipped Classroom	
25.	Flipped Classroom	
26.	Flipped Classroom	

Course – Honours

Class/Semester- B. Com 3rd Semester

Name of the Paper- Management Principles and Applications

Units Assigned- Unit 3 and Unit 4

Marks Assigned- 16+16 = 32

Class	Topic/ Unit	Remarks
1.	Meaning and Steps of Organising	Unit 3
2.	Characteristics, Merits of Organising	
3.	Functional Structure	
4.	Divisional Structure	
5.	Span of Management	
6.	Line, Staff and Functional Authority	
7.	Decentralization	
8.	Delegation of Authority	
9.	Formal and Informal Structure	
10.	Principles of Organising	
11.	Principles of Organising	
12.	Network Organization Structure	
13.	Revision and Doubt Clearing	
14.	Concept of Staffing and its Characteristics and Process	Unit 4
15.	Concept of Motivation and its importance	
16.	Extrinsic and Intrinsic Motivation	
17.	Maslow's Need Hierarchy Theory	
18.	Herzberg's Two Factor Theory	
19.	Vroom's Expectancy Theory	
20.	Concept and Importance of Leadership	
21.	Likert Scale's Theory, Managerial Grid Theory, Path Goal Theory	
22.	Fred Fielder's Situational Leadership, Transactional, Transformational and Transforming Leadership	
23.	Communication: Purpose, Significance, Written and Oral Communication	
24.	Formal and Informal Communication, Barriers to communication	
25.	Revision and Doubt Clearing	
26.	Revision and Doubt Clearing	

Course –Generic

Class/Semester- B. Com 3rd Semester

Name of the Paper- Business Statistics

Units Assigned- Unit 3 and Unit 6

Marks Assigned- 16+8 = 24

Class	Topic/ Unit	Remarks
1.	Meaning of correlation: simple, multiple and partial	Unit 3
2.	Linear and Non-Linear correlation	
3.	Correlation and causation, Scatter Diagram	
4.	Pearson's Co-efficient of correlation	
5.	Rank correlation	
6.	Correlation and probable errors	
7.	Principle of least squares and regression lines, regression equation and estimation, properties of regression coefficient	
8.	Relationship between correlation and regression coefficients, Standard errors of estimate	
9.	Population vs Sample, Parameter vs Statistic	Unit 6
10.	Descriptive vs inferential statistics, Sampling methods	
11.	Sampling Methods	
12.	Sampling Methods	
13.	Point and Interval estimation of means and proportions	
14.	Doubt Clearing and Revision	
15.	Discussion of problematic sums	

Course – SEC

Class/Semester- B. Com 3rd Semester

Name of the Paper- E-Commerce

Units Assigned- Unit 1 and Unit 5

Marks Assigned- 16+8 = 24

Class	Topic/ Unit	Remarks
1.	E-Commerce: Meaning, Nature, Advantages, Disadvantages	Unit 1
2.	Reasons for online business, types of e-commerce	
3.	e-commerce business models, forces behind e-commerce	
4.	World wide web and internet: basics	
5.	World wide web and internet: evolution and features	

6.	Launching an e-commerce website	
7.	Launching an e-commerce website	
8.	Revision and doubt clearing	
9.	Models and Methods of e-payment	Unit 5
10.	Digital signature, payment gateways, online banking	
11.	Online banking: EFT, Automated ledger posting, automated clearing house	
12.	Risks involved in e-payment	
13.	Revision and Doubt clearing	

Course – SEC

Class/Semester- B. Com 4th Semester

Name of the Paper- Retail Management

Units Assigned- Unit 3

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Store based retailing: Meaning, Characteristics, Merits, Demerits	Unit 3
2.	Non-Store based retailing: Meaning, Characteristics, Merits, Demerits	
3.	Vertical Marketing System	
4.	Vertical Marketing System	
5.	Retailing Life Cycle	
6.	Retailing Life Cycle	
7.	Doubt Clearing and Revision	
8.	Doubt Clearing and Revision	
9.	Discussion of Case studies	
10.	Discussion of Case studies	

Course – Honours

Class/Semester- B. Com 5th Semester

Name of the Paper- Principles of Marketing

Units Assigned- Unit 2 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Consumer Behaviour: Concept	Unit 2
2.	Consumer Behaviour: Significance	
3.	Relevance of consumer behavior in marketing	
4.	Market segmentation: Meaning and Importance	
5.	Bases for market segmentation	
6.	Bases for market segmentation	
7.	Strategies associated with market segmentation	
8.	Discussion of Case studies	
9.	Doubt Clearing and Revision	
10.	Doubt Clearing and Revision	
11.	Flipped Classroom	
12.	Flipped Classroom	
13.	Flipped Classroom	
14.	In-House Debate	
15.	Important Questions and Answers Discussion	
16.	Important Questions and Answers Discussion	
17.	Meaning of Promotion Mix	Unit 4
18.	Needs and importance of Promotion	
19.	Elements of Promotion Mix	
20.	Elements of Promotion Mix	
21.	Distribution Channels: Meaning and Significance	
22.	Types of channels of distribution	
23.	Factors affecting choice of distribution channels	
24.	Factors affecting choice of distribution channels	
25.	Real life examples of successful promotional campaigns	
26.	Discussion of Case Studies	
27.	Revision and Doubt Clearing	
28.	Ad-Made Show	
29.	Ad-Made Show	
30.	Important Question and Answer Discussion	
31.	Important Question and Answer Discussion	
32.	Overall Doubt Clearing Session	

Course – DSE

Class/Semester- B. Com 5th Semester

Name of the Paper- Consumer Behaviour

Units Assigned- Unit 1, 2,3 and 4

Marks Assigned- 20+20+20+20=80

Class	Topic/ Unit	Remarks
1.	Consumer Behaviour: Concept	Unit 1
2.	Consumer Behaviour: Characteristics	
3.	Consumer Behaviour: Significance	
4.	Consumer behaviour as a marketing discipline	
5.	Relevance of consumer behavior in marketing	
6.	Consumer involvement	
7.	Consumer involvement	
8.	Decision making process	
9.	Decision making process	
10.	Discussion of Case studies	
11.	Discussion of Case studies	
12.	Revision and Doubt clearing session	
13.	Revision and Doubt clearing session	
14.	Discussion of important questions and answers	
15.	Class assignment	
16.	Class assignment	
17.	Information Search: Meaning, Importance	Unit 2
18.	Information Search Process	
19.	Evaluation criteria of information search	
20.	Decision Rules	
21.	Decision Rules	
22.	Consumer Needs and Motives	
23.	Consumer Needs and Motives	
24.	Consumer Needs and Motives	
25.	Discussion of Case Studies	
26.	Doubt Clearing and Revision	
27.	Doubt Clearing and Revision	
28.	Discussion of important questions and answers	
29.	Discussion of important questions and answers	
30.	Group Discussion	
31.	Assignment Allotment and group formation (Market Survey)	Internal Assessment Project
32.	Topic Distribution for assignment (Market Survey)	
33.	Market Data Collection	
34.	Market Data Collection	
35.	Market Data Collection	
36.	Market Data Collection	
37.	Presenting the proof of market survey	

38.	Guiding on how to write a research paper	
39.	Socio-Cultural Factors of Consumer Behaviour	Unit 3
40.	Socio-Cultural Factors of Consumer Behaviour	
41.	Buyers' Black Box	
42.	Role of Culture in Consumer Behaviour	
43.	Role of Sub-Culture in Consumer Behaviour	
44.	Role of Social Class in Consumer Behaviour	
45.	Reference groups and their role in consumer behaviour	
46.	Family and its role in consumer behaviour	
47.	Role of rules and status in consumer behaviour	
48.	Revision and doubt clearing	
49.	Discussion of important questions and answers	
50.	Personal Factors influencing consumer behaviour	Unit 4
51.	Psychological factors influencing consumer behaviour	
52.	Role of Age and life cycle stage in consumer behaviour	
53.	Economic Circumstances and consumer behaviour	
54.	Lifestyle	
55.	Personality and Self-Concept	
56.	Personality and Self-Concept	
57.	Revision and Doubt Clearing Session	
58.	Discussion of important Question and Answers	
59.	Discussion of important Question and Answers	
60.	Flipped Classroom	
61.	Flipped Classroom	
62.	Flipped Classroom	
63.	Collection of Projects	
64.	Collection of Projects	

Course – Non-CBCS

Class/Semester- B. Com 5th Semester

Name of the Paper- Retail Management

Units Assigned- Unit 1 and Unit 2

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Retailing Concept	Unit 1
2.	Indian Retailing Overview	
3.	Nature and Scope of Retailing	
4.	Significance of Retailing	
5.	Reasons for growth of retailing	
6.	Emerging trends in retailing	
7.	Emerging trends in retailing	
8.	Concept and overview of e-tailing	
9.	Revision and Doubt Clearing	
10.	Revision and Doubt Clearing	
11.	Types of Retailing	Unit 2
12.	Functions of retailing	
13.	Functions of retailing	
14.	Departmental Stores	
15.	Departmental Stores	
16.	Convenience Stores	
17.	Convenience Stores	
18.	Super Markets	
19.	Super Markets	
20.	Revision and doubt clearing	

Course – Non-CBCS

Class/Semester- B. Com 5th Semester

Name of the Paper- Sales Management

Units Assigned- Unit 2 and Unit 4

Marks Assigned- 20+20=40

Class	Topic/ Unit	Remarks
1.	Sales Force: Overview	
2.	Steps in designing and managing sales force	

3.	Steps in designing and managing sales force	Unit 2
4.	Functions and role of sales persons	
5.	Functions and role of sales persons	
6.	Functions and role of sales manager	
7.	Recruitment and Selection of sales force	
8.	Training of sales force	
9.	Revision and doubt clearing	
10.	Revision and doubt clearing	
11.	Sales Promotion: Meaning and Overview	Unit 4
12.	Significance of Sales Promotion	
13.	Factors influencing sales promotion	
14.	Tools for sales promotion	
15.	Sales promotion plan for new products	
16.	Factors affecting promotion mix	
17.	New role of marketing intermediaries	
18.	Distribution channels and factors influencing it	
19.	Online Shopping	
20.	Revision and Doubt Clearing	

Course – Non-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- Advertising Management

Units Assigned- Unit 2 and Unit 4

Marks Assigned- 20+20 = 40

Class	Topic/ Unit	Remarks
1.	Advertising Planning	Unit 2
2.	Decision Making in Advertising	
3.	Development of advertising programme	
4.	Market Segmentation	
5.	Selection of Advertising Media	
6.	Types of advertising media	
7.	Relative advantages of advertising media	
8.	Relative disadvantages of advertising media	
9.	Doubt Clearing and Revision	
10.	Doubt Clearing and Revision	
11.	Advertising Agency	
12.	Role of advertising agency	

13.	Services provided by advertising agency	Unit 4
14.	Types of advertising agency	
15.	Selection of advertising agency	
16.	Relationship with clients	
17.	Doubt clearing and revision	
18.	Ad-made show	
19.	Ad-made show	
20.	Ad-made show	

Course – Non-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- Rural Marketing

Units Assigned- Unit 1, 2, 3 and 4

Marks Assigned- 20+20+20+20=80

Class	Topic/ Unit	Remarks
1.	Indian Rural Market Overview	Unit 1
2.	Rural Marketing Meaning and Significance	
3.	Nature and Scope of Rural Marketing	
4.	Evolution of Rural Marketing	
5.	Dynamics in rural marketing	
6.	Dynamics in rural marketing	
7.	Revision and doubt clearing	
8.	Revision and doubt clearing	
9.	Class Assignment	
10.	Class Assignment	
11.	Rural Marketing Environment	Unit 2
12.	Rural Marketing Environment	
13.	Rural Marketing Environment	
14.	Influence of geographical factors on marketing operations	
15.	Influence of geographical factors on marketing operations	
16.	Influence of economic factors on marketing operations	
17.	Influence of economic factors on marketing operations	
18.	Influence of socio-cultural factors on marketing operations	
19.	Influence of socio-cultural factors on marketing operations	
20.	Influence of other factors on marketing operations	
21.	Market Segmentation	Unit 3
22.	Rural Market Segmentation	
23.	Pre-requisites of effective segmentation	
24.	Pre-requisites of effective segmentation	
25.	Approaches to rural segmentation	
26.	Approaches to rural segmentation	
27.	Influence of market segmentation in rural marketing	
28.	Influence of market segmentation in rural marketing	

29.	Discussion of Case studies	Unit 4
30.	Doubt clearing and revision	
31.	Rural Marketing Strategies	
32.	Product Planning for rural marketing	
33.	Product features for rural marketing	
34.	Distribution channels	
35.	Distribution channels	
36.	Pricing issues in rural marketing	
37.	Pricing issues in rural marketing	
38.	Logistics issues in rural marketing	
39.	Doubt clearing and revision	
40.	Doubt clearing and revision	

Course – Non-CBCS

Class/Semester- B. Com 6th Semester

Name of the Paper- Basics of Academic Project Preparation

Units Assigned- Unit 4

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Data Processing	Unit 4
2.	Research Project Report: Meaning and Basics	
3.	Format of Research project Report	
4.	Interpreting a research project report	
5.	Quantitative data analysis	
6.	Qualitative data analysis	
7.	Referencing	
8.	Illustrations	
9.	Illustrations	
10.	Doubt Clearing and Revision	

Course Plan
2020 (JULY - DEC)

1st Semester(CBCS)

Economics Core

Course Code: ECNHC101

Course Title: Introductory Microeconomics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Exploring the subject matter of Economics:	MM Gogoi
12	Unit 2: Supply and Demand: How Markets Work, Markets and Welfare:	MM Gogoi
12	Unit III: The Household Behaviour and Consumer's Choice:	MM Gogoi
10	Unit IV: The Firm and Perfect Market Structure	Subhashish Gogoi
12	Unit V: Input Markets	Subhashish Gogoi

2020 (JULY - DEC)

1st Semester

Economics Major(CBCS)

Course Code: ECNHC102

Course Title: Mathematical Methods for Economics-I

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Preliminaries	Dr. M.Sharma
12	Unit 2: Functions of one real variable	Dr. M.Sharma
12	Unit III: Derivative for Functions of One Variable	Dr. M.Sharma
10	Unit IV: Integration of functions	Karuna Phukan
12	Unit V: Differential Equations:	Simisita Borah

2nd Semester
Economics Major(CBCS)
Course Code: ECNHC201

Course Title: Introductory Macroeconomics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Introduction to Macroeconomics:	Subhashish Gogoi
12	Unit 2: Measurement of GDP:	Subhashish Gogoi
12	Unit III: Demand for and Supply of Money:	MM Gogoi
10	Unit IV: Inflation:	MM Gogoi
12	Unit V: Theory of Determination of Income and Employment:	Subhashish Gogoi

2nd Semester
Economics Major(CBCS)
Course Code: ECNHC202

Course Title: Mathematical Methods for Economics - II

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Difference equation:	Dr. Mamoni Sharma
12	Unit 2: Linear Algebra (Matrices and Determinants):	Dr. Mamoni Sharma
12	Unit III: Derivatives of Functions of several variables:	Dr. Mamoni Sharma
10	Unit IV: Unconstrained optimization :	Dr. Mamoni Sharma
12	Unit V: Constrained optimization with equality constraints:	Dr. Mamoni Sharma

3rd Semester
Economics Major(CBCS)
Course Code: ECNHC301
Course Title: Essentials of Microeconomics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Consumer Theory I	Dr. Mamoni Sharma
12	Unit 2: Consumer Theory II	Dr. Mamoni Sharma
12	Unit III: Production Theory	Dr. Mamoni Sharma
10	Unit IV: Cost Functions	Subhashish Gogoi
12	Unit V: Perfect Competition	Subhashish Gogoi

3rd Semester
Economics Major
Course Code: ECNHC302 (CBCS)
Course Title: Essentials of Macroeconomics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Consumption Function:	MM Gogoi
12	Unit 2: Investment function:	MM Gogoi
12	Unit III: Inflation and Unemployment:	MM Gogoi
10	Unit IV: Macroeconomics of an Open Economy -I:	MM Gogoi
12	Unit V: Macroeconomics of an Open Economy -II:	Simismita Bora

3rd Semester

Economics Major(CBCS)

Course Code: ECNHC303

Course Title: Statistical Methods for Economics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Descriptive Statistics:	Karuna Phukan
12	Unit 2: Elementary Probability Theory:	Karuna Phukan
12	Unit III: Random Variables and Probability Distributions:	Karuna Phukan
10	Unit IV: Sampling:	Karuna Phukan
12	Unit V: Correlation and Regression Analysis:	Karuna Phukan

2020 (JAN - JUNE)

4th Semester

Economics Major

PAPER 4.01 (MATHEMATICS FOR ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Sets and Set Operations	Simishmita Borah
11	Unit 2: Elements of Matrix Algebra and Input- Output Analysis	Simishmita Borah
8	Unit III: Differential Calculus and its Economic Applications	Simishmita Borah
10	Unit IV: Integral Calculus and its Economic Applications	Subhashish Gogoi
9	Unit V: Differential and Difference Equations	Subhashish Gogoi

2020 (JAN - JUNE)

4th Semester
Economics Major
PAPER 4.02 (PUBLIC ECONOMICS – THEORETICAL ISSUES)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Role and significance of Public Finance	Dr. M Sharma
10	Unit 2: Public Revenue: Sources of Public Revenue,	Dr. M Sharma
8	Unit III: Public Expenditure	Dr. M Sharma
8	Unit IV: Public Debt: Role and Purpose	Subhashish Gogoi
5	Unit V: Public Enterprises	Subhashish Gogoi

2020 (JULY - DEC)

5th Semester
Economics Major
PAPER 5.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – I)

No of Class	Unit No and Title	Name of the teachers
5	Unit 1: Development: Meaning and Measurement	Dr. M Sharma
11	Unit 2: Obstacles to Development	Dr. M Sharma
7	Unit III: Poverty, Inequality and Unemployment	Dr. M Sharma
10	Unit IV: Theories of Economic Growth	Dr. M Sharma
9	Unit V: Development Theories: Theories of Persistence of Underdevelopm	Dr. M Sharma

2020 (JULY- DEC)

5th Semester
Economics Major

PAPER 5.02 (PUBLIC ECONOMICS: POLICY ISSUES)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Structure, Pattern and Policies of Taxation in Developing Economies	Dr. M Sharma
9	Unit 2: Trend and Pattern of Public expenditure in India	Dr. M Sharma
7	Unit III: Budget System and Policy	Dr. M Sharma
5	Unit IV: Fiscal Policy: Its role and objectives	Dr. M Sharma
8	Unit V: Fiscal Federalism: Principles of Allocation of Resources	Dr. M Sharma

2020 (JULY - DEC)

5th Semester

Economics Major

PAPER 5.03 (HISTORY OF ECONOMIC THOUGHT)

No of Class	Unit No and Title	Name of the teachers
7	Unit 1: Pre-Classical and Classical Economic Thought	Karuna Phukan
8	Unit 2: Reaction against Classicism	Karuna Phukan
9	Unit III: The Reconstruction of Economic Science	Karuna Phukan
10	Unit IV: Keynesian Economic Thought	Karuna Phukan
11	Unit V: Indian Economic Thought	Karuna Phukan

2020 (JULY - DEC)

5th Semester

Economics Major
PAPER 5.04 (MONETARY THEORIES AND FINANCIAL MARKETS)

No of Class	Unit No and Title	Name of the teachers
11	Unit 1: Theories of demand for and supply of money	M M Gogoi
8	Unit 2: Inflation and Deflation	M M Gogoi
9	Unit III: Business Cycle: Meaning, types and phases	M M Gogoi
7	Unit IV: Banking: Scheduled commercial banks	M M Gogoi
6	Unit V: Financial Markets	M M Gogoi

2020 (JAN - JUNE)

6th Semester

Economics Major

PAPER 6.01 (DEVELOPMENT ECONOMICS WITH INDIAN PERSPECTIVE – II)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Planning: Concept and Justification	Shubhashish Gogoi
10	Unit 2: Role of Agriculture in Economic Development	Shubhashish Gogoi
8	Unit III: Role of Industries in the Development Process	Shubhashish Gogoi
11	Unit IV: India in the Global Economy:	Simishmita Borah
7	Unit V: Economic Problems of North-East India	Simishmita Borah

2020 (JAN - JUNE)

6th Semester

Economics Major

PAPER 6.02 (ENVIRONMENTAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
9	Unit 1: Basic Concepts: Ecology, Environment and Economy	Simishmita Borah
12	Unit 2: Market Failure: Concept and Common Sources of Market Failure	Simishmita Borah
11	Unit III: Solution to the Environmental problems	MM Gogoi
10	Unit IV: Sustainable development	MM Gogoi
8	Unit V: Global and Local Environmental Concerns	MM Gogoi

2020 (JAN - JUNE)

6th Semester

Economics Major

PAPER 6.03 (INTERNATIONAL ECONOMICS)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: International Economics and Trade Theories	Simishmita Brah
8	Unit 2: Terms of Trade and Gains From Trade	Simishmita Brah
9	Unit III: International Trade Policy:	MM Gogoi
10	Unit IV: Foreign Exchange Markets and Exchange Rates	MM Gogoi
7	Unit V: Evolution of International Monetary System:	MM Gogoi

2020 (JAN - JUNE)

6th Semester

Economics Major

PAPER 6.04 (ECONOMIC ISSUES OF ASSAM)

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Economic Characteristics of Assam	MM Gogoi
10	Unit 2: Agriculture: Trends and Pattern of Production	MM Gogoi
9	Unit III: Industry: Problems and prospects of Industrial development of Assam	MM Gogoi
7	Unit IV: Infrastructure: Economic Infrastructure of the State	MM Gogoi
10	Unit V: Economic Problems of Assam	MM Gogoi

Course Plan

2020 (JULY - DEC)

1st Semester

Economics Generic(CBCS)

Course Code: ECNGE1

Course Title: Introductory Microeconomics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Exploring the subject matter of Economics	AN Chakraborty
12	Unit 2: Supply and Demand: How Markets Work, Markets and Welfare	AN Chakraborty
12	Unit III: The Household Behaviour and Consumer's Choice	Subhashish Gogoi
10	Unit IV: The Firm and Perfect Market Structure	Subhashish Gogoi
12	Unit V: Input Markets	Subhashish Gogoi

2nd Semester
Economics Generic
Course Code: ECNGE2

Course Title: Introductory Macroeconomics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Introduction to Macroeconomics	Subhashish Gogoi
12	Unit 2: Rules and approaches of Measurement of GDP	MM Gogoi
12	Unit III: Demand for and Supply of Money	MM Gogoi
10	Unit IV: Inflation	Subhashish Gogoi
12	Unit V: Theory of Income Determination	Subhashish Gogoi

3rd Semester
Economics Generic
Course Code: ECNGE3.3

Course Title: Environmental Economics

No of Class	Unit No and Title	Name of the teachers
12	Unit 1: Introduction: Environment and Economy	Subhashish Gogoi
12	Unit 2: The Design and Implementation of Environmental Policy	Subhashish Gogoi
12	Unit III: Environmental Valuation Methods and Applications	Subhashish Gogoi
10	Unit IV: Sustainable Development:	Subhashish Gogoi

2020 (JAN - JUNE)

4th Semester
Economics Non-Major
PAPER 4.01 (Issues of Indian Economy)

No of Class	Unit No and Title	Name of the teachers
8	Unit 1: Major features of Indian economy with special reference to Assam	Dr. Mamoni Sharma
7	Unit 2: Basic issues in agriculture at national level and in Assam	Subhashish Gogoi
12	Unit III: Industry and tertiary sectors in India	Subhashish Gogoi
7	Unit IV: Industry, trade and commerce in Assam	Subhashish Gogoi
8	Unit V: Economic Planning and Economic Reforms	Dr. Mamoni Sharma

2020 (JULY - DEC)
5th Semester
Economics Non-Major
PAPER 5.01 (Elementary Statistics for economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Introduction: Definition of statistics, uses and abuses of statistics	Dikhya Mahanta
10	Unit 2: Measurement of central tendency	Dikhya Mahanta
10	Unit III: Measures of dispersion	Dikhya Mahanta
8	Unit IV: Index numbers	MM Gogoi
6	Unit V: Interpolation	MM Gogoi

2020 (JAN - JUNE)

6th Semester

Economics Non-Major

PAPER 6.01 (Development Economics)

No of Class	Unit No and Title	Name of the teachers
10	Unit 1: Growth and Development: Growth	Subhashish Gogoi
7	Unit 2: Theories of Economic Development and Economic Growth	Subhashish Gogoi
8	Unit III: Human Resource Development and Manpower Planning	Subhashish Gogoi
10	Unit IV: Sectoral Analysis of Development:	MM Gogoi
6	Unit V: Economic Development and Planning:	MM Gogoi

COURSE PLAN

2020-2021

DEPARTMENT OF EDUCATION

DIGBOI COLLEGE

COURSE PLAN-2020-21

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-I

Name of the paper-philosophical foundation of Education

Units Assigned-II Indian schools of philosophy and their influence in education

III-western schools of philosophy and their influence in Education

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	1.basic feature and classification of Indian philosophy	
2	2.yoga philosophy	
3	Hatha, Raj,astangika	
4	Influence of yoga in Education	
5	Vedanta philosophy concept and basic features	
6	Advaita Vedanta,	
7	Influence in Education	
8	Buddhism, four noble truth	
9	Influence in Education	
10	Middle path	
11	impact of Indian schools of philosophy in present system of education.	

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-I

Name of the paper-sociological foundation of Education

Units Assigned-V –education and political ideologies

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Democracy- concept and basic features	
2	Nature of education in	

	democracy	
3	Totalitarianism – concept & basic feature	
5	Nature of education in totalitarianism	
6	communism- concept and basic features	
7	Nature of education in totalitarianism	
8	Secularism-concept and basic feature	
9	Discussion	

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-III

Name of the paper-Measurement and evaluation in education

Units Assigned–**Concept of Measurement And Evaluation In Education**

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Meaning and Nature of measurement and evaluation in education.	
2	Relationship between measurement and evaluation in education	
3	Psychological measurement	
5	Physical measurement	
6	Difference between Psychological and Physical measurement	
7	Principle of evaluation	
8	Continuous and comprehensive evaluation	
9	Difference between Continuous and comprehensive	
10	Formative and summative evaluation	
11	Formative and summative evaluation	
12	Diagnostic and prognostic evaluation	
13	Diagnostic and prognostic evaluation	

14	Discussion	
Unit IV-STATISTICS IN EDUCATION		
1	Meaning nature and scope of educational statistics	
2	Types of data –Enumeration and Measurement Data	
3	Grouped and ungrouped data	
4	Measurement Of Central Tendency -Concept Of Mean Median and Mode	
5	Merits and demerits of Mean Median and Mode	
6	Computation and application in education Computation and application in education	
7	Computation and application in education	
8	Measurement of variability – concept of range ,quartile deviation, mean deviation ,standard deviation	
9	Computation of application of range ,quartile deviation	
10	Computation of application of standard deviation	
11	Computation of application of standard deviation	
12	Practice of computation	
13	Practice	
14	Tutorial	
15	Tutorial	

Name of the Teacher- Pradip Dutta

Course –Honours

Class/Semester-III

Name of the paper-Experimental psychology and laboratory practical

Units Assigned- **–II Memory**

Marks Assigned- 12

Serial number of classes	Topic/ Unit	Remarks
1	Meaning and Nature of Memory	
2	Types of Memory (long term and short term)	
3	Factors affecting memory	

5	Memory span	
6	Historical background of testing memory	
7	Testing of memory	
8	Memory span for digit	
9	Memory span for letters	
10	Memory span for words	
11	Memory span for Non-sense syllables	
12	Recall and recognition	
13	practice	
14	Practice	

Serial number of classes	Topic/ Unit	Remarks
1	Sankaracharyas -basic tenents and advaita Vedanta	
2	Aims of education and curriculum	
3	Method of Teaching , Place of teacher	
5	Place of child and discipline	
6	Yagyavalkos –concept of soul and absolute soul	
7	Aims of education and curriculum	
8	Method of Teaching , Place of teacher	
9	Place of child and discipline	
10	sankardevs –philosophy of life	
11	Aims of education and curriculum	
12	Method of Teaching , Place of teacher	
13	Place of child and discipline	
14	Discussion	
Unit iv – western Educators &educational thoughts		
	John Dewey - philosophy of life	
1	Deweys experimental school	
2	Concept of education according to Dewey	
3	Aims of education and curriculum	
4	Method of Teaching , Place of teacher	
5	Place of child and discipline	
6	Deweys pragmatism	
7	Relevance of deweys	

	pragmatism	
8	Jacques Derrida , philosophy of life	
9	Concept of deconstruction	
10	Derrida's basic ideas on education	
11	Derrida's reaction to Rousseau's naturalism	
12	Derrida's reaction to idealism	
13	Jean Paul Sartre -philosophy of life	
14	Sartre's idea of freedom and individualism	
15	Educational implications of these two ideas	
16	Discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 1st

Name of the Paper- C-1- **BASIC CIRCUIT THEORY AND NETWORK ANALYSIS**

Units Assigned- Unit-4

Marks Assigned- 16

Class	Topic/ Unit	Remarks
1	Principal of Duality, Superposition Theorem	
2	Principal of Duality, Superposition Theorem	
3	Thevenin's Theorem	
4	Norton's Theorem	
5	Reciprocity Theorem	
6	Millman's Theorem	
7	Maximum Power Transfer Theorem	
8	AC circuit analysis using Network theorems	
9	AC circuit analysis using Network theorems	
10	Impedance (Z) Parameters	Two Port Networks
11	Impedance (Z) Parameters	
12	Admittance (Y) Parameters	
13	Admittance (Y) Parameters	
14	Transmission (ABCD) Parameters	
15	Transmission (ABCD) Parameters	
16	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 1st

Name of the Paper- C2-**MATHEMATICS FOUNDATION FOR ELECTRONICS**

Units Assigned- Unit- I, II, IV

Marks Assigned- 46

Class	Topic/ Unit	Remarks
1	First Order Ordinary Differential Equations	
2	First Order Ordinary Differential Equations	
3	Separable Ordinary Differential Equations	
4	Exact Ordinary Differential Equations	
5	Exact Ordinary Differential Equations and Linear Ordinary Differential equations	
6	Linear Ordinary Differential equations	
7	Second Order Homogeneous and Non-Homogeneous Differential Equations	
8	Second Order Homogeneous and Non-Homogeneous Differential Equations	
9	Power series method	
10	Power series method	
11	Legendre polynomials	
12	Frobenius Method	
13	Bessel's functions of first and second kind	
14	Bessel's functions of first and second kind	
15	Error functions and gamma function.	
16	Error functions and gamma function	
17	Introduction to Matrices	
18	System of Linear Algebraic Equations	
19	Gaussian Elimination Method, Gauss -Seidel Method	
20	LU decomposition	
21	Solution of Linear System by LU decomposition	
22	Eigen Values and Eigen Vectors, Linear Transformation	
23	Properties of Eigen Values and Eigen Vectors, Cayley-Hamilton Theorem	
24	Diagonalization, Powers of a Matrix.	
25	Real and Complex Matrices	
26	Real and Complex Matrices	
27	Symmetric, Skew Symmetric, Orthogonal Quadratic Form	

28	Symmetric, Skew Symmetric, Orthogonal Quadratic Form	
29	Hermitian, Skew Hermitian	
30	Hermitian, Skew Hermitian, Unitary Matrices.	
31	Complex Variable, Complex Function,	
32	Continuity, Differentiability, Analyticity	
33	Cauchy-Riemann (C- R) Equations	
34	Harmonic and Conjugate Harmonic Functions	
35	Exponential Function, Trigonometric Functions, Hyperbolic Functions.	
36	Exponential Function, Trigonometric Functions, Hyperbolic Functions.	
37	Line Integral in Complex Plane, Cauchy's Integral Theorem	
38	Cauchy's Integral Formula, Derivative of Analytic Functions.	
39	Cauchy's Integral Formula, Derivative of Analytic Functions.	
40	Sequences, Series and Power Series	
41	Sequences, Series and Power Series	
42	Taylor's Series, Laurent Series	
43	Taylor's Series, Laurent Series	
44	Zeroes and Pole	
45	Residue integration method, Residue integration of real Integrals.	
46	Residue integration method, Residue integration of real Integrals.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 2nd

Name of the Paper- C-4- **APPLIED PHYSICS**

Units Assigned- ALL

Marks Assigned- 60

Class	Topic/ Unit	Remarks
1	Inadequacies of Classical physics, Compton's effect	
2	Photo-electric Effect	
3	Wave-particle duality, de Broglie waves	
4	Wave-particle duality, de Broglie waves	
5	Basic postulates and formalism of quantum mechanics	
6	probabilistic interpretation of waves	
7	conditions for physical acceptability of wave functions.	
8	Schrodinger wave equation for a free particle and in a force field (1 dimension)	
9	Boundary and continuity conditions, Operators in Quantum Mechanics.	
10	Conservation of probability, Time-dependent form	
11	Conservation of probability, Time-dependent form	
12	Linearity and superposition of Operators, Time-independent one-dimensional Schrodinger wave equation	
13	Stationary states, Eigen-values and Eigen functions	
14	Particle in a one-dimensional box, Extension to a three-dimensional box	
15	Potential barrier problems, phenomenon of tunneling	
16	Kronig Penney Model and development of band structure	
17	Kronig Penney Model and development of band structure	
18	Spherically symmetric potentials	
19	Hydrogen-like atom problem	
20	Revision	
21	Elastic and Plastic Deformations	
22	Hooke's Law	

23	Elastic Moduli	
24	Brittle and Ductile Materials	
25	Tensile Strength, Theoretical and Critical Shear Stress of Crystals	
26	Tensile Strength, Theoretical and Critical Shear Stress of Crystals	
27	Strengthening Mechanisms	
28	Strengthening Mechanisms, Hardness, Creep, Fatigue, Fracture	
29	Hardness, Creep, Fatigue, Fracture.	
30	Revision	
31	Brief Introduction to Laws of Thermodynamics	
32	Concept of Entropy	
33	Concept of Phonons	
34	Heat Capacity, Debye's Law	
35	Heat Capacity, Debye's Law	
36	Lattice Specific Heat, Electronic Specific Heat	
37	Lattice Specific Heat, Electronic Specific Heat	
38	Specific Heat Capacity for Si and GaAs	
39	Specific Heat Capacity for Si and GaAs	
40	Thermal Conductivity	
41	Thermoelectricity	
42	Seebeck Effect	
43	Thomson Effect	
44	Peltier Effect	
45	Revision	
46	Conductivity of metals, Ohm's Law,	
47	relaxation time, collision time and mean free path	
48	electron scattering and resistivity of metals	
49	heat developed in current carrying conductor	
50	Superconductivity	
51	Classification of Magnetic Materials	
52	Origin of Magnetic moment, Origin of dia, para, ferro and anti-ferro magnetism and their comparison	
53	Origin of Magnetic moment, Origin of dia, para, ferro and anti-ferro magnetism and their comparison	
54	Ferrimagnetic materials, Saturation Magnetisation and Curie temperature	
55	Ferrimagnetic materials, Saturation Magnetisation and Curie temperature	
56	Magnetic domains, Concepts of Giant Magnetic Resistance (GMR)	
57	Magnetic domains, Concepts of Giant Magnetic Resistance (GMR)	
58	Magnetic recording	
59	Magnetic recording	
60	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 3rd

Name of the Paper- C-5- ELECTRONICS CIRCUITS

Units Assigned- Unit-4

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1	Depletion and Enhancement MOSFET	MOSFET
2	Biasing of MOSFETs	
3	Biasing of MOSFETs	
4	Small Signal Parameters	
5	Small Signal Parameters	
6	Common Source amplifier circuit analysis	
7	CMOS circuits	
8	CMOS circuits	
9	Difference between voltage and power amplifier, classification of power amplifiers	Power Amplifiers
10	Difference between voltage and power amplifier, classification of power amplifiers	
11	Class A, Class B, Class C and their comparisons	
12	Class A, Class B, Class C and their comparisons	
13	Operation of a Class A single ended power amplifier	
14	Circuit operation of complementary symmetry Class B push pull power amplifier	
15	crossover distortion, heat sinks	
16	Circuit diagram, Working and Frequency Response	Single tuned amplifiers
17	Circuit diagram, Working and Frequency Response	
18	Limitations of single tuned amplifier, Applications of tuned amplifiers in communication circuits	
19	Limitations of single tuned amplifier, Applications of tuned amplifiers in communication circuits	
20	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 3rd

Name of the Paper- C-6- **DIGITAL ELECTRONICS AND VERILOG/VHDL**

Units Assigned- ALL

Marks Assigned- 60

Class	Topic/ Unit	Remarks
1	Decimal, Binary, Hexadecimal and Octal number systems, base conversions,	
2	Binary, Octal and Hexadecimal arithmetic (addition, subtraction by complement method, multiplication),	
3	representation of signed and unsigned numbers, Binary Coded Decimal code.	
4	Introduction to Boolean Algebra and Boolean operators	
5	Basic postulates and fundamental theorems of Boolean algebra	
6	Truth Tables of OR, AND, NOT, XOR, XNOR	
7	Universal (NOR and NAND) gates	
8	Fan-in, Fan out, Noise Margin, Power Dissipation, Figure of merit, Speed power product	
9	TTL and CMOS families and their comparison.	
10	TTL and CMOS families and their comparison.	
11	TTL and CMOS families and their comparison.	
12	Revision	
13	Standard representation of logic functions (SOP and POS)	
14	Karnaugh map minimization	
15	Encoder	
16	ecoder	
17	Multiplexers	
18	Implementing logic functions with multiplexer	
19	Demultiplexers	
20	binary Adder	
21	binary subtractor	
22	parallel adder/subtractor	
23	parallel adder/subtractor	
24	Revision	
25	Latches and Flip flops	
26	S-R Flip flop	
27	J-K Flip flop	
28	T and D type Flip flop	

29	Clocked and edge triggered Flip flops	
30	master slave flip flop	
31	Registers	
32	Registers	
33	Counters (synchronous and asynchronous and modulo-N)	
34	Counters (synchronous and asynchronous and modulo-N)	
35	State Table, State Diagrams	
36	counter design using excitation table and equations	
37	Ring counter and Johnson counter	
38	Ring counter and Johnson counter	
39	Basic concepts- ROM, PLA, PAL, CPLD, FPGA	
40	Basic concepts- ROM, PLA, PAL, CPLD, FPGA	
41	Basic concepts- ROM, PLA, PAL, CPLD, FPGA	
42	Revision	
43	A Brief History of HDL, Structure of HDL Module	
44	Comparison of VHDL and Verilog	
45	Introduction to Simulation and Synthesis Tools, Test Benches. VHDL Modules	
46	Delays, data flow style, behavioural style, structural style	
47	mixed design style, simulating design	
48	Introduction to Language Elements, Keywords, Identifiers, White Space Characters, Comments, format.	
49	VHDL terms, describing hardware in VHDL, entity, architectures, concurrent signal assignment, event scheduling, statement concurrency, structural designs, sequential behaviour, process statements, process declarative region, process statement region, process execution, sequential statements, architecture selection, configuration statements, power of configurations.	
50	VHDL terms, describing hardware in VHDL, entity, architectures, concurrent signal assignment, event scheduling, statement concurrency, structural designs, sequential behaviour, process statements, process declarative region, process statement region, process execution, sequential statements, architecture selection, configuration statements, power of configurations.	
51	Introduction to behavioural modelling, inertial delay, transport delay , inertial delay model, transport delay model, transport vs inertial delay,	
52	Introduction to behavioural modelling, inertial delay, transport delay , inertial delay model, transport delay model, transport vs inertial delay,	
53	simulation delta drivers, driver creation, generics, block statements, guarded blocks.	
54	Process statement, sensitivity list, signal assignment vs variable assignment, sequential statements, IF, CASE, LOOP, NEXT, EXIT and ASSERT statements	
55	Process statement, sensitivity list, signal assignment vs variable assignment, sequential statements, IF, CASE, LOOP, NEXT, EXIT and ASSERT statements	
56	assertion BNF, WAIT ON signal, WAIT UNTIL expression,	

	WAIT FOR time expression, multiple wait conditions, WAIT Time-Out, Sensitivity List vs WAIT Statement Concurrent Assignment, Passive Processes.	
57	assertion BNF, WAIT ON signal, WAIT UNTIL expression, WAIT FOR time expression, multiple wait conditions, WAIT Time-Out, Sensitivity List vs WAIT Statement Concurrent Assignment, Passive Processes.	
58	Object types-signal, variable, constant, Data types– scalar types, composite types, incomplete types, File Type caveats, subtypes, Subprograms and functions	
59	Object types-signal, variable, constant, Data types– scalar types, composite types, incomplete types, File Type caveats, subtypes, Subprograms and functions	
60	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 3rd

Name of the Paper- C-7- C PROGRAMMING AND DATA STRUCTURES

Units Assigned- UNIT-3, 4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
1	Definition of stack, array implementation of stack	Data Structures
2	conversion of infix expression to prefix, postfix expressions, evaluation of postfix expression	
3	conversion of infix expression to prefix, postfix expressions, evaluation of postfix expression	
4	conversion of infix expression to prefix, postfix expressions, evaluation of postfix expression	
5	Definition of Queue, Circular queues	
6	Array implementation of queues	
7	Array implementation of queues	
8	Linked List and its implementation	
9	Link list implementation of stack and queue	
10	Link list implementation of stack and queue	
11	Circular and doubly linked list.	
12	Circular and doubly linked list.	
13	Circular and doubly linked list.	
14	Revision	
15	Insertion sort,	Searching and sorting
16	selection sort	
17	bubble sort	
18	merge sort	
19	linear Search	
20	binary search	
21	Introduction to trees	Trees
22	Binary search tree,	
23	Insertion and searching in a BST	
24	Insertion and searching in a BST	
25	pre order	
26	post order	
27	order traversal (recursive)	
28	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 4th

Name of the Paper- C-9- **SIGNALS AND SYSTEMS**

Units Assigned- ALL

Marks Assigned- 60

Class	Topic/ Unit	Remarks
1	Continuous and discrete time signals	
2	Continuous and discrete time signals	
3	Continuous and discrete time signals	
4	Transformation of the independent variable	
5	Transformation of the independent variable	
6	Transformation of the independent variable	
7	Exponential signals	
8	sinusoidal signals	
9	Impulse functions	
10	unit step functions	
11	Continuous-Time and Discrete-Time Systems	
12	Continuous-Time and Discrete-Time Systems	
13	Continuous-Time and Discrete-Time Systems	
14	Basic System Properties	
15	Basic System Properties	
16	Basic System Properties	
17	Basic System Properties	
18	Revision	
19	Discrete time LTI systems	
20	Discrete time LTI systems	
21	Convolution Sum	
22	Continuous time LTI systems	
23	Continuous time LTI systems	
24	Convolution integral	
25	Properties of LTI systems	
26	LTI systems with and without memory	
27	Causality, Stability, Unit Step response	
28	Differential and Difference equation formulation	
29	Block diagram representation of first order systems	
30	Revision	
31	Continuous-Time periodic signals	

32	Convergence of the Fourier series	
33	Properties of continuous-Time Fourier series	
34	Properties of continuous-Time Fourier series	
35	Discrete-Time periodic signals	
36	Properties of Discrete-Time Fourier series	
37	Properties of Discrete-Time Fourier series	
38	Frequency-Selective filters	
39	Simple RC highpass and lowpass filters	
40	Simple RC highpass and lowpass filters	
41	Aperiodic signals, Periodic signals,	
42	Properties of Continuous-time Fourier transform	
43	Convolution and Multiplication Properties	
44	Convolution and Multiplication Properties	
45	Properties of Fourier transform	
46	Properties of Fourier transform	
47	Fourier transform Pairs	
48	Revision	
49	Laplace Transform	
50	Laplace Transform	
51	Inverse Laplace Transform	
52	Properties of the Laplace Transform,	
53	Properties of the Laplace Transform,	
54	Laplace Transform Pairs	
55	Laplace Transform for signals,	
56	Laplace Transform Methods in Circuit Analysis	
57	Impulse and Step response of RL circuit	
58	Impulse and Step response of RC circuit	
59	Impulse and Step response of RLC circuit	
60	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 4th

Name of the Paper- C-10- **ELECTRONIC INSTRUMENTATION**

Units Assigned- Unit- III, IV

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	CRT	
2	wave form display and electrostatic focusing, time base and sweep synchronization	
3	measurement of voltage, frequency and phase by CRO	
4	Oscilloscope probes, Dual trace oscilloscope	
5	Oscilloscope probes, Dual trace oscilloscope	
6	Sampling Oscilloscope	
7	DSO	
8	Powerscope	
9	Powerscope	
10	CRO specifications	
11	Audio oscillator	
12	Audio oscillator, Pulse Generator	
13	Pulse Generator	
14	Function generator	
15	Revision	
16	Classification of transducers	
17	Basic requirement/characteristics of transducers, active & passive transducers	
18	Resistive transducers	
19	Resistive transducers	
20	Capacitive transducers	
21	Capacitive transducers	
22	Inductive transducers	
23	piezoelectric transducers	
24	Measurement of displacement, velocity and acceleration	
25	Measurement of pressure	
26	Measurement of temperature	
27	Measurement of temperature	
28	Light transducers	

29	Light transducers	
30	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 5th

Name of the Paper- C-11- **MICRO PROCESSOR AND MICROCONTROLLER**

Units Assigned- ALL

Marks Assigned- 60

Class	Topic/ Unit	Remarks
1	Introduction, Applications, Basic block diagram of microprocessors	
2	Speed, Word size, Memory capacity, Classification of microprocessors	
3	Features, Architecture of 8085	
4	General purpose registers, register pairs, flags	
5	stack pointer, program counter, types of buses	
6	Multiplexed address and data bus, generation of control signals, pin description of microprocessor 8085	
7	Basic interfacing concepts, Memory mapped I/O and I/O mapped I/O	
8	Basic interfacing concepts, Memory mapped I/O and I/O mapped I/O	
9	Operation code, Operand & Mnemonics	
10	Instruction set of 8085	
11	instruction classification, addressing modes, instruction format	
12	instruction classification, addressing modes, instruction format	
13	Assembly language programming examples.	
14	Assembly language programming examples.	
15	Assembly language programming examples.	
16	Revision	
17	Stack operations, subroutine, call and return instructions	
18	Stack operations, subroutine, call and return instructions	
19	Delay loops, use of counters, timing diagrams-instruction cycle, machine cycle	
20	Delay loops, use of counters, timing diagrams-instruction cycle, machine cycle	

21	T- states, time delay	
22	Interrupt structure of 8085A microprocessor, processing of vectored and non-vectored interrupts	
23	latency time and response time; Handling multiple interrupts	
24	Introduction, Different types of microcontroller and architecture	
25	Harvard vs. Princeton, CISC vs. RISC	
26	microcontroller memory types, microcontroller features, clocking, I/O pins,	
27	interrupts, timers, peripherals	
28	Revision	
29	Introduction to 8051, 8051 family microcontroller, Core features	8051
30	Architecture, pin diagram	
31	memory organization- Program and data memory organization	
32	I/O Ports	
33	oscillator module	
34	Timer modules (Timer 0, Timer 1 and Timer 2)	
35	Timer modules (Timer 0, Timer 1 and Timer 2)	
36	Revision	
37	Core features, Architecture	PIC16F887
38	pin diagram, memory organization	
39	Program and data memory organization, I/O Ports	
40	oscillator module,	
41	Timer modules	
42	comparator module	
43	analog-to-digital converter (ADC) module	
44	data EEPROM	
45	Enhanced capture/compare/PWM module	
46	EUSART	
47	master synchronous serial port (MSSP) module	
48	special features of the CPU	
49	Interrupts, addressing modes	
50	instruction set	
51	instruction set	
52	Revision	
53	LED, Switches, Solid State Relay	Interfacing
54	Seven Segment Display, 16x2 LCD display	
55	4x4 Matrix Keyboard	
56	Digital to Analog Converter	
57	Stepper Motor and DC Motor	
58	Interfacing program examples using C language.	
59	Interfacing program examples using C language.	
60	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 5th

Name of the Paper- DSE-2- **MODERN COMMUNICATION SYSTEMS**

Units Assigned- UNIT: 2, 4

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1	Introduction of Optical Fiber, Types of Fiber	
2	Guidance in Optical Fiber, Attenuation and Dispersion in Fiber	
3	Attenuation and Dispersion in Fiber	
4	Optical Sources	
5	Optical Sources	
6	Optical Detectors,	
7	Block Diagram of optical communication system	
8	optical power budgeting	
9	optical power budgeting	
10	Revidion	
11	Introduction, need, satellite orbits	Satellite communication
12	advantages and disadvantages of geostationary satellites	
13	Satellite visibility, satellite system – space segment	
14	Satellite visibility, satellite system – space segment	
15	block diagrams of satellite sub systems	
16	block diagrams of satellite sub systems	
17	effect of solar eclipse, path loss, ground station, simplified block diagram of earth station.	
18	effect of solar eclipse, path loss, ground station, simplified block diagram of earth station.	
19	Satellite access, TDMA, FDMA	
20	comparison of TDMA and FDMA,	
21	CDMA concepts	
22	GPS- (SPS & PPS)	
23	Primary characteristics of Ethernet-mobile IP	Local area networks (LAN)
24	OSI model	
25	OSI model	
26	wireless LAN requirements	
27	Bluetooth	
28	Wi-Fi	

29	WiMAX	
30	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 5th

Name of the Paper- 501-Analog Communication

Units Assigned- UNIT-3, 4

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1	Communication channels for AM and FM broadcast	Transmitters
2	AM transmitter	
3	Low level and high level modulation	
4	FM transmitter	
5	Receiver parameters	Receivers
6	Super Heterodyne Receiver	
7	Double Conversion Receiver	
8	AM receivers, FM receivers	
9	Frequency Division Multiplexing	
10	Radio reception at different frequencies, reflected wave, ground wave,	
11	line of sight and through satellite aerials-radiation resistance	
12	Picture elements, principle of image transmission, TV camera tubes	
13	image orthicon & vidicon	
14	electron beam scanning, synchronization-horizontal & vertical synchronization pulses, blanking horizontal & vertical.	
15	Telephony, Telegraphy, radar	
16	block diagram of pulsed & CW radar transmitter & receiver	
17	radar range equation, power & frequency consideration	
18	e-mail, fax, internet, mobile communication	
19	basic principle of satellite communication	
20	IMPATT, TRAPAIT, BARTTT	
21	IMPATT, TRAPAIT, BARTTT	
22	basic idea of gun & PIN diodes	
23	travelling wave tubes(TWT)	
24	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 5th

Name of the Paper- 501- C PROGRAMMING AND DATA STRUCTURES

Units Assigned- UNIT-3, 4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 5th

Name of the Paper- 501- C PROGRAMMING AND DATA STRUCTURES

Units Assigned- UNIT-3, 4

Marks Assigned- 28

Class	Topic/ Unit	Remarks
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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 5th

Name of the Paper- 503- Introduction to computer and programming

Units Assigned- UNIT- 4

Marks Assigned- 13

Class	Topic/ Unit	Remarks
1	Introduction to MATLAB	
2	numerical Methods	
3	numerical Methods	
4	Communication using MATLAB	
5	Communication using MATLAB	
6	Introduction to SIMULINK	
7	Model design	
8	Examples	
9	Examples	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 6th

Name of the Paper- 602- Microprocessor & Microcontroller

Units Assigned- All

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Introduction to microprocessors and microcomputers, machine language, assembly language and high level language	
2	Microprocessor architecture, types of buses, registers,	
3	Memory mapping	
4	Basic idea of INTEL 8085, 8086, 80386, 80486, Pentium processors	
5	pin-out diagram	8085
6	classification of the signals	
7	bus timings	
8	types of machine cycles and their functioning	
9	types of machine cycles and their functioning	
10	Revision	
11	8085 programming model	8085 programming
12	Accumulator, register and flags	
13	instruction classification & programming concepts	
14	stack and subroutine	
15	delay subroutines	
16	Code conversion	
17	BCD Arithmetic	
18	introduction to transmission format	
19	modes of data transfer	
20	Interrupts: Maskable and non-maskable interrupts	
21	RST (Restart), vectored interrupts	
22	instructions (SIM & RIM)	
23	Revision	
24	Primary & Secondary Memory, Memory Mapping	
25	Memory Mapping	
26	Serial and Parallel I/O & Memory	
27	Interfacing with 8085	
28	Programmable I/O and DMA	
29	Memory Mapped I/O and I/O Mapped I/O	

	techniques	
30	8255-Programmable Peripheral Interface	
31	8255-Programmable Peripheral Interface	
32	8253- Programmable interval Timer	
33	8259- Priority Interrupt Controller	
34	8279-Programmable Keyboard/Display Interface	
35	8251- USART	
36	8237/8257- Programmable DMA Controller	
37	Revision	
38	Introduction to microcontrollers, advantages of microcontrollers	Microcontroller
39	8031/8051 Microcontroller	
40	Architecture, register bank, flags	
41	special function registers	
42	I/O ports	
43	timers	
44	serial communication	
45	interrupts, instruction set	
46	instruction set	
47	Introduction to 8086	
48	Introduction to 8086 & 6800	
49	Introduction to 6800	
50	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Nabadweep Chamuah

Course –Honours

Class/Semester- 6th

Name of the Paper- 603- Power Electronics

Units Assigned- UNIT-3, 4

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1	Concepts of power diodes and power transistors	
2	Concepts of power transistors	
3	Concept of thyristor technology, ratings, symbol	
4	Thyristor characteristics	Thyristor
5	turn on methods and turn off methods	
6	turn on methods and turn off methods	
7	diacs,	
8	SCS,SVS,	
9	LASCR, SBS	
10	triacs and MOSFETS	
11	Internal power dissipation and need for heat sinks for these devices	
12	Revision	
13	Automatic battery charger	switching circuits
14	Voltage regulator	
15	Emergency light	
16	Time delay relay circuit	
17	Fan speed control, Temperature control	
18	Speed control of DC and small DC motors	
19	SMPS	
20	UPS	
21	Equipment hazardous	
22	Equipment hazardous	
23	Isolation transformers	
24	Electrical or chemical fire extinguishers	
25	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Ankit Chhetri

Course –Honours

Class/Semester- 1st

Name of the Paper- C2- **SEQUENCE AND SERIES**

Units Assigned-Unit- III

Marks Assigned - 14

Class	Topic/ Unit	Remarks
	Unit – 3	
1	Sequence, Limit of a sequence	
2	Limit of a sequence, Convergence	
3	Divergence and Oscillation of a sequence	
4	Oscillation of a sequence, Infinite series	
5	Infinite series, Necessary condition for Convergence	
6	Cauchy's Integral Test	
7	Cauchy's Integral Test	
8	D'Alembert's Ratio Test	
9	D'Alembert's Ratio Test, Cauchy's nth Root Test	
10	Cauchy's nth Root Test, Alternating series	
11	Alternating series, Leibnitz Theorem	
12	Leibnitz Theorem	
13	Absolute Convergence and Conditional Convergence	
14	Power series	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Ankit Chhetri

Course –Honours

Class/Semester- 3rd

Name of the Paper- C-7- **C PROGRAMMING AND DATA STRUCTURES (THEORY)**

Units Assigned- ALL

Marks Assigned- 60

Class	Topic/ Unit	Remarks
	Unit – 1	
1	Introduction, Importance of C, Character set	
2	Tokens, Keywords, Identifier, Constants	
3	Basic data types, Variables: declaration and assigning values.	
4	Stucture of C program, Arithmetic operators	
5	Relational operators, logical operators, Assignment operators	
6	Increment and decrement operators, Conditional operators, bitwise operators	
7	Expressions and evaluation of expressions	

8	Type cast operator, implicit conversions, precedence of operators.	
9	Arrays-concepts, declaration, accessing elements,	
10	Storing elements, two-dimensional and multi-dimensional arrays.	
11	Input output statement and library functions (math and string related functions).	
12	Input output statement and library functions (math and string related functions).	
	Unit – 2	
13	Decision making, branching and looping: if, if-else, else-if,	
14	if, if-else, else-if	
15	switch statement, break	
16	switch statement, break, for loop	
17	For loop	
18	For loop, While loop	
19	While loop, do while loop	
20	Do while loop, functions	
21	Defining functions, function arguments and passing,	
22	Defining functions, function arguments and passing, returning values from functions.	
23	Defining and declaring a structure variables, accessing structure members	
24	Defining and declaring a structure variables, accessing structure members	
25	initializing a structure, copying and comparing structure variables,	
26	initializing a structure, copying and comparing structure variables,	

27	array of structures,	
28	Arrays within structures, structure within structure	
39	structure within structure, structures and functions	
30	Pointers	
31	Pointers	
32	Object oriented programming, characteristics of an object-oriented language.	
	Unit – 3	
33	Definition of stack, array implementation of stack	
34	Definition of stack, array implementation of stack	
35	conversion of infix expression to prefix,	
36	postfix expressions, evaluation of postfix expression.	
37	evaluation of postfix expression.	
38	Definition of Queue, Circular queues	
39	Circular queues	
40	Array implementation of queues	
41	Linked List and its implementation,	
42	Linked List and its implementation,	
43	Link list implementation of stack and queue,	
44	Link list implementation of stack and queue,	
45	Circular and doubly linked list.	
46	Circular and doubly linked list.	
	Unit – 4	
47	Insertion sort	
48	Insertion sort,	

49	Selection sort	
50	Selection sort	
51	bubble sort	
52	Merge sort	
53	Linear search	
54	Binary search	
55	Introduction to trees, Binary search tree,	
56	Binary search tree, Insertion and search in BST	
57	Insertion and search in BST	
58	pre order, post order and in order traversal (recursive)	
59	pre order, post order and in order traversal (recursive)	
60	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Ankit Chhetri

Course –Honours

Class/Semester- 5th

Name of the Paper- DSE – I - **POWER ELECTRONICS**

Units Assigned- ALL

Marks Assigned- 60

Class	Topic/ Unit	Remarks
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	Unit – 1	
1	Need for semiconductor power devices, Power diodes	
2	Power diodes,	
3	Enhancement of reverse blocking capacity,	
4	Introduction to Thyristor family	
5	SCR(Silicon Controlled Rectifier), Structure of SCR	
6	Structure and V-I characteristics	
7	Turn-On and Turn-Off characteristics of SCR	
8	ratings, Factors affecting the characteristics/ratings of SCR,	
9	Gate-triggering circuits, Control circuits design	
10	Gate-triggering circuits, Control circuits design	
11	Protection circuits	
12	Protection circuits, Snubber circuit.	
	Unit – 2	
13	Basic structure, working and V-I characteristic of DIAC	
14	Basic structure, working and V-I characteristic of TRIAC	
15	Basic structure, working and V-I characteristic of TRIAC, application of a DIAC as a triggering device for a TRIAC.	
16	Basic structure, I-V Characteristics of IGBT	
17	Switching characteristics, device limitations and safe operating area (SOA) etc	
18	SCR as a static switch, phase controlled rectification	
19	Single phase half wave with inductive & non-inductive loads,	
20	Single Phase full wave rectifier with inductive & non-inductive loads,	
21	bridge rectifiers with inductive & non-inductive loads	
22	AC voltage control using SCR and Triac as a switch.	

23	Operation modes, switching characteristics of Power MOSFETs	
24	Power BJT, second breakdown, saturation and quasi-saturation state.	
25	Power BJT, second breakdown, saturation and quasi-saturation state.	
26	Revision	
	Unit – 3	
27	Need for commutating circuits and their various types	
28	Need for commutating circuits and their various types	
29	d.c. link invertors	
30	Parallel capacitor commutated invertors with and without reactive feedback and its analysis,	
31	Parallel capacitor commutated invertors with and without reactive feedback and its analysis,	
32	Series Invertor, limitations and its improved versions	
33	Series Invertor, limitations and its improved versions	
34	bridge invertors	
35	basic chopper circuit, types of choppers(Type A-D),	
36	basic chopper circuit, types of choppers(Type A-D),	
37	basic chopper circuit, types of choppers(Type A-D),	
38	step-down chopper, step-up chopper	
39	operation of d.c. chopper circuits using self commutation (A & B-type commutating circuit),	
40	operation of d.c. chopper circuits using self commutation (A & B-type commutating circuit),	
41	cathode pulse turn-off chopper(using class D commutation)	
42	cathode pulse turn-off chopper(using class D commutation), load sensitive cathode pulse turnoff chopper (Jones Chopper),	

43	load sensitive cathode pulse turnoff chopper (Jones Chopper), Morgan's chopper	
	Unit – 4	
44	DC Motors	
45	Basic understanding of field and armature,	
46	Principle of operation of DC Motor	
47	EMF equation, Back EMF	
48	EMF equation, Back EMF, Factors controlling motor speed	
49	Factors controlling motor speed	
50	Thyristor based speed control of dc motors	
51	AC motor (Induction Motor only),	
52	AC motor (Induction Motor only),	
53	Rotor and stator	
54	Rotor and stator	
55	torque & speed of induction motor	
56	torque & speed of induction motor	
57	Thyristor control of ac motors (block diagrams only).	
58	Revision	
59	Revision	
60	Revision	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Ankit Chhetri

Course –Honours

Class/Semester- 5th

Name of the Paper- DSE – II - **MODERN COMMUNICATION SYSTEMS (THEORY)**

Units Assigned- Unit- I, III

Marks Assigned- 30

Class	Topic/ Unit	Remarks
	Unit - 1	
1	DPCM (Differential Pulse Code Modulation)	
2	DPCM (Differential Pulse Code Modulation)	
3	DM (Delta Modulation)	
4	DM (Delta Modulation)	
5	ADM (Adaptive Delta Modulation)	
6	ADM (Adaptive Delta Modulation)	
7	Binary Line Coding Technique	
8	Multi level coding	
9	QAM (Modulation and Demodulation)	
10	QAM (Modulation and Demodulation)	
	Unit – 2	
11	Concept of cellular mobile communication – cell and cell splitting	
12	Concept of cellular mobile communication – cell and cell splitting, frequency bands used in cellular communication	
13	absolute RF channel numbers (ARFCN)	
14	frequency reuse, roaming and hand off	
15	frequency reuse, roaming and hand off	
16	authentication of the SIM card of the subscribers	
17	IMEI number, concept of data encryption	

18	concept of data encryption, architecture (block diagram) of cellular mobile communication network	
19	architecture (block diagram) of cellular mobile communication network	
20	CDMA technology, CDMA overview	
21	CDMA technology, CDMA overview	
22	CDMA technology, CDMA overview	
23	simplified block diagram of cellular phone handset	
24	Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.	
25	Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.	
26	Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.	
27	Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.	
28	Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.	
29	Revision	
30	Revision	

COURSE PLAN OF ENGLISH DEPARTMENT

DIGBOI COLLEGE, DIGBOI

Course Plan(Session June- December 2021)

Department Of

Name of the Teacher- Dr.Chandana Chetia

Course –10310

Class/Semester- B.A. 1st Semester

Name of the Paper- AECC 1: English Communication

Units Assigned- Unit – I, II, III & IV

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I: Communication: Theory & Types Topic: What is Communication?	
2.	The Communication Process	
3.	Verbal & Non –Verbal Communication	
4.	Effective communication: Barriers, Solutions	
5.	Intra Personal, Inter Personal & Group Communication	
6.	Different theories of Communication	
7.	Discussion/ Tutorial	
8.	Unit II: Speaking Skills Topic: Monologue	
9.	Dialogue	
10.	Group Discussion	
11.	Effective Communication/ Mis- Communication	
12.	Interview	
13.	Public Speech	
14.	Discussion/ Tutorial	
15.	Unit III: Reading and Understanding Topic: Close Reading	
16.	Comprehension	
17.	Summary	
18.	Paraphrasing	
19.	Analysis & Interpretation	
20.	Translation(from Indian Language to English and vice-versa)	
21	Discussion/ Tutorial	

22	Unit IV: Writing Skills: Topic: Documenting	
23	Report Writing	
24	Making Notes	
25	Letter Writing	
26	Discussion/ Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan (Session: June 2020 to Dec, 2021)

Course: 10200

Class/Semester: B.A Ist Semester (English Honours)

Name of the Paper: C2: European Classical Literature

Unit Assigned: I & IV

Marks Assigned: 30

Class	Topic/ Unit	Remarks
1.	Unit I : Classical Greek Epic, Homer : The Illiad An Outline of The Illiad	
2.	The Authenticity and Survival of Homer's Text	
3.	The Cental Theme of The Illiad	
4.	Main Characters & Gods & Goddesses in The Illiad	
5.	Book I of The Illiad	
6.	Book 2 of The Illiad	
7.	Book 3 of The Illiad	
8.	Book 4 & 5 of The Illiad	
9.	Book 6 of The Illiad	
10.	Book 7 & 8 of The Illiad	
11.	Book 9 &10 of The Illiad	
12.	Book 11 &12 of The Illiad	
13.	Book 13 & 14 of The Illiad	
14.	Book 15 & 16 of The Illiad	
15.	Book 17& 18 of The Illiad	
16.	Book !9 & 20 of The Illiad	

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DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Chandana Chetia

Course –20200

Class/Semester- 2nd Semester (English Honours)

Name of the Paper- Course 4: British Poetry And Drama : 14th to 17th Centuries

Units Assigned- Unit III

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Unit III: Shakespeare's Macbeth	
2.	Introduction to Drama & Shakespeares greatness as a Dramatist	
3.	Elizabethan Theatre & Shakespeare	
4.	Macbeth Act I Sc1 & 2	
5.	Act I Sc 3 & 4	
6.	Act I Sc 5	
7.	Act I Sc 6 & 7	
8.	Discussion / Tutorial	
9.	Macbeth Act 2 Sc1	
10.	Act 2 Sc 2 & 3	
11.	Act 2 Sc 4 & 5	
12.	Act 2 Sc 4	
13.	Discussion/ Tutorial	
14.	Macbeth Act 3 Sc 1 & 2	
15.	Act 3 Sc 3 & 4	
16.	Act 3 Sc 4	
17.	Act 3 Sc 5 & 6	
18.	Discussion/ Tutorial	
19.	Macbeth Act 4 Sc 1	
20.	Act 4 Sc 2 & 3	
21.	Discussion/ Tutorial	
22.	Macbeth Act 5 Sc 1	
23.	Act 5 Sc 2 & 3	
24.	Act 5 Sc 4 & 5	
25.	Act 5 Sc 6 & 7	
26.	Act 5 Sc 8 & 9	
27.	Theme of Ambition in Macbeth	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Chandana chetia

Course – 30100

Class/Semester- 3rd Semester (English Honours)

Name of the Paper- C5 : American Literature

Units Assigned- Unit I & II

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Unit I :Drama The Glass Menagerie Life & Age of Tennessee Williams	
2.	The Glass Menagerie as an Autobiographical Play	
3.	Scene 1 of The Glass Menagerie	
4.	Scene 2	
5.	Scene 3	
6.	Scene 4	
7.	Scene 5	
8.	Scene 6	
9.	Scene 7	
10.	Illusion &Reality in The Glass Menagerie	
11.	Symbolism in The Glass Menagerie	
12.	The Glass Menagerie as a Memory Play	
13.	Discussion / Tutorial	
14.	Unit II: African American Novel Toni Morrison: Beloved Emergence of African American Literature & Toni Morrison	
15.	Black Women Novelist: Development , flowering & Fruition of a Tradition	
16.	Beloved as a New- Slave Narrative	
17.	Chapter 1& 2 of Beloved	
18.	Chapter 3 & 4 of Beloved	

19.	Chapter 4 & 6 of Beloved	
20.	Chapter 7&8 of Beloved	
21	Chapter 9 & 10 of Beloved	
22	Chapter 11 , 12 & 13 of Beloved	
23	Summarised 14, 15 16 of Beloved	
24	Summarised 17 18 19, 20 of Beloved	
25	Summarised 21, 22 23 24 of Beloved	
26	Summarised 25, 26 27 28 Of Beloved	
27	Character Analysis	
28	Motherhood in Beloved	
29	The Mystery Streak in Beloved	
30	Discussion/ Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Chandana Chetia

Course –

Class/Semester- 40200

Name of the Paper- 4th Semester (English Honours)

Units Assigned-Unit III & IV

Marks Assigned- 30

Class	Topic/ Unit	Remarks
1.	Unit III: High Romantic poetry Socio Cultural Background of Romantic Age	
2.	Features of Romanticism, Meaning of Ode	
3.	Ode to Autumn	
4.	Contd Ode to Autumn & completed	
5.	Ode to a Nightingale	
6.	Ode to a Nightingale	
7.	On First Looking Into Chapman's Homer	
8.	Introduction to P. b Shelley	

9.	1 st 3 Stanzas of Ode to the West Wind	
10.	Ode to the West Wind	
11.	Hymn to Intellectual Beauty	
12.	Discussion / Tutorial	
13.	Frankenstein : The Background	
14.	The Romantic Movement and Frankenstein	
15.	Chapterwise analysis of the novel	
16.	Contd	
17.	Contd	
18.	Contd	
19.	Contd	
20.	Contd	
21.	Contd	
22.	Contd	
23.	Contd	
24.	Character Analysis	
25.	Motifs & Symbols in Frankenstein	
26.	Discussion/ Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher-Dr. Chandana Chetia

Course –50200

Class/Semester- 5th Semester (English Honours)

Name of the Paper-C12: British Literature : The Early 20th Century

Units Assigned- I , II & IV

Marks Assigned- 50

Class	Topic/ Unit	Remarks
1.	Unit I : Joseph Conrad: Heart of Darkness Various Aspects of Conrad as a Novelist	

2.	Detailed Summary of Heart of Darkness Part I	
3	Detailed Summary of Part II	
4.	Detailed Summary of Part III	
5.	Major themes in Heart of Darkness	
6.	Critical Analysis of Major Characters	
7.	Symbolical Significance of the Novel	
8.	Unit II: Lawrence's : Sons & Lovers The Age of D.H Lawrence	
9.	The Essentials of Lawrence's Philosophy	
10.	Chapterwise Analysis of the novel	
11.	Contd	
12.	Contd	
13.	Contd	
14.	Contd	
15.	Contd	
16.	Oedipus Complex in Sons & Lovers	
17.	Paul- Miriam, Paul-Clara relationship	
18.	Use of Symbols in the novel , Autobiographical elements in the novel	
19.	Discussion /Tutorial	
20.	Unit IV: Modernist Poetry W. B Yeats: Leda & the Swan	
21	W.B Yeats: No Second Troy	
22	W. B Yeats: Sailing to Byzantium	
23	Contd	
24	Yeats' The Second Coming	
25	contd	
25	Contd	
26	Discussion / Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher-Dr. Chandana Chetia

Course – 502

Class/Semester- 5th Semester (Non- C.B. C. S)

Name of the Paper-Reading Drama

Units Assigned-Unit III

Marks Assigned- 20

Class	Topic/ Unit	Remarks
1.	Bernard Shaw's : Pygmalion Essence of Shaw's Plays/ Main Trends : Shaw's Contribution	
2.	Detailed study of Act I	
3	Act II	
4.	Act II	
5.	Act III	
6.	Act III	
7.	Act IV	
8.	Act V	
9.	Act V	
10.	Pygmalion As a Problem Play	
11.	Title of the Play	
12.	Theme of Education	
13.	Character Analysis	
14.	Raja Rao's : Kanthapura Raja Rao: A Philosophical Novelist	
15.	Gandhian Ideology in Kanthapura	
16.	Summary of Kanthapura	
17.	Characterisation	
18.	Kanthapura- as a Sthalapurana	
19.	Society in Kanthapura	
20.	The Political Element in Kanthapura	
21	Discussion / Tutorial	
22	Discussion / Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan(Session June- December 2021)

Department Of

Name of the Teacher- Dr.Chandana Chetia

Course : 602

Class/Semester- B.A. 6thSemester(English major, Non- C.B.C.S)

Name of the Paper- Literature of the U.S.A

Units Assigned- Unit – I & IV

Marks Assigned- 30

Class	Topic/ Unit	Remark
1	Henry David Thoreau as a Transcendentalist	
2	Whitman as a Spokesman of America	
3	Influence of Puritanism in Early American Literature	
4	Features of RenaissanceLiteraturein the 19 th Century	
5	Eugene O’ Neill as a Dramatist	
6	Eugene O’ Neill: Realism, Expressionism	
7	Desire Under the Elms : Title	
8	Pat I Sc I of Desire Under the Elms	
9	Pat I Sc II of Desire Under the Elms	
10	Pat I Sc III of the play	
11	Part I Sc IV of the play Desire Under the Elms Pat II	
12	Par II Sc III of the play	
13	Sc II & IV of Part II of the Play	
14	Part III Sc I &II of the Play POart III, Sc III& IV	
15	Desire Under the Elms as a tragedy & Psychological	

	Realism in the play	
16	Inheritance & Infanticide in the play	
17	Discussion/ Tutorial	
18	Discussion/ Tutorial	
19	Discussion	

DIGBOI COLLEGE, DIGBOI

Course Plan(Session June- December 2021)

Department Of

Name of the Teacher- Dr.Chandana Chetia

Course – 603

Class/Semester- B.A. 6th Semester(English Major, Non-C.B.C.S)

Name of the Paper-Postcolonial Literature

Units Assigned- Unit – Unit IV

Marks Assigned- 20

Class	Topic/ Unit	Remark
1	Unit IV: J.M. Coetzee: Disgrace Background of the Novel	
2	Apartheid in South Africa Disintegration of White Supremacy After the end of Apartheid	
3	Animal as a central ecological & ethical feature in Disgrace	
4	Power , Sex and Subjugation in Disgrace	
5	Paradoxical truth in Disgrace	
6	Chapterwise Detailed study of	

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COURSE PLAN OF ENGLISH DEPARTMENT

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2020-21)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic –Generic

Class/Semester-1st Semester (CBCS)

Name of the Paper-Disaster Management

Units Assigned-1 and 2

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Concept and Definitions of Disasters	
2.	Types of Disasters	
3.	Present scenario of natural Disaster in the World	
4.	Present scenario of natural Disaster in India	
5.	Causes of Natural Disaster	
6.	Impact of Natural Disaster	
7.	Concept and Definition of Hazards	
8.	Characteristics and mode of Hazards	
9.	Types of Hazards	
10.	Concept of Risk	
11.	Meaning and Classification of Vulnerability	
12.	Flood Disaster: Types of Flood	
13.	Causes of Flood	
14.	Impact of Flood	
15.	Distribution of Flood	
16.	Drought Concept: Types of Drought	
17.	Causes of Drought	
18.	Impact of Drought	
19.	Distribution of Drought	
20.	Landslide Concept: Types of Landslide	
21.	Causes of Landslide	
22.	Impact of Landslide	
23.	Distribution of Landslide	
24.	Mapping of flood prone area	
25.	Mapping of Drought prone area	
26.	Mapping of Landslide prone area	

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2020-21)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic –Generic

Class/Semester-3rd Semester (CBCS)

Name of the Paper-Climate Change : Vulnerability and Adaptation

Units Assigned-1 and 2

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Concept of Weather and Climate	
2.	What is Climate Change	
3.	Reconstructing past Climate	
4.	Earth Climatic History	
5.	Causes of Climate Change	
6.	Evidence of Climate Change	
7.	Consequences' of Climate Change	
8.	Concept and Processes of Green House	
9.	Green House Gases	
10.	Natural Causes of Global Warming	
11.	Manmade Causes of Global Warming	
12.	Consequences of Global Warming	
13.	Ways to prevent Global Warming	
14.	What is IPCC	
15.	Activities of IPCC	
16.	Plans and Programme of IPCC	
17.	Concept and types of Vulnerability	
18.	Climate Change and Vulnerability	
19.	Physical Vulnerability	
20.	Factors affecting Physical Vulnerability	
21.	Social Vulnerability	
22.	Factors affecting Social Vulnerability	
23.	Economic Vulnerability	
24.	Factors affecting Economic Vulnerability	
25.		

DIGBOI COLLEGE, DIGBOI

Course Plan Odd Semester (2020-21)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – Pass Course

Class/Semester-5th Semester (Non CBCS)

Name of the Paper-Economic Geography

Units Assigned- Unit-2

Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Classification of Industry	
2.	Iron and Steel Industry	
3.	Locational Factors of Iron and Steel Industry	
4.	Distribution of Iron and Steel Industry	
5.	Ruhr basin steel centres of West Germany	
6.	Iron and Steel Industry in Japan	
7.	Locational Factors of Cotton Textile Industry	
8.	Distribution of Cotton Textile Industry	
9.	Cotton Textile Industry in India	
10.	Cotton Textile Industry in U.K	
11.	Cotton Textile Industry in USA	
12.	Classification of Chemical Industry	
13.	Locational Factors of Chemical Industry	
14.	Chemical Industry in India	
15.	World Distribution of Rice	
16.	Practical-Pie Diagram	
17.	World Distribution of Wheat	
18.	Practical-Bar Diagram	
19.	Tea distribution in the World	
20.	Practical-Histogram	
21.	Tea in India	
22.	Practical-Frequency Curve	
23.	Coffee distribution in the World	
24.	Practical- Population distribution map of N.E. India	
25.	Coffee in Brazil	
26.	Practical-Population distribution map of India	
27.	Cotton Distribution in the World	
28.	Practical- Population Density map of N.E. India	
29.	Jute Distribution in the World	
30.	Practical- Population Density map of India	
31.	Rubber Cultivation in the World	
32.	Practical-Population literacy map of India	

33.	Rubber in S,E, Asia	
34	Practical-Population literacy map of Assam	

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2020-21)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – GE-2

Class/Semester-2nd Semester (CBCS)

Name of the Paper-Regional Development

Units Assigned- 1 and 2

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Definition of Region	
2.	Types of Region	
3.	Concept of Planning	
4.	Planning Regions: Definition and Characteristics	
5.	Types of Planning Region	
6.	Need of Regional Planning	
7.	Principles of Regional Planning	
8.	Objectives of Regional Planning	
9.	Planning Process and Planning Regions	
10.	Evolution of Regional Planning	
11.	Formal Region	
12.	Functional Regional	
13.	Nodal Region	
14.	Planning Region and Regional Development	
15.	Karl Marx's Theory of Economic Development	
16.	Concept of Regional Imbalanced	
17.	Theory of Balanced Development	
18.	Regional Development in India	
19.	Theory of unbalanced Development	
20.	Causes of Regional Imbalance in India	
21.	Regional Disparities in India	
22.	Regional Imbalances and Economic Industries	
23.	Regional Disparities and Human Development	
24.	Problem of Functional Regiona	
25.		

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2020-21)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Generic – GE-4

Class/Semester-4th Semester (CBCS)

Name of the Paper-Industrial Geography

Units Assigned- 1 and 2

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Concept and Nature of Industrial Geography	
2.	Scope of Industrial Geography	
3.	Types and Classification of Industries	
4.	Geographical Characteristics of Industries	
5.	Locational factors of Industries	
6.	Weber's Theory of Industrial Location	
7.	Small Scale Industry	
8.	Medium Scale Industry	
9.	Heavy Industry	
10.	Manufacturing Industries	
11.	Iron and Steel Industry	
12.	Processes of Iron and Steel Production	
13.	Location of Iron and Steel Industry	
14.	Early Localization and Early Growth	
15.	Distribution of Iron and Steel Industry	
16.	Iron and Steel Industry in India	
17.	Rural Based Industries	
18.	Locational factors of Rural based Industries	
19.	Characteristics of Rural Based Industries	
20.	Footloose Industry	
21.	Characteristics of Footloose Industries	
22.	Locational Factors of Footloose Industries	
23.	Problem of Footloose Industries	
24.	Some Examples of Footloose Industry in India	
25.		

DIGBOI COLLEGE, DIGBOI

Course Plan Even Semester (2020-21)

Name of the Teacher-Dr. Sangeeta Boruah Saikia


Course –Honours / Pass Course

Class/Semester-6th Semester (Non CBCS)

Name of the Paper-Regional Geography of the World

Units Assigned- Unit 1 (Asia)


Marks Assigned- 24 Theory 16 Practical (Total 40 marks)

Class	Topic/ Unit	Remarks
1.	Physical features of Asia	
2.	Climatic Region of Asia	
3.	Factors affecting the climate of Asia	
4.	Climatic Characteristics of Asia	
5.	Soil of Asia	
6.	Natural Vegetation of Asia	
7.	Tea Cultivation in Asia	
8.	Cultivation of Rice in Asia	
9.	Rubber Plantation in Asia	
10.	Coffee Cultivation in Asia	
11.	Maize Cultivation in Asia	
12.	Sugar cultivation in Asia	
13.	Wheat Cultivation in Asia	
14.	Spatial Distribution of Population in S.E. Asia	
15.	Density of Population in Asia	
16.	Practical-International Boundaries of Neighboring Countries	
17.	Iron and Steel Industry in Asia	
18.	Practical-Mac Mohon line	
19.	Petroleum and Natural Gas in S,E, Asia	
20.	Mineral Resources of Asia	
21.	Practical- Demarcation of Red-Cliff line	
22.	Jute Cultivation of Bangladesh	
23.	Practical-International Boundary of India with Myanmar and Bhutan	
24.	Coal recourses of Asia	
25.	Practical-SAARC Countries	
26.	Cotton Textile Industry in Japan	
27.	Practical-Durand Line	
28.	Fishing Industry in Japan	
29.	Practical-Asia political Map	
30.	Manufacturing industry in Japan	

DIGBOI COLLEGE: DIGBOI


Course Plan

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Generic
Class/Semester- 1st Semester (CBCS)
Name of the paper- Disaster Management (GE-01)
Units Assigned- 3,4,5
Marks Assigned- 40

CLASS	UNITS/TOPICS TAUGHT	REMARKS
1	Concept of Disasters in India	
2	Concept of Earthquake	
3	Causes and Impact of Earthquake	
4	Distribution of Earthquake Zones in India	
5	Do's and Do not's During and Post Earthquake Disaster	
6	Mapping of Earthquake Zones in India	
7	Concept of Tsunami	
8	Causes and Impact of Tsunami	
9	History of Tsunami in India	
10	Distribution of Tsunami in India	
12	Do's and Do not's During and Post Tsunami	
13	Mapping of Tsunami Zones in India	
14	Concept of Cyclone	
15	Causes and Impact of Cyclone	
16	Distribution of Cyclones in India	
17	Do's and Do not's During Cyclone	
18	Mapping of Cyclone Zones in India	
19	Concept of Human induced disasters	
20	Cause and Impact of Human induced disasters	
21	Bhopal Gas Tragedy and Chernobyl nuclear Disaster	
22	Mitigation and Preparedness for disasters	
23	NDMA and NIDM	
24	Indigenous Knowledge and Community-Based Disaster Management	
25	Do's and Don'ts During Disasters	

Course Plan

Name of the teacher- Narendra Kumar Das
Course- Honours/Generic- Generic
Class/Semester- 2nd Semester (CBCS)
Name of the paper- Regional Development (GE-02)
Units Assigned- 3,4,5
Marks Assigned- 40

CLASS	UNITS/TOPIC	REMARKS
1	Concept of Region	
2	Choice of a region for planning	
3	Concept and Characteristics of Ideal Planning Region	
4	Concept and Characteristics of Ideal Planning Region	
5	Delineation of Planning Region	
6	Delineation of Planning Region	
7	Concept of Regionalization	
8	Regionalization of India for Planning	
9	Agro-Ecological Zones	
10	Agro-Ecological Zones	
11	Concept of Strategies and Models in Regional Planning	
12	Growth Pole Model of Perroux	
13	Growth Pole Model of Perroux	
14	Growth Center Model in Indian Context	
15	Growth Center Model in Indian Context	
16	Village Cluster Model in Indian Context	
17	Concept of Problem Regions in Regional Planning	
18	Tribal Area Development Programme	
19	Hill Area Development Programme	
20	DVC The Success story and Failure	
21	DVC The Success story and Failure	

DIGBOI COLLEGE: DIGBOI

Course Plan

Name of the teacher- Narendra Kumar Das


Course- Honours/Generic- Generic

Class/Semester- 3rd Semester (CBCS)

Name of the paper- Climate Change: Vulnerability & Adaptation (GE-3)

Units Assigned- 3, 4, 5

Marks Assigned- 40

CLASS	UNIT/TOPIC	REMARKS
1	Concept and Causes of Climate Change	
2	Impact of Climate Change on Agriculture	
3	Impact of Climate Change on Water	
4	Impact of Climate Change on Fresh Water, Marine Water	
5	Socio-Economic Impacts	
6	Impact of Climate Change on Flora	
7	Impact of Climate Change on Fauna	
8	How will Climate Change Affect Biodiversity	
9	Our Work To Tackle Climate Change	
10	Effect on Endangered Species and Strategy to Save	
11	Impact of Climate Change on Human Health	
12	Mitigation Measures to minimize the effect on Human Health	
13	Difference Between Mitigating and Adapting To Climate Change	
14	What Will The Earth Look in 2030 if We Defeat Climate Change	
15	Adaptation to Climate Change	
16	Mitigation to Climate Change	
17	Global Initiatives Regarding Climate Change	
18	Initiatives of South East Asia Regarding Climate Change	
19	National Action Plan on Climate Change	
20	Strategies of NAPCC	
21	Action of Urban Local Bodies on Climate Change	
22	Action of Panchayats on Climate Change	
23	Achievements of NAPCC	
24	Challenges and Suggestions of NAPCC	

DIGBOI COLLEGE: DIGBOI

Course Plan

Name of the teacher- Narendra Kumar Das

Course- Honours/Generic- Generic

Class/Semester- 4th Semester (CBCS)



Name of the paper- Climate Change: Vulnerability & Adaptation (GE-3)
 Units Assigned- 3, 4, 5
 Marks Assigned- 40

CLASS	UNIT/TOPIC	REMARKS
1	Concept of Mega Industrial Complexes	
2	National Capital Industrial Region	
3	Mumbai- Pune Industrial Region	
4	Major Problems Mumbai-Pune Industrial Region After Independence	
5	Bengaluru-Chennai Industrial Region	
6	Chotanagpur Industrial Region	
7	Factors Favourable for Industrialization in Chotanagpur Industrial Region	
8	Industries in Chotanagpur Region	
9	History of Industrialization in India	
10	Industrial Revolution in India	
11	Impact of Industrialization in India	
12	Environmental Impact of Industrialization in India	
13	Social Impact of Industrialization in India	
14	Economic Impact of Industrialization in India	
15	The Role of Industrialization in Economic Development of India	
16	Industrial Policy of India since Independence	
17	Objectives of Industrial Policy of India	
18	New Industrial Policy of India	
19	Outcomes of New Industrial Policy of India	
20	Limitations of Industrial Policy in India	
21	Future of Industrial Policies in India	

DIGBOI COLLEGE: DIGBOI

Course Plan



Name of the teacher- Narendra Kumar Das
 Course- Honours/Generic- Pass Course
 Class/Semester- 5th Semester (Non-CBCS)
 Name of the paper- Economic Geography (GGRG-501)
 Units Assigned- 1
 Marks Assigned- 40

CLASS	UNIT/TOPIC	REMARKS
1	Introduction to Economic Geography	
2	Nature and Scope of Economic Geography	
3	Types of Economic Activities: Primary, Secondary	
4	Types of Activities: Tertiary, Quaternary & Quinary	
5	Economic activities in the Hills & Plains of NE India	
6	Economic activities Vs Environmental problems	
7	Economic activities Vs Environmental problems	
8	Concept and Types of Natural Resources	
9	Classification of Natural Resources	
10	World Distribution of Iron	
11	World Distribution of Coal, Petroleum	
12	World Distribution of Gold, Copper	
13	World Distribution of Aluminum	
14	Hydro-electricity in North East India	
15	Prospects of Hydro-electricity in North East India	
16	Problems of Hydro-electricity in North East India	
GGRG-502 (Practical)		
1	Measures of Central Tendency: Mean	
2	Median	
3	Mode	
4	Measures of Dispersion- Mean Deviation	
5	Standard Deviation	
6	Ogive	

DIGBOI COLLEGE: DIGBOI

Course Plan

Name of the teacher-	Narendra Kumar Das
Course- Honours/Generic-	Pass Course
Class/Semester-	6 th Semester (Non-CBCS)
Name of the paper-	Regional Geography of the World (GGRG-601)
Units Assigned-	1
Marks Assigned-	40

CLASS	UNIT/TOPIC	REMARKS
1	Introduction to Europe: Location, Size, Shape etc.	
2	Physical Divisions of Europe	
3	Soils of Europe	
4	Climate of Europe Summer Conditions	
5	Climate of Europe Winter Conditions	
6	Vegetation of Europe	
7	Minerals of Europe: Iron Ore	
8	Power Resources of Europe: Coal	
9	Petroleum Resource of Europe	
10	Hydro-Electricity of Europe	
11	Agricultural Resources of Europe: Types of Agriculture in Europe	
12	Wheat- Production & Distribution	
13	Maize- Production & Distribution	
14	Rice- Production & Distribution	
15	Major Industries of Europe	
16	Major Industries of Europe	
17	Distribution of Population in Europe	
GGRG-602 (Practical)		
1	Map of China: Distribution of Industries	
2	Map of Petroleum reserves of Middle East	
3	Map of SAARC Countries	
4	Population Density Map of South East Asia 2001	

Course Plan for the Session (June – December) 2020,

Department of Hindi,

Digboi College, Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL	Unit-I Apathit Bodh, Unit -III Gadya Khand & Vitan -1,	Unit -III Kavya Khand, Unit -II Rachanatmak Lekhan,Unit -IV-Moukhik Prikshan
H.S.-II –MIL	Unit -I Apathit Bodh, Unit -III Kavya Khand,	Unit -II Rachanatmak Lekhan or Jansanchar, Unit -III Gadya Khand & Vitan-2,
Sem.- I MIL	Unit -I Prachin Kavya, Unit -II Aadhunik Kavya,	Unit –III Kahani , Unit -IV Nibandh
Sem.-I (Hons.) C-1	Unit -I & Unit -II Hindi Sahitya ka Itihas (Bhakti Kaal	Unit -I Aadikaal, Unit –IV Ritikal
Sem.-I (Hons.) C-2	Unit –III & IV Hindi Gadya Ka Vikas Ewam Hindi Gadya ki Anya Vidhayen	Unit -I & Unit II Hindi Sahitya Ka Itihas (Aahunik Kal)
Sem.-I II(Hons.) C-5	Unit -I & Unit –II Chhayavaadottar Kavita	Unit -III & Unit –IV Chhayavaadottar Kavita
Sem.-I II(Hons.) C-6	Unit -I & Unit –II Bharatiya Kavyashastra	Unit -III & Unit –IV Bharatiya Kavyashastra
Sem.-I (Hons.) C-7	Unit -III & Unit –IV Paschaatya Kavyashatra Ewam Nai Samiksha	Unit -I & Unit –II Paschaatya Kavyashatra Ewam Nai Samiksha
Sem.-V (Major) 501	Unit- I & Unit- II, Alochana ke Swaroop, Shukla, Dwivedi & Sharma	Unit -III & Unit –IV Triveni, Pashchaatya Alochana
Sem.-V (Major)502	Unit -I & Unit –IV, Asamiya Sahitya ka Parichayatmak Itihas, Shankardev	Unit -II & Unit –III, Asamiya Sahitya ka Parichayatmak Itihas,
Sem.-V (Major)503	Unit -III & Unit –IV, Prayojanmoolak Hindi	Unit -I & Unit –II, Prayojanmoolak Hindi
Sem.-V (Major)504	Unit- III & Unit- IV, Sanchar Madhyam Lekhan,	Unit -I & Unit –II, Sanchar Madhyam Lekhan,

HOD (HINDI)
DIGBOI COLLEGE, DIGBOI

Course Plan for the Session (Jan– May) 2021,

Department of Hindi,

Digboi College, Digboi.

COURSE / UNIT	Dr. P K BHARATI	Dr. (Mrs.) A K SAHU
H.S.-I- MIL	Unit-I Apathit Bodh, Unit -III Gadya Khand & Vitan -1,	Unit -III Kavya Khand, Unit -II Rachanatmak Lekhan,Unit -IV-Moukhik Prikshan
H.S.-II –MIL	Unit -I Apathit Bodh, Unit -III Kavya Khand,	Unit -II Rachanatmak Lekhan or Jansanchar, Unit -III Gadya Khand & Vitan-2,
Sem.-I I(Hons.) C-3	Unit -I & Unit -II Aadikaaleen Ewam Madhyakaleen Kavita	Unit -III & Unit –IV Aadikaaleen Ewam Madhyakaleen Kavita
Sem.-I I (Hons.) C-4	Unit -I & Unit -II Aadhunik Hindi Kavita (Chhayaavaad Tak)	Unit -III & Unit –IV Aadhunik Hindi Kavita (Chhayaavaad Tak)
Sem.-I V (Hons.) C-8	Unit -III & Unit- IV Bhasha Vigyan aur Hindi Bhasha	Unit -I & Unit -II Bhasha Vigyan aur Hindi Bhasha
Sem.-I V (Hons.) C-9	Unit -II & Unit –IV Hindi Upanyas (Tyagapattrā & Mahaboj)	Unit –I & Unit –III Hindi Upanyas (Gaban & Maanas Kaa Hans)
Sem.-I V (Hons.) C-10	Unit -I & Unit -II Hindi Kahani	Unit -III & Unit –IV Hindi Kahani
Sem.-VI (Major) 601	Unit -II Aashunik Hindi Kavya	Unit-I, Aashunik Hindi Kavya
Sem.-VI (Major) 602	Unit -III & Unit –IV , Bhasha- Vigyan, Hindi Bhasha Ewam Lipi	Unit- I & II, Bhasha- Vigyan, Hindi Bhasha Ewam Lipi
Sem.-VI (Major) 603	Unit -III & Unit –IV Anuwad Vigyan, Anuvad Ke Upakaran	Unit -I & Unit -II , Anuvad ki Paribhasha, Anuvad ki Prakriya
Sem.-VI (Major) 604	Unit -I & Unit -II Tulasi Sahitya (Vishesh Pattrā), Ayodhya Kand	Unit -III & Unit –IV, Tulasi Sahitya (Vishesh Pattrā), Vinay Patrika,

HOD (HINDI)
DIGBOI COLLEGE, DIGBOI

DIGBOI COLLEGE, DIGBOI
Course Plan June, 2020

Name of the Teacher- Partha Kr. Narah

Course –Honours / Generic – HISGE1

Class/Semester-1

Name of the Paper-History of Assam 1228-1826

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1	Sources: Archaeological epigraphic.	Baruah, S.L. –A Comprehensive History of Assam
2	Literary, numismatic	
3	Account of the foreign travellers	
4	Political conditions of the Brahmaputra Valley at the time of the advent of the Ahoms	
5	Sukapha and his foundation of the kingdom-An assessment	
6	State formation in the Brahmaputra Valley-the Chutiya,	
7	The Kachari	
8	The Koch State	
9	Expansion of the Ahom Kingdom in the 16th century- Conquests of the Neighbouring States and Territories	
10	Sudhangpha	
11	Dihingya Raja	
12	Ahom Musalim conflict	
13	Sukhel Nung	
14	Political Developments in the 17th century- Reign of Pratap Singha	
15	Ahom Mughal Conflict	
16	Administrative reform	
17	Mumai Tamuli Barbaruah	
18	Jayadhwaj Singh and Kuch Relation.	
19	The Ahom-Mughal Relations in the Second half of the 17th Century Wars – Mir Jumla's Assam Invasion	
20	Account Of Shihabuddin Taish	
21	Chakradhwaj Singha	
22	The Battle of Saraighat and its Consequences	

DIGBOI COLLEGE, DIGBOI

Course Plan June, 2020

Name of the Teacher-Partha Kr Narah

Course –Generic-HGE3

Class/Semester -III

Name of the Paper- History of India 1526 to 1947

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Political Conditions in Northern India in the beginning of the 16th century- The Afghan Empire and the Mughals- Resistance vs. Struggle for Hegemony	Text Books: Banerjee, A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)
2	Battle of first Panipath 1526	
3	The Age of the Mughals- Foundation of the Mughal Empire .	
4	Babar And Rajput War	
5	Babar and Afghan War	
6	Humayun	
7	Humayun and Sher Saha Conflict	
8	Sher Shah administrative Reforms.	
9	Akbar and 2 nd Battle of Panipatha	
10	Akbar Political Policy	
11	Akbar Hindu Policy.	
12	Akbar Religious policy towards Hindu	
13	Akbar Religious Policy.	
14	Akbar Administration	
15	Akbar land Policy and Social Reforms	
16	Jahangir Ruling periods	
17	Shajahan	
18	Aurangzeb- Political Supremacy.	
19	Administrative Developments	
20	The later Mughals and the Decline of the Mughal Empire	
21	Rise of the Marathas in the Deccan- Sivaji and His career	
22	Society, Economy, Religion and Culture under the Mughals	
23	Beginning of the European Settlements in India-the Portuguese -the Dutch	
24	The French and the English.	

DIGBOI COLLEGE, DIGBOI
Course Plan June, 2020

Name of the Teacher-Partha Kr Narah

Course -Pass Course

Class/Semester -V

Name of the Paper- History of India 1526 to 1947

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Political Conditions in Northern India in the beginning of the 16th century- The Afghan Empire and the Mughals- Resistance vs. Struggle for Hegemony	Text Books: Banerjee, A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748)
2	Battle of first Panipath 1526	
3	The Age of the Mughals- Foundation of the Mughal Empire .	
4	Babar And Rajput War	
5	Babar and Afghan War	
6	Humayun	
7	Humayun and Sher Saha Conflict	
8	Sher Shah administrative Reforms.	
9	Akbar and 2 nd Battle of Panipatha	
10	Akbar Political Policy	
11	Akbar Hindu Policy.	
12	Akbar Religious policy towards Hindu	
13	Akbar Religious Policy.	
14	Akbar Administration	
15	Akbar land Policy and Social Reforms	
16	Jahangir Ruling periods	
17	Shajahan	
18	Aurangzeb- Political Supremacy.	
19	Administrative Developments	
20	The later Mughals and the Decline of the Mughal Empire	
21	Rise of the Marathas in the Deccan- Sivaji and His career	
22	Society, Economy, Religion and Culture under the Mughals	
23	Beginning of the European Settlements in India-the Portuguese -the Dutch	
24	The French and the English.	

DIGBOI COLLEGE, DIGBOI

Course Plan June , 2020

Name of the Teacher- Dr. Anamika Neog

Course –Honours / Generic – HISGE1

Class/Semester-1

Name of the Paper-History of Assam 1228-1826

Units Assigned- Unit III (3.03)- Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Post-Saraighat Assam- Debera Hazarika	Text Books:
2.	Atan Bargohain, Laluk Sola Barphukan	English: Baruah, S.L. –A Comprehensive History of Assam Gait, E.A.- A History of Assam
3.	Ascendancy of the Tungkhungia dynasty-the reign of Gadadhar Singha	Assamese: Baruah, Surajit Boruah, Nirode-Asomar Itihas, 2 nd edition (revised) Nath, D. –Asam Buranji, Revised and enlarged edition
4.	Ahom rule at its zenith-the reign of Rudra Singha	
5.	Rajeshwar Singha (1751-1769)	
6.	Background of the Moamariya Rebellion	
7.	Lakshmi Singha (1769-1780)	
8.	The Moamariya Rebellion	

9.	Gaurinath Singha(1780-1795)	
10.	Decline and fall of the Ahom Kingdom	
11.	The Burmese invasions	
12.	The East India company in Assam politics- the Treaty of Yandabo and Assam	
13.	Ahom system of administration	
14.	The Paik System	
15.	Ahom policy towards the neighbouring hill tribes;	
16.	Society in Assam under the Ahoms	
17.	Caste and class structures	
18.	The Neo-Vaishnavite Movement-background	
19.	The Neo-Vaishnavite Movement- its implications	
20.	Sankardev and the Neo-Vaishnavite Movement	

DIGBOI COLLEGE, DIGBOI

Course Plan -June, 2020

Name of the Teacher-Dr. Anamika Neog

Course –Honours / Generic – HISGE3

Class/Semester III

Name of the Paper- History of India 1526 to 1947

Units Assigned- Unit III (3.02)- Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Expansion and consolidation of the British rule in India upto 1857- Conflict with the Marathas	Text Books:
2.	Expansion and consolidation of the British rule in India upto 1857- Conflict with Mysore, Awadh, Punjab and Sindh	English: Banerjee, A.C. - History of India Chandra, S. - Medieval India From Sultanat to Mughals (1526- 1748
3.	Administrative developments upto 1857	Assamese: Barua, P.K. Hussain, T.A. - Bharat Buranji Goswami, S.D. - Bharat Buranji
4.	Socio- economic reform upto 1857	
5.	Revolt of 1857 and its aftermath	
6.	Post 1858 administrative developments till 1919;	
7.	Socio- religious reform movements in the post 1857 period	
8.	Growth of press and rise of national consciousness	
9.	Freedom struggle upto 1919- Partition of Bengal and the Swadeshi Movement,;	
10.	Home Rule League	
11.	Rise of Muslim of Muslim Politics	

12.	Freedom Struggle from 1919 to 1939- Gandhi in politics	
13.	Khilafat and Non- Cooperation Movement	
14.	Civil Disobedience Movement	
15.	Government of India Act, 1935	
16.	Rise of Communalism, revolutionary terrorism	
17.	Trade unionism and Leftist politics	
18.	Cripps Mission- Quit India Movement- Second World War-INA	
19.	Post- War Development- Cabinet Mission	
20.	Transfer of power	

DIGBOI COLLEGE, DIGBOI

Course Plan -June, 2020

Name of the Teacher-Dr. Anamika Neog

Course – Core/ Pass Course- Course- V

Class/Semester- V

Name of the Paper- History of India 1526-1947

Units Assigned- Unit III (3.02) – Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Expansion and consolidation of the British rule in India upto 1857- Conflict with the Marathas	Text Books:
2.	Expansion and consolidation of the British rule in India upto 1857- Conflict with Mysore, Awadh, Punjab and Sindh	English: Banerjee, A.C.- History of India Chandra, S.- Medieval India From Sultanat to Mughals (1526- 1748
3.	Administrative developments upto 1857	Assamese: Barua, P.K. Hussain, T.A.- Bharat Buranji Goswami, S.D. - Bharat Buranji
4.	Socio- economic reform upto 1857	
5.	Revolt of 1857 and its aftermath	
6.	Post 1858 administrative developments till 1919;	
7.	Socio- religious reform movements in the post 1857 period	
8.	Growth of press and rise of national consciousness	
9.	Freedom struggle upto 1919- Partition of Bengal and the Swadeshi Movement	
10.	Home Rule League	
11.	Rise of Muslim of Muslim Politics	
12.	Freedom Struggle from 1919 to 1939- Gandhi in politics	
13.	Khilafat and Non- Cooperation Movement	

14.	Civil Disobedience Movement	
15.	Government of India Act, 1935	
16.	Rise of Communalism, revolutionary terrorism	
17.	Trade unionism and Leftist politics	
18.	Cripps Mission- Quit India Movement- Second World War-INA	
19.	Post- War Development- Cabinet Mission	
20.	Transfer of power	

DIGBOI COLLEGE, DIGBOI
Course Plan January, 2021

Name of the Teacher- Partha Kr Narah

Course –Honours / Generic – HISGE2

Class/Semester- II

Name of the Paper- History of India From the earliest times to 1526 AD.

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Sources –A survey. Archaeological sources.	Text Books: English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India
2.	Literary sources	
3	Foreign accounts	
4	Harappan Civilization.Origin and extent	
5	Salient features, of Harappans	
6	Town planning.	
7	Socials and economic condition s of Harappans	
8	Religions and decline and the end of Civilization.	
9	Vedic Civilization society, economy, polity and culture of the Rig-Vedic	
10	Later Vedic periods	
11	Raise of the Territorial States –Mahajanapadas.Ascendancy of Magadha	
12	Alexander s invasion of India	
13	Rise of the Mauryan Empire under Asoka-his inscription	
14	Dhamma ofAsoka.	
15	Mauryan system of Administration.	
16	Political developments in the Post-Mauryan The period (200BC-3000BC) The Sungas	
17	The Satavahanas	
18	The Khushanas.	
19	Sangam literature	

DIGBOI COLLEGE, DIGBOI

Course Plan Jan, 2021

Name of the Teacher- Partha K Narah

Course –Generic-HGE4

Class/Semester-IV

Name of the Paper- History of Assam A.D.1826- 1947

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Political Condition in Assam on the Eve of the British rule.	Text Books:
2.	Establishment and Consolidation of the British rule – Reforms and Reorganizations David Scott Measures.	English: Baruah, S.L. –A Comprehensive History of Assam Barpujari, H.K.-(ed) The Comprehensive History of Assam, Vol.IV&V
3.	David Scott, Administrative Reforms	
4.	David Scott, Revenue and Judicial Reforms.	
5.	Robertson's–Administrative Reorganization and Revenue Measures	
6.	Francis Jenkins	
7.	Annexation of Lower Assam, Administrative Reorganization and Revenue Measures.	
8.	Early phase of Revolts and Resistance to British	
9.	Gomdhar Konwar, Piyali Phukan,	
10	Restoration of Purondar Singha and Treaty of 1833.	
11	U.Tirut Singh .The Khamti and the Singpho Rebellion	
12	Annexation of Cachar	
13	The 1857 Revolt in Assam and its Aftermath	
14	Maniram Dewan	
15	Establishment of Chief commissionership of Assam	
16	Land Revenue Measures and Peasant Uprisings in 19th century Assam	
17	Peasant Uprisings of Lower Assam	
18	Patharughat Uprising	

DIGBOI COLLEGE, DIGBOI

Course Plan Jan, 2021

Name of the Teacher- Partha kr Narah

Course –Core / Pass course

Class/Semester-VI

Name of the Paper- Women in Indian History

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Definition and Scope	Text Books: English: Altekar, A.S.-The Position of Women in Hindu Civilization, 2 nd print Chandel,Bhuban(ed.)- Women in Ancient and Medieval India. Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women 1836-1937
2	Feminist, movements and Developments of women's History	
3	Key Concepts in Women's studies Gender.	
4	Patriarchy and sexual Division and Labour.	
5	Sources for Reconstruction of women's History Oral, Narratives	
6	Autobiography, Dairies	
7	Women in Ancient Indian Society Vedic period	
8	Status of women in Buddhism Changing Status of women in the subsequent period.,	
9	Women in Medieval India.	
10	Female Infanticide.	
11	Social Customs and Reform Movements in 19 th century; Sati, widow Remarriage	
12	Role of Brahma Samaj.Arjya Samaj. Parthana Samaj,and	
13	Aligarh Movements	

DIGBOI COLLEGE, DIGBOI

Course Plan January,2021

Name of the Teacher-Dr. Anamika Neog

Course –Honours / Generic – HISGE2

Class/Semester- II

Name of the Paper- History of India From the earliest times to 1526

Units Assigned- Unit III (3.04) – Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Gupta Age- Political history	Text Books:
2.	Gupta Age- society,economy and culture	English: Thapar, Romila- Early India Chandra, S- History of Medieval India Singh, Upindar- A History of Ancient and Early Medieval India
3.	Post-Gupta period(upto 640 A.D.)- polity, society,economy and culture	Assamese: Barua, P.K.- Bharat Buranji Nath, D.- Bharatar Rajnoitik aru Sanskritik Buranji(Revised)
4.	Political developments in the South- the Pallavas	
5.	The Imperial Cholas	
6.	The Rashtrakutas	
7.	The Chalukyas	
8.	The Arabs in Indian politics	
9.	The Turks in Indian politics- Ghaznavides	
10.	The Ghorid invasions	

11.	Indian Society during 650-1200 A.D.-literature & language, temple architecture and sculpture	
12.	The Delhi Sultanate- the Slave dynasty	
13.	The Khaljis- Alauddin Khalji's administration	
14.	The Tughluqs dynasty	
15.	Disintegration of the Delhi Sultanate and rise of Provincial Kingdoms	
16.	Vijayanagar Kingdom	
17.	Bahmani Kingdom	
18.	Polity, society of the Sultanate period	
19.	Economy, religion and culture of the Sultanate period,	
20.	Bhakti Movement and Sufism	

DIGBOI COLLEGE, DIGBOI

Course Plan , January, 2021

Name of the Teacher- Dr. Anamika Neog

Course –Honours / Generic – HISGE 4.1

Class/Semester- IV

Name of the Paper-History of Modern Assam

Units Assigned- Unit III (3.04) – Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Growth of national consciousness	Text Books:
2.	Assam association	English: Baruah, S.L. –A Comprehensive History of Assam Barpujari, H.K. –(ed) The Comprehensive History of Assam, Vol. IV&V
3.	Sarbajanik sabhas	Assamese: Nath, D. – Asam Buranji, Revised and enlarged edition
4.	Rayat sabhas.	
5.	Impact of Partition of Bengal in Assam.	
6.	Impact of Swadeshi Movement in Assam	
7.	Government of India Act, 1919	
8.	Dyarchy on Trial in Assam	
9.	Non-Co-operation Movement in Assam	
10.	Swarajist Politics in Assam	
11.	The Civil Disobedience Movement	
12.	Student Movement in Assam	
13.	Trade Union and Allied Movements	
14.	Tribal League and Politics in Assam.	
15.	Migration	
16.	Line System and its Impact on Politics in Assam	
17.	Quit India Movement in Assam	
18.	Cabinet Mission plan and the Grouping Controversy.	
20.	The Sylhet Referendum	

DIGBOI COLLEGE, DIGBOI

Course Plan , January,2021

Name of the Teacher- Dr. Anamika Neog

Course –Core/ Pass Course – Course VI (Optional -II)

Class/Semester- VI

Name of the Paper- Women in Indian History

Units Assigned- Unit III (3.03)- Unit V

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Development of Women's Education in the 19 th and 20 th centuries	Text Books:
2.	Role of Social Reformers	English: Altekar, A.S.-The Position of Women in Hindu Civilization, 2 nd print Chandel,Bhuban(ed.)- Women in Ancient and Medieval India, Vol.IX, Part-II Forbes, Geraldine; Women in Modern India Mahanta, A-Journey of Assamese Women1836-1937
3.	Role of Missionaries	Assamese: Goswami,Gita, Goswami,P-Bharator Itihasot Nari
4.	Sarda Act,1929	
5.	Hindu Women's Right to Property Act,1937	
6.	Development of Women's Organisation	
7.	Women's Conference,1910	
8.	National Council of Women in India	
9.	Demand for Women's Franchise	

10.	Women in Indian Freedom Struggle:Pre-Gandhian Phase	
11.	Women in Freedom Struggle-Gandhian Phase	
12.	Women in Revolutionary Movement	
13.	Women and Society in Medieval Assam	
14.	Patriarchy in Medieval Assam	
15.	Social Reform Movement in 19 th and 20 th centuries	
16.	Development of Women's Organisation in Assam	
17.	Women in Freedom Struggle in North East India	

DIGBOI COLLEGE, DIGBOI

Course Plan (Session June-December, 2020)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Honours / Generic: Honours

Class/Semester: First Semester

Name of the Paper: Calculus(P) Paper Code:C1

Units Assigned: Complete Paper

Marks Assigned: Theory – 60 and Practical – 20.

Class	Topic/ Unit	Remarks
1	Unit-1: Introductory Class: About Calculus and its historical background.	
2	Hyperbolic functions: Introduction, definitions, identities and examples. Graph of hyperbolic Functions.	
3	Derivatives and integrals of Hyperbolic functions.	
4	Evaluation of inverse hyperbolic functions and their graph.	
5	Higher order derivatives: Successive differentiation. Examples	
6	The nth derivative of some special functions and rational algebraic functions. Examples	
7	Leibnitz theorem for nth derivative of product functions and application to problems of type $e^{ax+b}\sin x$, $e^{ax+b}\cos x$,	
8	Leibnitz theorem application to problems of type $(ax+b)^n\sin x$, $(ax+b)^n\cos x$. Symbolic operation.	
9	Concavity and convexity and its definitions and application to real life.	
10	Point of inflexion, analytical test for concavity. Examples	
11	Asymptotes: Introduction, Definitions, Rectangular asymptotes, Oblique asymptotes and its examples.	
12	Method of finding rectangular and oblique asymptote, Examples	
13	Examples of asymptotes.	
14	Curve tracing in cartesian coordinates, tracing of cycloid, cardioid etc.	
15	Curve tracing in polar coordinates, tracing of cycloid, cardioid etc.	
16	Examples of curve tracing in cartesian and polar form.	
17	Indeterminate form: L'Hospital's rule, Definition and Rule 0/0 form, ∞/∞ form, example	
18	Rule $0 \times \infty$, $\infty - \infty$, 0^0 , ∞^0 , $1^{\pm\infty}$ forms and its applications examples.	
19	Application of Maxima and Minima.	
20	Examples of Maxima and minima.	
21	Unit-2: Reduction formulae: Introduction.	

22	Derivations and illustrations of reduction formulae of the type $\int \sin^n x dx$, $\int \cos^n x dx$, and for definite integrals from 0 to $\pi/2$, and Examples	
23	Derivations and illustrations of reduction formulae of the type $\int \tan^n x dx$, $\int \cot^n x$, and for definite integrals from 0 to $\pi/2$ and Examples	
24	Derivations and illustrations of reduction formulae of the $\int \sec^n x dx$, $\int \operatorname{cosec}^n x dx$, and for definite integrals from 0 to $\pi/2$, and Examples.	
25	Derivations and illustrations of reduction formulae of the , $\int (\log x)^n dx$, $\int \sin^n x \sin^m x dx$ and examples.	
26	Derivations and illustrations of reduction formulae of the type $\int x \sin^n x dx$, $\int x \cos^n x dx$, and Examples	
27	Derivations and illustrations of reduction formulae of the type $\int e^x \sin^n x dx$, $\int e^x \cos^n x dx$, and Examples	
28	Derivations and illustrations of reduction formulae of the type $\int \cos^m x \sin nx dx$, $\int \cos^m x \cos nx dx$, and Examples	
29	Volume by slicing formula and examples.	
30	Volume of solids of revolution: disk method, Formula for rotation about x-axis and y- axis and examples.	
31	Volume of solids of revolution: Washers method, Formula for Finding Volumes by Washer Method and Examples.	
32	Volume by Cylindrical Shells: Shell formula for Revolution about y-axis and examples	
33	Volume by Cylindrical Shells: Shell formula for Revolution about x-axis and examples	
34	Unit-3: Parameterizing a plane curve: Parametric equation of circle, half circle, parabola, ellipse, hyperbola.	
35	Tracing of curves of Parametric equation of circle, half circle, parabola, ellipse, hyperbola.	
36	Conversion of parametric to cartesian equations and vice-versa.	
37	Calculus with parametrization curves. First and second derivatives.	
38	Arc length of cartesian equations, formula and examples.	
39	Arc length of parametric curves formula and examples.	
40	Area of surface of revolution: Formula for Surface area revolving about x-axis($y \geq 0$) and examples.	
41	Formula for Surface area revolving about y-axis($x \geq 0$) and examples.	
42	Conversion of cartesian to polar coordinates and examples.	
43	Techniques of sketching conics: Techniques of sketching parabola and ellipse and hyperbola and examples.	
44	Techniques of sketching hyperbola and examples.	
45	Shifting conic sections,	
46	Classification of conic section by eccentricity.	
47	Reflection properties of parabola, ellipse and hyperbola and its uses in practical life.	
48	Quadratic equation and rotation of axes: Rotating the coordinate axes to eliminate the cross-product term, and examples.	
49	Classification into conics using the discriminant $B^2 - 4AC \geq 0$ with examples.	

50	Polar equations of conics: parabola, ellipse and hyperbola.	
51	Unit-3: Triple Product: Definition of Vector triple product and examples.	
52	Definition of Scalar triple product and examples.	
53	Volume of parallelepiped and collinearity of four points.	
54	Introduction to vector functions.	
55	Operations with vector-valued functions.	
56	Limits and continuity of vector functions and examples.	
57	Differentiation and integration of vector functions and examples.	
58	Integration of vector functions and examples.	
59	Tangent and Normal components of acceleration and examples.	
60	Practical: Introduction to MatLab(Matrix Laboratory)	Practical Class 2 hours.
61	Uses and application of MatLab in different fields.	
62	Basic structures and different MatLab windows : Command Window, Command History, Workspace, Current Directory, Help Browser, Start button	
63	Using MATLAB as a calculator: Creating MATLAB variables etc.	
64	MatLab built in functions and user defined functions.	
65	Hierarchy of algebraic operations, evaluation of expressions.	
66	Controlling the appearance of floating point number, format specification of integer. %f and %d format. Format long and short.	
67	Some basic commands: like clc, clear all, close all, who, whos, hold on, bar3, clear, compass, pie, figure, subplot, plot, gridon, text, surf, surfc, meshgrid, mesh, meshc etc.	
68	Plotting of graphs of function e^{ax+b} , $\log(ax+b)$, and to illustrate the effect of a and b on the graph. Plot of sinx and cosx graph in single plot command.	
69	Plotting of graphs of function $1/(ax+b)$, $\sin(ax+b)$, $\cos(ax+b)$, $ ax+b $ and to illustrate the effect of a and b on the graph.	
70	Plotting the graphs of polynomials of degree 4 and 5 etc.	
71	Plotting the graphs of the derivative graph, the second derivative graph and comparing them.	
72	Sketching parametric curves (E.g. Trochoid, cycloid).	
73	Sketching parametric curves (E.g. epicycloids, hypocycloid).	
74	Obtaining surface of revolution of curves using surf, surfc command.	
75	Tracing of conics in Cartesian coordinates.	
76	Tracing of conics in polar coordinates. Derivative and integration of functions.	
77	Sketching ellipsoid, hyperboloid of one and two sheets, elliptic cone using cartesian coordinates.	
78	Sketching of elliptic paraboloid, hyperbolic paraboloid using cartesian coordinates. Solution of system of linear equations	
79	Matrix input, addition, subtraction and multiplication of matrix.	
80	Matrix inversion, transpose, determinant etc.	

DIGBOI COLLEGE, DIGBOI

Course Plan (Session June-December, 2020)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Honours / Generic: Honours

Class/Semester: Third Semester

Name of the Paper: PDE and system of PDE, Paper Code:C7

Units Assigned: Complete Paper

Marks Assigned: Theory – 60 and Practical – 20.

Class	Topic/ Unit	Remarks
1	Unit-1: Partial Differential Equations – Basic concepts and Definitions, order and degree of PDE.	
2	Classification of first order PDE: linear and non-linear PDE.	
3	Formation of PDE Rule-1	
4	Formation of PDE by the elimination of arbitrary constants.	
5	Formation of PDE by the elimination of arbitrary functions.	
6	Lagrange's Equation or Quasi-linear PD Equation with examples.	
7	Method of Characteristics for obtaining General Solution of Quasi Linear Equations	
8	Solution of Lagrange's Equation Rule-1 with examples.	
9	Solution of Lagrange's Equation Rule-2 with examples.	
10	Solution of Lagrange's Equation Rule-3 with examples.	
11	Solution of Lagrange's Equation Rule-4 with examples.	
12	Geometrical Interpretation of 1st order linear PDE.	
13	Integral surface through a given curve.	
14	Cauchy's problem for 1 st order equations.	
15	Non-linear partial differential equations: particular, singular and general and complete solution.	
16	Compatible system of 1 st order equation with examples.	
17	Charpit's method (General method of solving PDE of order one but of any degree)	
18	Examples on Charpit's method.	
19	Examples on Charpit's method.	
20	Jacobi's method: involving three or more independent variable.	
21	Examples on Jacobi's method.	
22	Examples on Jacobi's method.	
23	Canonical Forms of First-order Linear Equations.	

24	Method of Separation of Variables for solving first order partial differential equations.	
25	Examples on Method of Separation of Variables for solving first order partial differential equations.	
26	Unit-2: Classifications of second order linear equations as hyperbolic, parabolic or elliptic.	
27	Problems on Classifications of second order linear equations as hyperbolic, parabolic or elliptic.	
28	Derivations of Heat equation.	
29	Derivations of Wave equation.	
30	Derivations of Laplace equation.	
31	Solution of Heat equation.	
32	Solution of Wave equation.	
33	Solution of Laplace equation.	
34	Reduction of parabolic equation to Canonical form.	
35	Reduction of elliptic equation to Canonical form.	
36	Reduction of hyperbolic equation to Canonical form.	
37	Unit-3: Method of separation of variables. The principle of super position.	
38	Fourier sine and cosine series.	
39	Examples on Method of separation of variables.	
40	Examples on Method of separation of variables.	
41	General solution of Vibrating string problem, one dimensional wave equation.	
42	Example of Vibrating string problem with initial and boundary condition.	
43	Solving the Heat Conduction problem using Method of separation of variables	
44	Solving the Heat Conduction problem using Method of separation of variables with initial and boundary condition.	
45	Unit-4: Systems of linear differential equations.	
46	Types of linear systems with examples.	
47	Normal form linear system.	
48	Differential operators and operator method. Application.	
49	Transform of single LDE into the system of first order DE.	
50	Solution of system of LDE with operator method with examples.	
51	Alternative method for solving System of LDE.	
52	Homogeneous and Non-Homogeneous linear systems.	
53	Two Equations in two unknown functions.	
54	The method of successive approximations.	
55	Euler method, the modified Euler method	
56	The Runge-Kutta method upto fourth order approximation.	
57	Practical: Some MatLab command for solving PDE.	Practical: Class time 2 hours
58	Solution of Cauchy problem for first order PARTIAL DIFFERENTIAL EQUATION, Class-1	

59	Solution of Cauchy problem for first order PARTIAL DIFFERENTIAL EQUATION, Class-2	
60	Finding the characteristics for the first order PDE, Class-1	
61	Finding the characteristics for the first order PDE, Class-2	
62	Plot the integral surfaces of a given first order PDE with initial data, Class-1	
63	Plot the integral surfaces of a given first order PDE with initial data, Class-2.	
64	Solution of wave and heat equations by pdepe solver and pdetool, Class-1.	
65	Solution of wave and heat equations by pdepe solver and pdetool, Class-2.	
66	Solution of LDE by R.K. Method.	
67	Solution of LDE by successive Methods	
68	Solution of LDE by Euler and Modified Euler Methods.	

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Course Plan (Session June-December, 2020)

Name of the Teacher: Dr. Jatindra Lahkar

Course –Honours / Generic: Major

Class/Semester: Fifth Semester

Name of the Paper: Fluid Mechanics: Paper MM503

Units Assigned: Complete Paper

Marks Assigned: Theory – 80.

Class	Topic/ Unit	Remarks
1	Hydro Dynamics Unit I: Kinematics, Real and ideal fluid	
2	Velocity of a fluid at a point with example	
3	Eulerian and Lagrangian method	
4	Stream lines and path lines, steady and unsteady flows	
5	Velocity potential, rotational and irrotational motions	
6	Local and particle rate of change	
7	Derivation of equation of continuity	
8	Equation of continuity, Examples	
9	General analysis of fluid motion	
10	Unit II: Equation of Motion:	
11	Euler's equation of motion.	
12	Bernoulli's equation of motion	
13	Steady motion under conservative forces	
14	Impulsive motion	
15	Circulation	
16	Kelvin's circulation theorem	
17	Unit-III: General theory of irrotational motion	
18	Potential flow, deductions from Green's theorem	
19	Kinetic energy of a liquid, uniqueness theorems	
20	Kelvin's minimum energy theorem	
21	Mean value of velocity potential and problems	
22	Hydro Statics Unit – I: Fluid Pressure: Introduction	
23	Fluid Pressure and related theorems	
24	Density and specific gravity, problems	
25	Theorems on fluid pressure under gravity	

26	Rate of variation of pressure	
27	Differential equation of pressure	
28	Condition of equilibrium	
29	Equi-pressure surfaces and lines of force	
30	Curves of Equi-pressure	
31	Curves of Equi-density	
32	Examples	
33	Unit – II: Resultant fluid pressure and related theorems, class-1	
34	Resultant fluid pressure and related theorems- class-2	
35	Centre of pressure: Definition and how to find CP	
36	Determination of centre of pressure of parallelogram	
37	Determination of centre of pressure of triangle	
38	Determination of centre of pressure of Circle	
39	Problems related to CP	
40	Problems related to CP	
41	Problems related to CP	
42	Thrust on curved surfaces, Resultant vertical and horizontal Thrust and Examples.	
43	Thrust on curved surfaces, Examples.	
44	Unit – III: Equilibrium and Stability of Floating Bodies	
45	Condition of equilibrium of floating bodies, Examples	
46	Stable, Unstable and Neutral Equilibrium, definition and examples	
47	Meta Centre, theorems	
48	Determination of Meta Centre.	
49	Surface of Buoyancy, plane of flotation.	
50	Surface of flotation, centre of gravity, Examples.	

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Course Plan (June 2020 to Dec 2020)

Name of the Teacher: Mukul Buragohain

Course-Honours/ Generic- Honours

Class/Semester- Sem-I

Name of the Paper- C2(Algebra)

Units Assigned: Unit-4

Marks Assigned- 25

Class	Topic/Unit	Remarks
1	Introduction to linear Algebra	
2	Basic definitions and Examples	
3	Matrix of a linear transformation	
4	Basic properties and examples of linear transformation	
5	Inverse of a matrix	
6	Tutorial	
7	Solved examples of inverse of a matrix	
8	Characterization of invertible matrices	
9	Examples of invertible matrix	
10	Definition of subspace with examples	
11	Theorems on subspaces	
12	Tutorial	
13	Linear dependence and independence	
14	Examples related with Linear dependence and independence	
15	Base and dimension	
16	Dimension of subspaces of R^n	
17	Dimension theorem	
18	Tutorial	
19	rank of a matrix	
20	Rank nullity theorem	
21	Solved examples to find the rank of a matrix	
22	Eigenvalues and Eigenvectors	
23	Theorems on Eigenvalues and Eigenvectors	
24	Characteristic equation of a matrix	
25	Tutorial	

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Course Plan(June 2020 to Dec 2020)

Name of the Teacher: Mukul Buragohain

Course-Honours

Class/Semester-SEM-III

Name of the Paper- C6 (Group Theory -I)

Units Assigned- Unit-1,2,3,4 & 5

Marks Assigned-80

Class	Topic/Unit	Remarks
1	Unit-1 :Introduction to Group theory	
2	Basic definitions and operations on sets	
3	Symmetries of a square	
4	Symmetries of a square	
5	Tutorial	
6	Dihedral groups	
7	Examples of Dihedral groups of various order	
8	Definition and examples of permutation groups	
9	Theorem on permutation groups	
10	Tutorial	
11	Definition and examples of quaternion groups	
12	Definition and examples of quaternion groups	
13	Definition and examples of groups	
14	Elementary properties of groups.	
15	Tutorial	
16	Basic Theorems on groups	
17	Basic Theorems on groups	
18	Solved Examples of groups	
19	Solved Examples of groups	
20	Tutorial	
21	Unit-2 : Subgroups and examples of subgroups	
22	Basic properties of subgroups	
23	Theorems on subgroups	
24	Theorems on subgroups	
25	Tutorial	
26	centralizer	
27	Theorems on centralizer	
28	normalizer	
29	Theorems on centralizer	
30	Center of a group	

31	Theorems on center of a group	
32	Tutorial	
33	product of two subgroups	
34	Theorems on product of two subgroups	
35	Tutorial	
36	Unit-3 Definition and examples of cyclic groups	
37	Definition and examples of cyclic groups	
38	Properties of cyclic groups	
39	classification of subgroups of cyclic groups	
40	Theorems on Cyclic groups	
41	Tutorial	
42	Permutations and Cycle notation for permutations	
43	properties of permutations	
44	even and odd permutations	
45	Computation of even and odd permutations	
46	alternating group	
47	Tutorial	
48	Cosets	
49	properties of cosets	
50	Theorems on cosets	
51	Tutorial	
52	Lagrange's theorem	
53	Simple application of Lagrange's theorem	
54	Fermat's Little theorem	
55	Tutorial	
56	Unit-4 External direct product	
57	Properties of External direct product	
58	Properties of External direct product	
59	Theorems on External direct product	
60	Tutorial	
61	normal subgroups	
62	Theorems on normal subgroups	
63	Theorems on normal subgroups	
64	Theorems on normal subgroups	
65	factor groups	
66	Theorem on factor groups	
67	Tutorial	
68	Cauchy's theorem for finite abelian groups	
69	Application of Cauchy's theorem for finite abelian groups	
70	Tutorial	
71	Unit-4 Group homomorphisms	
72	Examples of group homomorphism	
73	properties of homomorphisms	
74	Tutorial	

75	Cayley's theorem	
76	Cayley's theorem	
77	Isomorphisms and its Examples	
78	properties of isomorphisms	
79	Tutorial	
80	First isomorphism theorems	
81	Application of First isomorphism theorems	
82	second isomorphism theorems	
83	Third isomorphism theorems	
84	Tutorial	
85	Tutorial	

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Course Plan(June 2020 to Dec 2020)

Name of the Teacher: Mukul Buragohain

Course-Honours

Class/Semester-Sem-I

Name of the Paper- GE-1

Units Assigned- Unit-2 & 3

Marks Assigned-50

Class	Topic/Unit	Remarks
1	Unit-2 Equation of tangent	
2	Cartesian Equation of tangent with examples	
3	Polar Equation of tangent with examples	
4	Tutorial	
5	Equation of Normal	
6	Cartesian Equation of Normal with examples	
7	Polar Equation of normal with examples	
8	Tutorial	
9	Angle of Intersection of Curves	
10	Angle of Intersection of Two Curves in Polar Form	
11	Cartesian Sub-tangent and Sub-normal	
12	Length of Polar Subtangent and Polar Subnormal	
13	Curvature and Radius of Curvature with examples	
14	Curvature at the Origin	
15	Chord of Curvature Through Origin	
16	Asymptotes and its geometrical interpretation	
17	Determination of asymptotes parallel to coordinate axis and not parallel to coordinate axis	
18	Tutorial	
19	Determination of Asymptotes of rational algebraic curve	
20	General rule of finding asymptotes of the rational algebraic curve	
21	Asymptote obtained by inspection	
22	Singular points	
23	Tutorial	
24	Singular point at the origin of a rational algebraic curve:	
25	Tutorial	
26	Parametric representation of curves	
27	tracing of parametric curves	

28	Examples	
29	Polar coordinates	
30	tracing of curves in polar coordinates	
31	Unit-3 Rolle's theorem	
32	Geometrical interpretation of Rolle 's Theorem	
33	Application of Roll' Theorem	
34	Tutorial	
35	Lagrange's Mean Value Theorem	
36	Geometrical significance of Lagrange's Mean Value theorem	
37	Application of Lagrange's Mean Value Theorem	
38	Tutorial	
39	Cauchy's Mean Value Theorem	
40	Solved exaples	
41	Another form of Taylor's Theorem	
42	Taylor's Theorem with Lagrange's Form of Remainder	
43	Taylor's Theorem with Generalised Form of Remainder	
44	Taylor's series	
45	Examples related with Taylor's series	
46	Tutorial	
47	Maclaurin's Theorem	
48	Application of Maclaurin's Theorem	
49	Maclaurin's series of $\sin x$, $\cos x$	
50	Maclaurin's series of $\log(1+x)$, $(1+x)^m$	
51	Maxima and Minima	
52	Determination of Maxima and minima by 1 st derivative test with examples	
53	Determination of Maxima and minima by 2 nd derivative test with examples	
54	Tutorial	
55	Tutorial	
56	Indeterminate forms with various forms	
57	L'Hospital's Rule	
58	Solved examples	
59	Solved examples	
60	Tutorial	

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Course Plan(June 2020 to Dec 2020)

Name of the Teacher: Mukul Buragohain

Course-Major

Class/Semester- Sem-V

Name of the Paper- Linear Algebra & Number Theory

Units Assigned- (A) Linear Algebra- unit 1 & 2, (B) Number Theory- unit 1,2,3,4

Marks Assigned- 80

Class	Topic/Unit	Remarks
1	A-Unit-1: System of linear equations	
2	Consistency and inconsistency of System of linear equations	
3	Definitions and examples of Vector space	
4	Properties of Vector space	
5	vector subspace	
6	Theorems on vector subspaces	
7	Linear independence and dependence	
8	Linear Span	
9	Base and dimension	
10	Theorems on base and dimension of vector spaces	
11	Dimension theorem	
12	Solved examples	
13	A-Unit-2: Definition of a line	
14	Theorem on lines	
15	Affine Space	
16	Theorem on Affine Space	
17	Quotient Space	
18	Theorems on Quotient Space	
19	Linear transformation with examples	
20	Properties of linear transformation	
21	Theorem on linear transformation	
22	Representation of Linear maps by Matrices	
23	Kernel and image of a linear transformation	
24	linear isomorphism	
25	Geometric Ideas and some loose ends	
26	B-Unit-1: Peano's axiom and Well ordering property of positive integer	
27	Division Algorithm	
28	G.C.D and LCM	
29	Euclidean Algorithm	

30	Unit-2: Prime numbers	
31	unique factorization theorem	
32	Euclid's theorem	
33	greatest integer function	
34	Unit-3: Definition and Basic properties of congruence	
35	complete residue system and reduced residue system	
36	Application of CRS and RRS	
37	Fermat's little theorem	
38	Euler's theorem	
39	Wilson's theorem	
40	Application of Fermat's, Euler's & Wilson's theorem	
41	Solution of Congruence	
42	Solutions of the problems of type $ax+by+c=0$	
43	Chines Remainder theorem	
44	Solutions of simultaneous equations by using Chines Remainder theorem	
45	Unit-4: Arithmetic Function	
46	Properties of arithmetic	
47	Euler's function	
48	Division function	
49	Mobius function	
50	Mobius inversion formula	

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Course Plan (January 2021 to June 2021)

Name of the Teacher: Mukul Buragohain

Course-Honours

Class/Semester- Sem-IV

Name of the Paper- C10 (Ring Theory & Linear Algebra-I)

Units Assigned- Unit-1 &2

Marks Assigned-35

Class	Topic/Unit	Remarks
1	Unit-1: Definition and examples of rings	
2	Solved Examples	
3	properties of rings	
4	subrings	
5	Subrings related theorem	
6	Tutorial	
7	integral domain and theorems	
8	Fields and related theorems	
9	characteristic of a ring	
10	Ideal	
11	Ideal and its properties.	
12	ideal generated by a subset of a ring	
13	operations on ideals	
14	Tutorial	
15	factor rings	
16	Theorems on factor rings	
17	prime and maximal ideals	
18	Theorems on prime ideals	
19	Theorems on maximal ideals	
20	Tutorial	
21	Unit-2: Ring homomorphisms	
22	Examples of Ring homomorphisms	
23	Tutorial	
24	properties of ring homomorphisms	
25	properties of ring homomorphisms	
26	Solved problems on ring homomorphism	
27	Solved problems on ring homomorphism	
28	Solved problems on ring homomorphism	
29	Tutorial	
30	Isomorphism theorems I	
31	Tutorial	

32	Isomorphism theorems II	
33	Isomorphism theorems II	
34	Isomorphism theorems III	
35	Isomorphism theorems III	
36	Tutorial	
37	field of quotients	
38	Theorems on field of quotients	
39	Theorems on field of quotients	
40	Tutorial	

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Course Plan(January 2021 to June 2021)

Name of the Teacher: Mukul Buragohain

Course- Generic

Class/Semester- Sem-IV

Name of the Paper- Algebra(GE4)

Units Assigned- Unit-1 &2

Marks Assigned- 56

Class	Topic/Unit	Remarks
1	Unit-1: Definition and examples of groups	
2	Basic Properties of groups	
3	Tutorial	
4	Order of an element and order of a group	
5	examples of abelian and non-abelian groups	
6	examples of abelian and non-abelian groups	
7	Tutorial	
8	Theorems on abelian and non-abelian groups	
9	The group Z_n of integers under addition modulo n	
10	Solved Examples related with addition modulo n	
11	Solved Examples related with addition modulo n	
12	the group $U(n)$ of units under multiplication modulo n	
13	Tutorial	
14	Solved Examples related with multiplication modulo n	
15	Cyclic groups from number systems	
16	Cyclic groups from number systems	
17	complex roots of unity	
18	Tutorial	
19	circle group	

20	the general linear group $GL_n(n,R)$	
21	groups of symmetries of an isosceles triangle,	
22	groups of symmetries of an equilateral triangle,	
23	groups of symmetries of a rectangle	
24	groups of symmetries of a square	
25	the permutation group $Sym(n)$	
26	Tutorial	
27	Solved examples	
28	Solved examples	
29	Group of quaternions	
30	Tutorial	
31	Unit-2: Subgroups and examples	
32	examples of subgroups	
33	examples of subgroups including the center of a group.	
34	Theorems on subgroups	
35	Theorems on subgroups	
36	Tutorial	
37	cyclic subgroups	
38	Theorem on cyclic subgroups	
39	Theorem on cyclic subgroups	
40	Theorem on cyclic subgroups	
41	the concept of a subgroup generated by a subset	
42	the commutator subgroup of group	
43	Properties of the commutator subgroup of group	
44	Tutorial	
45	Theorems on commutator subgroup of group	
46	Theorems on commutator subgroup of group	
47	Cosets	
48	Theorems on Cosets	
49	Tutorial	
50	Index of subgroup	
51	Lagrange's theorem	
52	order of an element of a group	
53	Theorems on order of an element of a group	
54	Tutorial	
55	Normal subgroups and its examples and characterizations	
56	Theorems on Normal subgroups	
57	Theorems on Normal subgroups	
58	Quotient groups	
59	Theorems on Quotient groups	
60	Tutorial	

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Course Plan(January 2021 to June 2021)

Name of the Teacher: Mukul Buragohain

Course-Major

Class/Semester- Sem-VI

Name of the Paper- (A) Discrete Mathematics & (B) Graph Theory

Units Assigned- Unit-1 & 2

Marks Assigned- 35

Class	Topic/Unit	Remarks
1	(B) Unit-1: Introduction to graph Theory & definitions	
2	Directed and undirected graphs & basic terminologies	
3	finite and infinite graph	
4	incidence and degree of vertex, isolated and pendent vertices, null graph	
5	Handshaking theorem	
6	types of graphs, sub graphs	
7	graphs isomorphism	
8	Solved examples	
9	operations of graphs	
10	Solved Examples	
11	connected graph, disconnected graphs and components	
12	Theorems on connected graph, disconnected graphs and components	
13	Unit-2: Walk, path and circuits	
14	Eulerian graphs and Hamiltonian graphs	
15	Theorems on Eulerian graphs and Hamiltonian graphs	
16	Dirac's theorem	
17	Ore's, theorem	
18	Konigsberg's Bridge problem	
19	Representation of graphs and matrix representation of graph	
20	adjacency matrix, Incidence matrix	
21	Linked representation of graphs	

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Course Plan(January 2021 to June 2021)

Name of the Teacher: Mukul Buragohain

Course-Major

Class/Semester- Sem-VI

Name of the Paper- (A) Algebra-II & (B) Partial Differential Equation

Units Assigned- (A)Unit-1 & 2

Marks Assigned- 40

Class	Topic/Unit	Remarks
1	Unit-1: Automorphism of groups	
2	Solved Examples on Automorphism of groups	
3	Inner automorphism	
4	Theorems on Inner automorphism	
5	external and internal direct products	
6	Properties of external and internal direct products	
7	Theorems on external and internal direct products	
8	Definition and examples of Ring	
9	Solved examples	
10	Special kinds of rings	
11	sub rings	
12	Theorems on sub rings	
13	Ideals	
14	Theorems on ideals	
15	sum and product of ideals	
16	sum and product of ideals	
17	Quotient Ring	
18	Theorems on Quotient Ring	
19	Homomorphism of ring	
20	Properties of Homomorphism of ring	
21	Imbedding of rings	
22	Theorem on Imbedding of rings	
23	Maximal and Prime ideal	
24	Theorems on Maximal and Prime ideal	
25	Theorems on Maximal and Prime ideal	

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Course Plan(January 2021 to June 2021)

Name of the Teacher: Mukul Buragohain

Course-Honours

Class/Semester-B.Com 4th Sem

Name of the Paper- Business Mathematics

Units Assigned- Unit-1

Marks Assigned- Marks not Assigned in the syllabus

Class	Topic/Unit	Remarks
1	Unit-1: Introduction to Matrix	
2	Algebra of Matrices	
3	Inverse of a Matrix	
4	Tutorial	
5	Matrix operations- Business application	
6	Tutorial	
7	Solution of system of linear equations by matrix inversion method having unique solution , involving two variables	
8	Solution of system of linear equations by matrix inversion method having unique solution , involving three variables	
9	Solution of system of linear equations by Cramer's Rule having unique solution , involving two variables	
10	Solution of system of linear equations by Cramer's Rule having unique solution , involving three variables	
11	Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan(June 2021 to December 2021)

Name of the Teacher: Mukul Buragohain

Course-Honours

Class/Semester-SEM-III

Name of the Paper- C6 (Group Theory -I)

Units Assigned- Unit-1,2,3,4 & 5

Marks Assigned-80

Class	Topic/Unit	Remarks
1	Unit-1 :Introduction to Group theory	
2	Basic definitions and operations on sets	
3	Symmetries of a square	
4	Tutorial	
5	Examples	
6	Dihedral groups	
7	Examples of Dihedral groups of various order	
8	Definition and examples of permutation groups	
9	Theorem on permutation groups	
10	Tutorial	
11	Definition and examples of quaternion groups	
12	Definition and examples of quaternion groups	
13	Definition and examples of groups	
14	Elementary properties of groups.	
15	Tutorial	
16	Basic Theorems on groups	
17	Basic Theorems on groups	
18	Solved Examples of groups	
19	Solved Examples of groups	
20	Tutorial	
21	Unit-2 : Subgroups and examples of subgroups	
22	Basic properties of subgroups	
23	Theorems on subgroups	
24	Theorems on subgroups	
25	Tutorial	
26	centralizer	
27	Theorems on centralizer	
28	normalizer	
29	Tutorial	
30	Center of a group	

31	Theorems on center of a group	
32	Theorems on center of a group	
33	product of two subgroups	
34	Theorems on product of two subgroups	
35	Tutorial	
36	Unit-3 Definition and examples of cyclic groups	
37	Definition and examples of cyclic groups	
38	Properties of cyclic groups	
39	classification of subgroups of cyclic groups	
40	Theorems on Cyclic groups	
41	Tutorial	
42	Permutations and Cycle notation for permutations	
43	properties of permutations	
44	even and odd permutations	
45	Computation of even and odd permutations	
46	alternating group	
47	Tutorial	
48	Cosets	
49	properties of cosets	
50	Theorems on cosets	
51	Tutorial	
52	Lagrange's theorem	
53	Simple application of Lagrange's theorem	
54	Fermat's Little theorem	
55	Tutorial	
56	Unit-4 External direct product	
57	Properties of External direct product	
58	Properties of External direct product	
59	Theorems on External direct product	
60	Tutorial	
61	normal subgroups	
62	Theorems on normal subgroups	
63	Theorems on normal subgroups	
64	Tutorial	
65	factor groups	
66	Theorem on factor groups	
67	Theorem on factor groups	
68	Cauchy's theorem for finite abelian groups	
69	Application of Cauchy's theorem for finite abelian groups	
70	Tutorial	
71	Unit-4 Group homomorphisms	
72	Examples of group homomorphism	
73	properties of homomorphisms	
74	Tutorial	

75	Cayley's theorem	
76	Cayley's theorem	
77	Isomorphisms and its Examples	
78	properties of isomorphisms	
79	Tutorial	
80	First isomorphism theorems	
81	Application of First isomorphism theorems	
82	second isomorphism theorems	
83	Third isomorphism theorems	
84	Application of 2 nd & 3 rd isomorphism theorems	
85	Tutorial	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher: Mukul Buragohain

Course-Honours

Class/Semester- Sem -V

Name of the Paper- Group Theory -II

Units Assigned- Unit-1,2,3

Marks Assigned-80

Class	Topic/Unit	Remarks
1	Unit-1 Automorphism	
2	Solved examples	
3	Solved examples	
4	Solved examples	
5	Tutorial	
6	Tutorial	
7	Inner automorphism	
8	Inner automorphism	
9	Theorems on inner automorphism	
10	Theorems on inner automorphism	
11	Theorems on inner automorphism	
12	Tutorial	
13	Tutorial	
14	Automorphism groups	
15	Automorphism groups	
16	Automorphism groups of finite cyclic groups	
17	Automorphism groups of finite cyclic groups	
18	Tutorial	
19	Tutorial	
20	Automorphism groups of infinite cyclic groups	
21	Automorphism groups of infinite cyclic groups	
22	Tutorial	
23	Tutorial	
24	Applications of factor groups to automorphism groups	
25	Applications of factor groups to automorphism groups	
26	Applications of factor groups to automorphism groups	
27	Applications of factor groups to automorphism groups	
28	Tutorial	

29	Tutorial	
30	Characteristic subgroups	
31	Theorems on Characteristic subgroups	
32	Theorems on Characteristic subgroups	
33	Commutator subgroup	
34	Commutator subgroup and its properties	
35	Commutator subgroup and its properties	
36	Unit-2: external direct products	
37	Properties of external direct products	
38	Properties of external direct products	
39	Properties of external direct products	
40	Properties of external direct products	
41	Properties of external direct products	
42	Tutorial	
43	the group of units modulo n as an external direct product	
44	the group of units modulo n as an external direct product	
45	the group of units modulo n as an external direct product	
46	Tutorial	
47	internal direct products	
48	Basic properties of internal direct products	
49	Basic properties of internal direct products	
50	Theorems on internal direct products	
51	Theorems on internal direct products	
52	Tutorial	
53	Tutorial	
54	Fundamental Theorem of finite abelian groups	
55	Fundamental Theorem of finite abelian groups	
56	Examples related with Fundamental Theorem of finite abelian groups	
57	Examples related with Fundamental Theorem of finite abelian groups	
58	Examples related with Fundamental Theorem of finite abelian groups	
59	Tutorial	
60	Tutorial	
61	Unit-3: Groups acting on themselves by conjugation	
62	Groups acting on themselves by conjugation	
63	class equation	
64	class equation and consequences	
65	class equation and consequences	
66	Tutorial	
67	conjugacy in S_n	

68	conjugacy in S_n	
69	Tutorial	
70	p-groups	
71	Theorems on p-groups	
72	Theorems on p-groups	
73	Theorems on p-groups	
74	Tutorial	
75	Sylow's 1 st theorems	
76	Sylow's 2 nd theorems	
77	Sylow's 3 rd theorems	
78	Tutorial	
79	Sylow's theorems and consequences	
80	Sylow's theorems and consequences	
81	Sylow's theorems and consequences	
82	Tutorial	
83	Cauchy's theorem	
84	Cauchy's theorem	
85	Simplicity of A_n for $n \geq 5$	
86	Simplicity of A_n for $n \geq 5$	
87	Tutorial	
88	non-simplicity tests	
89	non-simplicity tests	
90	Tutorial	

COURSE PLAN FOR SESSION JUNE-DECEMBER 2021

INSTRUCTOR: DR. ARJUN SINGH CHETRY

DEPARTMENT: MATHEMATICS

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Arjun Singh Chetry

Course– B.Sc. Honours

Class/Semester- Semester I

Name of the Paper- C2. Algebra

Units Assigned- Unit 1 & Unit 2

Marks Assigned- 35

Class	Topic/ Unit	Remarks
1.	Overview of the Course and the Paper (Algebra)	
2.	Complex numbers and its geometric interpretation revisited	
3.	Polar representation of complex numbers-I	
4.	Polar representation of complex numbers-II (Euler form)	
5.	Powers of complex numbers	
6.	Tutorial-I	
7.	De Moivre's theorem for rational indices (with Proof)	
8.	Application of De Moivre's theorem (n-th roots of unity)	
9.	Application of De Moivre's theorem (simplifying trigonometric identities)	
10.	Application of De Moivre's theorem (solving polynomials)	
11.	Tutorial-II	
12.	Relations (Equivalence relations)	
13.	Examples of equivalence relations	
14.	Functions (in context with relations)	
15.	Different types of functions (one-one, onto)	
16.	Tutorial-III	
17.	Composition of functions	
18.	Invertible functions	
19.	Examples & Theorems (Results)	
20.	Tutorial-IV	
21.	One to one correspondence and cardinality of a set	
22.	Cardinality of certain standard sets	
23.	Well Ordering Property of positive integers and Division Algorithm	
24.	Application of Division Algorithm (Examples)	
25.	Tutorial-V	
26.	Divisibility Properties	
27.	Theorems on Divisibility of integers	
28.	Euclidean Algorithm	

29.	Examples and Problems	
30.	GCD and LCM	
31.	Congruence relations between integers	
32.	Properties of congruences	
33.	Tutorial-V	
34.	Principles of Mathematical Induction	
35.	Examples and Problems	
36.	Fundamental theorem of Arithmetic and a glimpse into Number Theory.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Arjun Singh Chetry

Course– B.Sc. Honours

Class/Semester- Semester III

Name of the Paper- GE-3.1 Real Analysis

Units Assigned- Unit 1 & Unit 4

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Overview of the Course and the Paper (Real Analysis)	
2.	Basic Set Theory and concept of functions revisited	
3.	Finite and Infinite Sets (with standard examples)	
4.	Examples and Problems	
5.	Countable and Uncountable Sets with examples	
6.	Tutorial-I	
7.	Real numbers \mathbb{R} and its properties	
8.	Bounded Sets, Suprema and Infima with examples	
9.	Completeness property of \mathbb{R} (along with sets that are not complete)	
10.	Archimedean Property of \mathbb{R} and intervals (with examples)	
11.	Concept of cluster points and statement of Bolzano-Weierstrass theorem	
12.	Sequence of functions with examples	
13.	Pointwise and Uniform convergence	
14.	M_n -test (Problems)	
15.	Series of functions with examples	
16.	M -test (Problems)	
17.	Tutorial-II	
18.	Results on uniform convergence and integrability & differentiability of functions	
19.	Power Series and Radius of convergence	
20.	Examples and Problems	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Arjun Singh Chetry

Course– B.Sc. Honours

Class/Semester- Semester V

Name of the Paper- DSE 2 Number Theory

Units Assigned- Unit 1, 2 & 3(All units)

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Overview of the Course and the Paper (Number Theory)	
2.	Revision of Divisibility Results (from C2. Algebra)	
3.	Linear Diophantine equation I	
4.	Linear Diophantine equation II	
5.	Tutorial-I	
6.	Prime counting function and Statement of Prime Number Theorem	
7.	History of Number theory (with emphasis to Prime numbers)	
8.	Goldbach conjecture	
9.	Linear Congruences-I	
10.	Linear Congruence-II and complete set of residues	
11.	Examples and Problems	
12.	Chinese Remainder theorem with Examples	
13.	Fermat's Little Theorem with standard results	
14.	Tutorial-II	
15.	Wilson's theorem	
16.	Number theoretic functions with examples	
17.	Sum and number of divisors	
18.	Totally multiplicative functions	
19.	Dirichlet Product: Definition and Properties	
20.	The Mobius Inversion formula	
21.	Standard theorems on the mobius inversion formula	
22.	The greatest integer function with examples	
23.	Euler's phi-function	
24.	Tutorial-III	
25.	Euler's theorem with examples	
26.	Application of Euler's theorem	
27.	Reduced set of residues: Definition and Examples	
28.	Properties of the Euler's phi function-I	
29.	Properties of the Euler's phi function-II	
30.	Order of an integer modulo n (with insight to Group theory)-I	
31.	Order of an integer modulo n (with insight to Group theory)-II	

32.	Primitive roots for primes (with insight to generators of Groups)	
33.	Standard theorems on composite numbers with primitive roots-I	
34.	Standard theorems on composite numbers with primitive roots-II	
35.	Tutorial-IV	
35.	Euler's Criterion	
36.	Standard theorem on Euler's Criterion-I	
37.	Standard theorem on Euler's Criterion-II	
38.	The Legendre symbol	
39.	The Legendre symbol and its properties-I	
40.	The Legendre symbol and its properties-II	
41.	The Legendre symbol and its properties-III	
42.	Quadratic reciprocity-I	
43.	Quadratic reciprocity-II	
44.	Tutorial-V	
45.	Quadratic congruences-I	
46.	Quadratic congruences-II	
47.	Problems	
48.	Quadratic congruences with composite moduli	
49.	Examples and Problems	
50.	The equation $x^2 + y^2 = z^2$	
51.	Standard theorems	
52.	Fermat's last theorem	
53.	Standard theorems	
54.	Public key encryption	
55.	RSA encryption and decryption	

COURSE PLAN FOR SESSION JUNE-DECEMBER 2021

INSTRUCTOR: DR. BINOD CHETRY

DEPARTMENT: MATHEMATICS

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Binod Chetry

Course– B.Sc. Honours

Class/Semester- Semester I

Name of the Paper- GE-1.1 Differential Calculus

Units Assigned- Unit 2 & Unit 3(shared)

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Tangents and Normals-I	
2.	Tangents and Normals-II	
3.	Curvature	
4.	Asymptotes	
5.	Singular points	
6.	Tutorial-I	
7.	Tracing of curves	
8.	Parametric representation of curves and tracing of parametric curves-I	
9.	Parametric representation of curves and tracing of parametric curves-II	
10.	Polar coordinates and tracing of curves in polar coordinates	
11.	Tutorial-II	
12.	Taylor's series	
13.	Maclaurin's series of $\sin x$, $\cos x$	
14.	Maclaurin's series of e^x , $\log(1+x)$, $(1+x)^m$	
15.	Maxima and Minima	
16.	Indeterminate forms	
17.	Tutorial-II	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Binod Chetry

Course– B.Sc. Honours

Class/Semester- Semester III

Name of the Paper- GE-3.1 Real Analysis

Units Assigned- Unit 2 & Unit 3

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Real Sequences: Definition and Examples	
2.	Bounded Sequence: Definition and Examples	
3.	Cauchy convergence criterion for sequences	
4.	Examples and Problems	
5.	Cauchy s theorem on limits	
6.	Order preservation and squeeze theorem	
7.	Monotone sequences and their convergence	
8.	Tutorial-I	
9.	Infinite series: Definition and Examples	
10.	Cauchy convergence criterion for series	
11.	positive term series, geometric series, comparison test	
12.	Examples and Problems	
13.	convergence of p-series	
14.	Root test, Ratio test, alternating series, Leibnitz s test	
15.	Examples and Problems-I	
16.	Examples and Problems-II	
17.	Definition and examples of absolute and conditional convergence	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Binod Chetry

Course– B.Sc. Honours

Class/Semester- Semester V

Name of the Paper- C11 Multivariate Calculus

Units Assigned- Unit 1,2,3 & 4(all units)

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Functions of several variables	
2.	Limit and continuity of functions of two variables-i	
3.	Limit and continuity of functions of two variables-ii	
4.	Partial differentiation	
5.	Total differentiability and differentiability	
6.	Sufficient condition for differentiability	
7.	Tutorial-I	
8.	Chain rule for one and two independent parameters	
9.	Examples and problems	
10.	Directional derivatives-i	
11.	Directional derivatives-ii	
12.	The gradient	
13.	Maximal and normal property of the gradient	
14.	Tangent planes	
15.	Examples and problems	
16.	Tutorial-II	
17.	Extrema of functions of two variables-i	
18.	Extrema of functions of two variables-ii	
19.	Examples and problems	
20.	Method of lagrange multipliers-i	
21.	Method of lagrange multipliers-ii	
22.	Examples and problems	
23.	Constrained optimization problems-i	
24.	Constrained optimization problems-ii	
25.	Examples and problems	
26.	Tutorial-III	
27.	Definition of vector field (with examples)	
28.	Divergence and curl-I	
29.	Divergence and curl-II	
30.	Examples and Problems	
31.	Double integration over rectangular region	

32.	Examples and Problems	
33.	Double integration over non-rectangular region	
34.	Examples and Problems	
35.	Double integrals in polar co-ordinates	
36.	Examples and Problems	
37.	Triple integrals	
38.	Triple integral over a parallelepiped and solid regions	
39.	Examples and Problems	
40.	Tutorial IV	
41.	Volume by triple integrals-I	
42.	Volume by triple integrals-II	
43.	Examples and Problems	
44.	Cylindrical coordinates	
45.	Spherical coordinates	
46.	Tutorial-V	
47.	Change of variables in double integrals	
48.	Change of variables in triple integrals	
49.	Examples and Problems	
50.	Line integrals: Definition and Examples	
51.	Applications of line integrals-I	
52.	Applications of line integrals-II	
53.	Fundamental theorem for line integrals-I	
54.	Fundamental theorem for line integrals-II	
55.	Problems	
56.	Tutorial-VI	
57.	Conservative vector fields	
58.	Independence of path	
59.	Green's theorem-I	
60.	Green's theorem-II	
61.	Green's theorem-III	
62.	Surface integrals-I	
63.	Surface integrals-II	
64.	Examples and Problems	
65.	Integrals over parametrically defined surfaces-I	
66.	Integrals over parametrically defined surfaces-II	
67.	Tutorial-VII	
68.	Stoke's theorem-I	
69.	Stoke's theorem-II	
70.	The Divergence theorem-I	
71.	The Divergence theorem-II	
72.	Examples and Problems	

COURSE PLAN FOR SESSION JUNE-DECEMBER 2021

INSTRUCTOR: DR. BISWAJIT DAS

DEPARTMENT: MATHEMATICS

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Biswajit Das

Course– B.Sc. Honours

Class/Semester- Semester I

Name of the Paper- C2. Algebra

Units Assigned- Unit 3 & Unit 4

Marks Assigned- 45

Class	Topic/ Unit	Remarks
1.	Systems of linear equations-I	
2.	Systems of linear equations-II	
3.	Examples and Problems	
4.	row reduction and echelon forms-I	
5.	row reduction and echelon forms-II	
6.	Tutorial-I	
7.	vector equations with examples	
8.	The matrix equation $Ax=b$	
9.	The matrix equation $Ax=b$ contd.	
10.	Examples and Problems	
11.	Solution set of Linear Systems-I	
12.	Solution set of Linear Systems-II	
13.	Examples and Problems-I	
14.	Tutorial-II	
15.	Application of Linear Systems-I	
16.	Application of Linear Systems-II	
17.	Examples and Problems	
18.	Linear Independence of vectors-I	
19.	Linear Independence of vectors-II	
20.	Tutorial-III	
21.	Linear Transformations: Definition and examples	
22.	Linear Transformations-II	
23.	Problems	
24.	Matrix of a linear transformation: Definition and examples	
25.	Matrix of a linear transformation-II	
26.	Problems	
27.	Inverse of a matrix-I	
28.	Inverse of a matrix-II	
29.	Characterizations of invertible matrices	

30.	Standard results	
31.	Tutorial-IV	
32.	Subspaces of R^n -I	
33.	Subspaces of R^n -II	
34.	Problems	
35.	Dimension of subspaces of R^n and rank of a matrix	
36.	Dimension of subspaces of R^n and rank of a matrix-II	
37.	Tutorial-V	
38.	Eigen values: Definition and examples	
39.	Eigen vectors and Characteristic equation of a matrix-I	
40.	Eigen vectors and Characteristic equation of a matrix-II	
41.	Eigen vectors and Characteristic equation of a matrix-III	
42.	Tutorial-VI	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Biswajit Das

Course– B.Sc. Honours

Class/Semester- Semester I

Name of the Paper- GE-1.1 Differential Calculus

Units Assigned- Unit 1 & Unit 3(shared)

Marks Assigned- 40

Class	Topic/ Unit	Remarks
1.	Limits (ϵ and δ definition)-I	
2.	Limits-II with examples	
3.	Continuity (ϵ and δ definition)-I	
4.	Continuity-II with examples	
5.	Types of discontinuities	
6.	Differentiability of functions	
7.	Tutorial-I	
8.	Successive differentiation	
9.	Leibnitz's Theorem	
10.	Partial Differentiation	
11.	Euler's theorem on homogeneous functions	
12.	Tutorial-II	
13.	Rolle's theorem	
14.	Mean Value theorems	
15.	Taylor's theorem with Lagrange's forms of remainder	
16.	Taylor's theorem with Cauchy's forms of remainder	
17.	Tutorial-III	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Biswajit Das

Course– B.Sc. Honours

Class/Semester- Semester III

Name of the Paper- C5. Theory of Real functions

Units Assigned- Unit 1,2 &3(all units)

Marks Assigned- 80

Class	Topic/ Unit	Remarks
1.	Limits of functions	
2.	Sequential criterion for limits	
3.	Divergence criteria	
4.	Examples and Problems	
5.	Limit theorems-I	
6.	Limit theorems-II	
7.	Limit theorems-III	
8.	One sided limits	
9.	Examples and Problems	
10.	Infinite limits and limits at infinity-I	
11.	Infinite limits and limits at infinity-II	
12.	Tutorial-I	
13.	Continuous functions: Definition and Examples	
14.	Sequential criterion for continuity and discontinuity	
15.	Standard theorems	
16.	Algebra of continuous functions-I	
17.	Algebra of continuous functions-II	
18.	Continuous functions on an interval-I	
19.	Continuous functions on an interval-II	
20.	Tutorial-II	
21.	Intermediate value theorem	
22.	Location of roots theorem	
23.	Examples and Problems	
24.	Preservation of intervals theorem	
25.	Standard theorems	
26.	Tutorial-III	
27.	Uniform continuity	
28.	Non-uniform continuity criteria	
29.	Uniform continuity theorem	
30.	Tutorial-IV	
31.	Differentiability of a function at a point: Definition and examples	

32.	Differentiability of a function at an interval	
33.	Standard theorems	
34.	Caratheodory's theorem	
35.	Algebra of differentiable functions-I	
36.	Algebra of differentiable functions-II	
37.	Relative extrema	
38.	Interior extremum theorem	
39.	Tutorial-V	
40.	Rolle's theorem	
41.	Mean value theorem	
42.	Intermediate value property of derivatives	
43.	Darboux's theorem	
44.	Examples and Problems	
45.	Applications of mean value theorem to inequalities-I	
46.	Applications of mean value theorem to inequalities-II	
47.	Approximation of polynomials-I	
48.	Approximation of polynomials-II	
49.	Examples and Problems	
50.	Tutorial-VI	
51.	Taylor's theorem to inequalities-I	
52.	Taylor's theorem to inequalities-II	
53.	Taylor's theorem to inequalities-III	
54.	Cauchy's mean value theorem-I	
55.	Cauchy's mean value theorem-II	
56.	Taylor's theorem with Lagrange's form of remainder-I	
57.	Taylor's theorem with Lagrange's form of remainder-II	
58.	Examples and Problems	
59.	Taylor's theorem with Cauchy's form of remainder-I	
60.	Taylor's theorem with Cauchy's form of remainder-II	
61.	Examples and Problems	
62.	application of Taylor's theorem to convex functions-I	
63.	application of Taylor's theorem to convex functions-II	
64.	relative extrema-I	
65.	relative extrema-II	
66.	Tutorial-VII	
67.	Taylor's series and Maclaurin's series expansions of exponential and trigonometric functions-I	
68.	Taylor's series and Maclaurin's series expansions of exponential and trigonometric functions-II	
69.	Taylor's series and Maclaurin's series expansions of exponential and trigonometric functions-III	
70.	Problems	
71.	Tutorial-VIII	

COURSE PLAN OF PHILOSOPHY

DIGBOI COLLEGE, DIGBOI

Course plan

Name of the teacher- Dr. Reepa Sarmah

Course- Honours / Generic- Honours

Class/semester – 3 rd semester

Name of the Paper – Indian Ethics (C6)

Units Assigned – Full (4 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Ethics of Vedas	
2	Ethics of Vedas	
3	Rta	
4	Rta	
5	Rna	
6	Rna	
7	Ethics of Upanisads	
8	Ethics of Upanisads	
9	Sreyas	
10	Sreyas	
11	Preyas	
12	Preyas	
13	Nisreyas	
14	Nisreya	
15	Yajna	
16	Yajna	
17	Yajna	
18	Ethics of Bhagawat Gita	
19	Ethics of Bhagawat Gita	
20	Ethics of Bhagawat Gita	
21	Svabhava	
22	Svabhava	
23	Svadharm	
24	Svadharm	
25	Jnana Marga	
26	Jnana Marga	
27	Bhakti Marga	
28	Bhakti Marga	
29	Karma Marga	
30	Karma Marga	
31	Synthesis of Jnana, Karma and	

	Bhakti marga	
32	Synthesis of Jnana,Karma and Bhakti marga	
33	Niskama Karma Yoga	
34	Niskama Karma Yoga	
35	Lokasamgraha	
36	Lokasamgraha	
37	Sthitaprajna	
38	Dharma	
39	Kinds of Dharma	
40	Purusartha	
41	Purusartha	
42	Varnasramadharma	
43	Varnasramadharma	
44	Law of Karma	
45	Law of Karma	
46	Carvaka Ethics	
47	Carvaka Ethics	
48	Buddhist Ethics	
49	Eight fold path	
50	Eight fold path	
51	Panchachila	
52	Jaina Ethics	
53	Triratna	
54	Anubrata	
55	Anubrata	
56	Mahabrata	
57	Mahabrat	

DIGBOI COLLEGE, DIGBOI

Course plan

Name of the teacher- Dr. Reepa Sarmah

Course- Honours / Generic- Honours

Class/semester – 5 th semester

Name of the Paper – Philosophy of Vedas and Upanishads

Units Assigned – Full (4 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Introduction to Vedic philosophy	
2	Introduction to Vedic philosophy	
3	Introduction to Vedic Philosophy	
4	Introduction to Upanisadic philosophy	
5	Introduction to Upanisadic philosophy	
6	Introduction to Upanisadic philosophy	
7	Significance of Vedas	
8	Significance of Vedas	
9	Significance of Vedas	
10	Significance of Upanisads	
11	Significance of Upanisads	
12	Significance of Upanisads	
13	Vedic concept of Man	
14	Vedic concept of Man	
15	Vedic concept of Man	
16	Vedic concept of nature	
17	Vedic concept of nature	
18	Vedic concept of nature	
19	Vedic concept of Deities	
20	Vedic concept of Deities	
21	Vedic concept of Deities	
22	Vedic concept of Deities	
23	Upanisadic Brahman	
24	Upanisadic Brahman	
25	Upanisadic Brahman	
26	Upanisadic Atman	
27	Upanisadic Atman	
28	Upanisadic Atman	
29	Upanisadic Atman	
30	Upanisadic Jiva	
31	Upanisadic Jiva	
32	Upanisadic Jiva	

33	Upanisadic Jiva	
34	Upanisadic Jagat	
35	Upanisadic Jagat	
36	Upanisadic Jagat	
37	Upanisadic Jagat	
38	Upanisadic Mukti	
39	Upanisadic Mukti	
40	Upanisadic Mukti	
41	Rta	
42	Rta	
43	Rta	
44	Rna	
45	Rna	
46	Rna	
47	Rna	
48	Yajna	
49	Yajna	
50	Yajna	
51	Purusarthas	
52	Purusarthas	
53	Purusarthas	
54	Sreyas	
55	Sreyas	
56	Preyas	
57	Preyas	

DIGBOI COLLEGE, DIGBOI

Course plan

Name of the teacher- Dr. Reepa Sarmah

Course- Honours / Generic- Honours

Class/semester – 2nd semester

Name of the Paper – Indian Logic (C 4)

Units Assigned – Full (4 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Nature of Indian Logic	
2	Nature of Indian Logic	
3	Nature of Indian Logic	
4	Development of Indian Logic	
5	Development of Indian Logic	
6	Development of Indian Logic	
7	Development of Indian Logic	
8	Indian Logic and Epistemology	
9	Indian Logic and Epistemology	
10	Indian Logic and Epistemology	
11	Classification of Knowledge by Nyaya	
12	Classification of Knowledge by Nyaya	
13	Prama	
14	Prama	
15	Prama	
16	Prama	
17	Aprama	
18	Apram	
19	Apram	
20	Pramanas as the Karana of Prama	
21	Pramanas as the Karana of Prama	
22	Pramanas as the Karana of Prama	
23	Characteristics of Pramanas	
24	Characteristics of Pramanas	
25	Characteristics of Pramanas	
26	Kinds of Pramanas	
27	Kinds of Pramanas	
28	Kinds of Pramanas	
29	Nyaya pratyaksa	
30	Nyaya pratyaksa	
31	Nyaya pratyaksa	
32	Mimamsa Pratyaksa	
33	Mimamsa Pratyaksa	
34	Mimamsa Pratyaksa	

35	Definition of Anumana	
36	Definition of Anumana	
37	Constituents of Anumana	
38	Constituents of Anumana	
39	Constituents of Anumana	
40	Constituents of Anumana	
41	Kinds of Anumana	
42	Kinds of Anumana	
43	Kinds of Anumana	
44	Paksata	
45	Paksata	
46	Paksata	
47	Vyapti	
48	Vyapti	
49	Ascertainment of Vyapti	
50	Ascertainment of Vyapti	
51	Ascertainment of Vyapti	
52	Types of Vyapti	
53	Types of Vyapti	
54	Types of Vyapti	
55	Marks of Valid Reason	
56	Nyaya Hetabhasa	
57	Nyaya Hetabhasa	
58	Nyaya Hetabhasa	
59	Nyaya Hetabhasa	
60	Nyaya Hetabhasa	
61	Nyaya Hetabhasa	

DIGBOI COLLEGE, DIGBOI

Course plan

Name of the teacher- Dr. Reepa Sarmah

Course- Honours / Generic- Honours

Class/semester – 4th semester

Name of the Paper – Contemporary Indian Philosophy

Units Assigned – Full (4 units)

Marks Assigned – 80

Class	Topic/Unit	Remarks
1	Vivekananda : an Introduction	
2	Practical Vedanta	
3	Practical Vedanta	
4	Practical Vedanta	
5	Vivekananda's Universal Religion	
6	Vivekananda's Universal Religion	
7	Vivekananda's Universal Religion	
8	Vivekananda's Philosophy of Education	
9	Vivekananda's Philosophy of Education	
10	Vivekananda's Philosophy of Education	
11	Aurobindo's Evolution	
12	Aurobindo's Evolution	
13	Aurobindo's Evolution	
14	Aurobindo's Supermind	
15	Aurobindo's Supermind	
16	Aurobindo's Supermind	
17	Synthesis of Yoga	
18	Synthesis of Yoga	
19	Synthesis of Yoga	
20	Synthesis of Yoga	
21	Integralism	
22	Integralism	
23	Integralism	
24	Integralism	
25	Tagore's Humanism	
26	Tagore's Humanism	
27	Tagore's Humanism	
28	Tagore's Humanism	
29	Nature of Religion	
30	Nature of Religion	
31	Nature of Religion	
32	Nature of Religion	
33	Iqbal's Intuition	
34	Iqbal's Intuition	
35	Iqbal's Intuition	
36	Iqbal's Intuition	
37	Human Ego	
38	Human Ego	
39	Human Ego	
40	Human Ego	
41	Human Ego	
42	Man and his Destiny	
43	Man and his Destiny	
44	Man and his Destiny	
45	Gandhi's Truth	
46	Gandhi's Truth	
47	Gandhi's Truth	

48	Gandhi's Truth	
49	Gandhi's Non-violence	
50	Gandhi's Non-violence	
51	Gandhi's Non-violence	
52	Gandhi's Non-violence	
53	Radhakrishnan's Intellect and Intuition	
54	Radhakrishnan's Intellect and Intuition	
55	Radhakrishnan's Intellect and Intuition	
56	Radhakrishnan's Intellect and Intuition	
57	Radhakrishnan's Intellect and Intuition	

DIGBOI COLLEGE, DIGBOI

Course plan

Name of the teacher- Dr. Reepa Sarmah

Course- Honours / Generic- Honours

Class/semester – 5th semester

Name of the Paper – Existentialism and Phenomenolism

Units Assigned – 1 unit

Marks Assigned – 20

Class	Topic/Unit	Remarks
1	Keikegaard : an introduction	
2	Three stages of Existence	
3	Three stages of Existence	
4	Three stages of Existence	
5	Three stages of Existence	
6	Subjectivity and Truth	
7	Subjectivity and Truth	
8	Subjectivity and Truth	
9	Subjectivity and Truth	
10	Gabriel Marcel :an introduction	
11	Being and Others	
12	Being and Others	
13	Being and Others	
14	Being and Loving	
15	Being and Loving	
16	Being and Loving	

COURSE PLAN

2020-21

**DEPARTMENT OF PHYSICS,
DIGBOI COLLEGE**

Period: January-June 2020

Course – Honours

Class/Semester – 2nd Semester (CBCS)

Name of the Paper - PHYSICS-C III: ELECTRICITY AND MAGNETISM

Units Assigned – I, II, VI, VII, VIII

Marks Assigned – 41

Unit	Class	Topic/ Unit	Remarks
I	1	Electric field: Electric field lines.	
	2	Electric flux.	
	3	Gauss' Law with applications to charge distributions with spherical, cylindrical and planar symmetry.	
	4	Electrostatic Potential. Laplace's and Poisson equations.	
	5	The Uniqueness Theorem.	
	6	Potential and Electric Field of a dipole. Force and Torque on a dipole.	
	7	Electrostatic energy of system of charges.	
	8	Electrostatic energy of a charged sphere.	
	9	Conductors in an electrostatic Field	
	10	Surface charge and force on a conductor	
	11	Capacitance of a system of charged conductors. Parallel-plate capacitor. Capacitance of an isolated conductor	
	12	Method of Images and its application to (1) Plane Infinite Sheet and (2) Sphere	
II	1	Electric Field in matter. Polarization, Polarization Charges. Electrical Susceptibility and Dielectric Constant.	
	2	Capacitor (parallel plate, spherical, cylindrical) filled with dielectric	
	3	Displacement vector D. Relations between E, P and D.	
	4	Gauss' Law in dielectrics	
VI	1	AC Circuits: Kirchhoff's laws for AC circuits.	
	2	Complex Reactance and Impedance.	
	3	Series LCR Circuit	
	4	Parallel LCR Circuit.	
VII	1	Ideal Constant-voltage and Constant-current Sources.	
	2	Network Theorems: Thevenin theorem, Norton Theorem,	
	3	Superposition theorem, Reciprocity theorem,	
	4	Maximum Power Transfer theorem.	
VIII	1	Torque on a current Loop.	
	2	Ballistic Galvanometer: Current and Charge Sensitivity.	
	3	Electromagnetic damping. Logarithmic damping. CDR.	

Course – Honours

Class/Semester – 4th Semester (CBCS)

Name of the Paper - PHYSICS-C-X : ANALOG SYSTEMS AND APPLICATIONS

Units Assigned – I to X

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Semiconductor Diodes	
	2	P and N type semiconductors.	
	3	Energy Level Diagram.	
	4	Conductivity and Mobility, Concept of Drift velocity.	
	5	Barrier Formation in PN Junction Diode. Static and Dynamic Resistance.	
	6	Current Flow Mechanism in Forward and Reverse Biased Diode. Drift Velocity.	
	7	Derivation for Barrier Potential, Barrier Width and Current for Step Junction	
II	1	Rectifier Diode: Half-wave Rectifiers.	
	2	Centre-tapped Rectifiers	
	3	and Bridge Full-wave	
	4	Calculation of Ripple Factor and Rectification Efficiency, C-filter	
	5	Zener Diode and Voltage Regulation.	
	6	Principle and structure of (1) LEDs, (2) Photodiode and (3) Solar Cell	
III	1	n-p-n and p-n-p Transistors.	
	2	Characteristics of CB, CE and CC Configurations	
	3	Current gains α and β Relations between α and β .	
	4	Load Line analysis of Transistors. DC Load line and Q-point.	
	5	Physical Mechanism of Current Flow. Active, Cutoff and Saturation Regions.	
IV	1	Transistor Biasing and Stabilization Circuits.	
	2	Fixed Bias	
	3	Voltage Divider Bias	
	4	Transistor as 2-port Network.	
	5	h-parameter Equivalent Circuit	
	6	Analysis of a single-stage CE amplifier using Hybrid Model.	
	7	Input and Output Impedance. Current, Voltage and Power Gains.	
	8	Classification of Class A, B & C Amplifiers	
V	1	RC coupled Amplifier	
	2	Two stage RC coupled Amplifier	
	3	frequency response	
VI	1	Effect of positive and negative feedback on Input impedance,	
	2	Effect of positive and negative feedback on Output impedance,	
	3	Effect of positive and negative feedback on Gain	
	4	Effect of positive and negative feedback on Stability, Distortion and noise.	
VII	1	Barkhausen's Criterion for self-sustained oscillations.	
	2	RC Phase shift oscillator	
	3	Hartley & Colpitts oscillators	
VIII	1	Characteristics of an Ideal and Practical Op-Amp. (IC 741)	
	2	Open-loop and Closed-loop Gain.	
	3	Frequency Response. CMRR.	
	4	Slew Rate and concept of Virtual ground	
IX	1	Applications of Op-Amps: Inverting and non-inverting amplifiers	
	2	Adder, Subtractor	
	3	Differentiator, Integrator	
	4	Log amplifier, Zero crossing detector	
	5	Wein bridge oscillator.	
X	1	Resistive network (Weighted and R-2R Ladder).	
	2	Accuracy and Resolution.	
	3	A/D Conversion (successive approximation)	

Course – Honours

Class/Semester – 6th Semester (NCBCS)

Name of the Paper - PHYM – 604 (Laser and its Application)

Units Assigned – I to V

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Absorption and emission of radiation	
	2	Spontaneous emission of radiation, stimulated emission,	
	3	Einstein coefficients, significant of Einstein coefficients	
	4	Basic Laser system requirements	
	5	Method of creation of population inversion, optical resonator, Q factor, optical cavity, Standing wave ,	
	6	Threshold condition for laser oscillator .	
II	1	Description of Ammonia beam Maser	
	2	Ruby Laser	
	3	He-Ne Laser,	
	4	Semiconductor Laser.	
III	1	Intensity, Monochromaticity	
	2	Coherence properties of Laser radiation, spatial, and Temporal Coherence,	
	3	Purity of spectral line and Temporal Coherence relation with Coherence,	
	4	Visibility of fringes and degree of coherence	
	5	Relation between visibility and coherence.	
IV	1	Introduction: Basic principle of Fiber optics, structure and classification,	
	2	acceptance angle and numerical aperture,	
	3	Intermodal dispersion in a step index fiber,	
	4	Ray path in index fiber.	
	5	Advantages of fiber optics communication	
V	1	Faraday effect- Determination of magnetic rotation,	
	2	Classical theory of Faraday Effect,	
	3	Kerr electro Optic effect	
	4	Harmonic generation, second harmonic generation	

DIGBOI COLLEGE, DIGBOI

Course Plan

Period: July-December 2020

Name of the Teacher - Dr Kanchan Konwar

Course – Honours

Class/Semester - 5th Semester (NCBCS)

Name of the Paper - PHYM -504 (Electronics)

Units Assigned - I, II, III

Marks Assigned - 60

Unit	Class	Topic/ Unit	Remarks
Unit I	1.	Charged particles and electronic structure of elements	
	2.	Energy band theory of crystals, conductors, semiconductors and insulators	
	3.	Electrons and holes in semiconductor	
	4.	Donor and acceptor impurity, generation and recombination of charge	

	5.	Diffusion, continuity equation	
	6.	Junction diode characteristics: the open circuited PN junction, I-V characteristics of P-N diode	
	7.	Breakdown diodes	
	8.	Diode as a rectifier	
	9.	Half-wave rectifier	
	10.	Full-wave rectifier with resistance load	
	11.	Ripple factor	
	12.	Smoothing filters	
	13.	DC power supply	
Unit I	1.	Transistors: NPN and PNP transistors	
	2.	Transistor action, common emitter connection	
	3.	Common base and common collector connections,	
	4.	Transistor biasing (fixed bias, base resistor, voltage divider) and thermal stabilization	
	5.	Amplifier equivalent circuits	
	6.	Hybrid parameters, small signal transistor voltage amplifier	
	7.	RC coupled and LC coupled amplifier	
	8.	Power amplifier (Class A and Class B)	
	9.	Distortion in amplifier	
	10.	Amplifier with negative feedback, effect of negative feedback on gain, output impedance and distortions	
Unit III	1.	Oscillators: transistor as sinusoidal oscillator	
	2.	Barkhausen criterion	
	3.	Tuned collector Oscillator	
	4.	Hartley, RC oscillator	
	5.	Wein Bridge and crystal oscillator	
	6.	Integrated Circuit: basic ideas, differential amplifier	
	7.	Operational amplifiers, CMRR, inverting, non-inverting modes	
	8.	Basic mathematical operations- addition, differentiation, integration.	
Unit IV	1.	Logic gates: binary numbers	
	2.	Decimal to binary conversion	
	3.	Binary to decimal conversion	
	4.	Logic gates and their realization by P-N diodes and transistor	
	5.	Half adder, full adder	
	6.	NAND, NOR and XOR gates	
	7.	Boolean algebra	
	8.	De Morgan's theorem and its applications	
	9.	K-maps	

Course – Honours

Class/Semester - 5th Semester (NCBCS)

Name of the Paper - PHYM -503 (Atomic and Molecular Physics)

Units Assigned - III

Marks Assigned - 21

Unit	Class	Topic/ Unit	Remarks
Unit III	1.	Molecular spectra: Pure rotation spectra	
	2.	Theory of pure rotation spectra, selection rules	
	3.	Vibration spectra and selection rules	
	4.	Theory of rotation-vibration spectra	
	5.	P and R branches	
	6.	Rayleigh scattering	
	7.	Raman scattering	
	8.	Raman effect	
	9.	Classical theory of Raman effect	
	10.	Introduction to Lasers: Spontaneous and stimulated emission,	

	11.	Population inversion and Einstein's A and B coefficients	
	12.	Ammonia beam maser	
	13.	Ruby laser	
	14.	He-Ne laser	

Course – Honours

Class/Semester – 3rd Semester (CBCS)

Name of the Paper - PHYSICS-C VII: DIGITAL SYSTEMS AND APPLICATIONS (THEORY)

Units Assigned – from 1 to 12

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Block Diagram of CRO. Electron Gun, Deflection System and Time Base. Deflection Sensitivity	
	2	Applications of CRO: Study of Waveform	
	3	Measurement of Voltage, Current, Frequency, and Phase Difference.	
II	1	Integrated Circuits : Active & Passive components. Discrete components. Wafer. Chip.	
	2	Advantages and drawbacks of ICs. Scale of integration: SSI, MSI, LSI and VLSI.	
	3	Classification of ICs. Examples of Linear and Digital ICs.	
III	1	Difference between Analog and Digital Circuits. Binary Numbers.	
	2	Decimal to Binary and Binary to Decimal Conversion.	
	3	BCD, Octal and Hexadecimal numbers.	
	4	AND, OR and NOT Gates (realization using Diodes and Transistor).	
	5	NAND and NOR Gates as Universal Gates.	
	6	XOR and XNOR Gates and application as Parity Checkers.	
IV	1	De Morgan's Theorems. Boolean Laws.	
	2	Simplification of Logic Circuit using Boolean Algebra.	
	3	Fundamental Products.	
	4	Idea of Minterms and Maxterms.	
	5	Conversion of a Truth table into Equivalent Logic Circuit by Sum of Products Method	
	6	Karnaugh Map.	
V	1	Basic idea of Multiplexers	
	2	De-multiplexers	
	3	Decoders	
	4	Encoders	
VI	1	Binary Addition	
	2	Binary Subtraction using 2's Complement	
	3	Half and Full Adders.	
	4	Half & Full Subtractors	
	5	4-bit binary Adder/Subtractor	
VII	1	SR, D Flip-Flops	
	2	JK Flip-Flops	
	3	Level and Edge Triggered Flip-Flops	
	4	Preset and Clear operations	
	5	Race-around conditions in JK Flip-Flop	
	6	M/S JK Flip-Flop	
VIII	1	IC 555: block diagram	
	2	Astable multivibrator	
	3	Monostable multivibrator.	
IX	1	Serial-in-Serial-out, Serial-in-Parallel-out Shift Registers	
	2	Parallel-in-Serial-out and Parallel-in-Parallel-out	
X	1	Ring Counter	
	2	Asynchronous counters	

	3	Decade Counter	
	4	Synchronous Counter	
XI	1	Input/Output Devices. Data storage (idea of RAM and ROM).	
	2	Computer memory	
	3	Memory organization & addressing	
	4	Memory Interfacing. Memory Map	
XII	1	Main features of 8085. Block diagram. Components. Pin-out diagram.	
	2	Buses. Registers. ALU. Memory. Stack memory	
	3	Timing & Control circuitry	
	4	Timing diagram of MOV and MVI.	
	5	Timing states. Instruction cycle	
XIII	1	Introduction to Assembly Language:	
	2	1 byte, 2 byte & 3 byte instruction	

Course – Honours

Class/Semester – 1st Semester (CBCS)

Name of the Paper - Physics-C- II (MECHANICS)

Units Assigned – from 6 to 10

Marks Assigned – 33

Unit	Class	Topic/ Unit	Remarks
VI	1	Fluid Motion: Kinematics of Moving Fluids:	
	2	Poiseuille's Equation	
	3	Poiseuille's Equation contd.	
VII	1	Gravitation and Central Force Motion: Law of gravitation.	
	2	Gravitational potential energy. Inertial and gravitational mass.	
	3	Potential and field due to spherical shell and solid sphere.	
	4	Motion of a particle under a central force field.	
	5	Two-body problem and its reduction to one-body problem and its solution.	
	6	The energy equation and energy diagram.	
	7	Kepler's Laws.	
	8	Satellite in circular orbit and applications. Geosynchronous orbits. Weightlessness.	
VIII	1	Simple Harmonic Oscillations.	
	2	Differential equation of SHM and its solution.	
	3	Differential equation of SHM and its solution contd.	
	4	Kinetic energy, potential energy, total energy and their time-average values..	
	5	Damped oscillation	
	6	Forced oscillations: Transient and steady states;	
	7	Resonance, sharpness of resonance; power dissipation and Quality Factor	
IX	1	Non-inertial frames and fictitious forces. Uniformly rotating frame.	
	2	Laws of Physics in rotating coordinate systems.	
	3	Centrifugal force, Coriolis force and its applications	
	4	Components of Velocity and Acceleration in Cylindrical and Spherical Coordinate Systems	
X	1	Michelson-Morley Experiment and its outcome. Postulates of Special Theory of Relativity.	
	2	Lorentz Transformations. Simultaneity and order of events.	
	3	Lorentz contraction. Time dilation.	
	4	Relativistic transformation of velocity, frequency and wave number	
	5	Relativistic addition of velocities.	
	6	Variation of mass with velocity	
	7	Massless Particles. Mass-energy Equivalence	

	8	Relativistic Doppler effect.	
	9	Relativistic Kinematics. Transformation of Energy and Momentum .	

Period: January-June 2021

Course – Honours

Class/Semester – 2nd Semester (CBCS)

Name of the Paper - PHYSICS-C III: ELECTRICITY AND MAGNETISM

Units Assigned – I, II, VI, VII, VIII

Marks Assigned – 41

Unit	Class	Topic/ Unit	Remarks
I	1	Electric field: Electric field lines.	
	2	Electric flux.	
	3	Gauss' Law with applications to charge distributions with spherical, cylindrical and planar symmetry.	
	4	Electrostatic Potential. Laplace's and Poisson equations.	
	5	The Uniqueness Theorem.	
	6	Potential and Electric Field of a dipole. Force and Torque on a dipole.	
	7	Electrostatic energy of system of charges.	
	8	Electrostatic energy of a charged sphere.	
	9	Conductors in an electrostatic Field	
	10	Surface charge and force on a conductor	
	11	Capacitance of a system of charged conductors. Parallel-plate capacitor. Capacitance of an isolated conductor	
	12	Method of Images and its application to (1) Plane Infinite Sheet and (2) Sphere	
II	1	Electric Field in matter. Polarization, Polarization Charges. Electrical Susceptibility and Dielectric Constant.	

	2	Capacitor (parallel plate, spherical, cylindrical) filled with dielectric	
	3	Displacement vector D. Relations between E,P and D.	
	4	Gauss' Law in dielectrics	
VI	1	AC Circuits: Kirchhoff's laws for AC circuits.	
	2	Complex Reactance and Impedance.	
	3	Series LCR Circuit	
	4	Parallel LCR Circuit.	
VII	1	Ideal Constant-voltage and Constant-current Sources.	
	2	Network Theorems: Thevenin theorem, Norton Theorem,	
	3	Superposition theorem, Reciprocity theorem,	
	4	Maximum Power Transfer theorem.	
VIII	1	Torque on a current Loop.	
	2	Ballistic Galvanometer: Current and Charge Sensitivity.	
	3	Electromagnetic damping. Logarithmic damping. CDR.	

Course – Honours

Class/Semester – 4th Semester (CBCS)

Name of the Paper - PHYSICS-C-X : ANALOG SYSTEMS AND APPLICATIONS

Units Assigned – I to X

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Semiconductor Diodes	
	2	P and N type semiconductors.	
	3	Energy Level Diagram.	
	4	Conductivity and Mobility, Concept of Drift velocity.	
	5	Barrier Formation in PN Junction Diode. Static and Dynamic Resistance.	
	6	Current Flow Mechanism in Forward and Reverse Biased Diode. Drift Velocity.	
	7	Derivation for Barrier Potential, Barrier Width and Current for Step Junction	
II	1	Rectifier Diode: Half-wave Rectifiers.	
	2	Centre-tapped Rectifiers	
	3	and Bridge Full-wave	
	4	Calculation of Ripple Factor and Rectification Efficiency, C-filter	
	5	Zener Diode and Voltage Regulation.	
	6	Principle and structure of (1) LEDs, (2) Photodiode and (3) Solar Cell	
III	1	n-p-n and p-n-p Transistors.	
	2	Characteristics of CB, CE and CC Configurations	
	3	Current gains α and β Relations between α and β .	
	4	Load Line analysis of Transistors. DC Load line and Q-point.	
	5	Physical Mechanism of Current Flow. Active, Cutoff and Saturation Regions.	
IV	1	Transistor Biasing and Stabilization Circuits.	
	2	Fixed Bias	
	3	Voltage Divider Bias	
	4	Transistor as 2-port Network.	
	5	h-parameter Equivalent Circuit	
	6	Analysis of a single-stage CE amplifier using Hybrid Model.	
	7	Input and Output Impedance. Current, Voltage and Power Gains.	
	8	Classification of Class A, B & C Amplifiers	
V	1	RC coupled Amplifier	
	2	Two stage RC coupled Amplifier	
	3	frequency response	
VI	1	Effect of positive and negative feedback on Input impedance,	
	2	Effect of positive and negative feedback on Output impedance,	
	3	Effect of positive and negative feedback on Gain	

	4	Effect of positive and negative feedback on Stability, Distortion and noise.	
VII	1	Barkhausen's Criterion for self-sustained oscillations.	
	2	RC Phase shift oscillator	
	3	Hartley & Colpitts oscillators	
VIII	1	Characteristics of an Ideal and Practical Op-Amp. (IC 741)	
	2	Open-loop and Closed-loop Gain.	
	3	Frequency Response. CMRR.	
	4	Slew Rate and concept of Virtual ground	
IX	1	Applications of Op-Amps: Inverting and non-inverting amplifiers	
	2	Adder, Subtractor	
	3	Differentiator, Integrator	
	4	Log amplifier, Zero crossing detector	
	5	Wein bridge oscillator.	
X	1	Resistive network (Weighted and R-2R Ladder).	
	2	Accuracy and Resolution.	
	3	A/D Conversion (successive approximation)	

Course – Honours

Class/Semester – 6th Semester (NCBCS)

Name of the Paper - PHYM – 604 (Laser and its Application)

Units Assigned – I to V

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Absorption and emission of radiation	
	2	Spontaneous emission of radiation, stimulated emission,	
	3	Einstein coefficients, significant of Einstein coefficients	
	4	Basic Laser system requirements	
	5	Method of creation of population inversion, optical resonator, Q factor, optical cavity, Standing wave ,	
	6	Threshold condition for laser oscillator .	
II	1	Description of Ammonia beam Maser	
	2	Ruby Laser	
	3	He-Ne Laser,	
	4	Semiconductor Laser.	
III	1	Intensity, Monochromaticity	
	2	Coherence properties of Laser radiation, spatial, and Temporal Coherence,	
	3	Purity of spectral line and Temporal Coherence relation with Coherence,	
	4	Visibility of fringes and degree of coherence	
	5	Relation between visibility and coherence.	
IV	1	Introduction: Basic principle of Fiber optics, structure and classification,	
	2	acceptance angle and numerical aperture,	
	3	Intermodal dispersion in a step index fiber,	
	4	Ray path in index fiber.	
	5	Advantages of fiber optics communication	
V	1	Faraday effect- Determination of magnetic rotation,	
	2	Classical theory of Faraday Effect,	
	3	Kerr electro Optic effect	
	4	Harmonic generation, second harmonic generation	

Period: July-December 2021

Course – Honours

Class/Semester – 1st Semester (CBCS)

Name of the Paper - Physics-C- II (MECHANICS)

Units Assigned – from 6 to 10

Marks Assigned – 33

Unit	Class	Topic/ Unit	Remarks
VI	1	Fluid Motion: Kinematics of Moving Fluids:	
	2	Poiseuille's Equation	
	3	Poiseuille's Equation contd.	
VII	1	Gravitation and Central Force Motion: Law of gravitation.	
	2	Gravitational potential energy. Inertial and gravitational mass.	
	3	Potential and field due to spherical shell and solid sphere.	
	4	Motion of a particle under a central force field.	
	5	Two-body problem and its reduction to one-body problem and its solution.	
	6	The energy equation and energy diagram.	
	7	Kepler's Laws.	
	8	Satellite in circular orbit and applications. Geosynchronous orbits. Weightlessness.	
	9	Basic idea of global positioning system (GPS).	
VIII	1	Simple Harmonic Oscillations.	
	2	Differential equation of SHM and its solution.	
	3	Differential equation of SHM and its solution contd.	
	4	Kinetic energy, potential energy, total energy and their time-average values..	
	5	Damped oscillation	
	6	Forced oscillations: Transient and steady states;	
	7	Resonance, sharpness of resonance; power dissipation and Quality Factor	
IX	1	Non-inertial frames and fictitious forces. Uniformly rotating frame.	
	2	Laws of Physics in rotating coordinate systems.	
	3	Centrifugal force , Coriolis force and its applications	
	4	Components of Velocity and Acceleration in Cylindrical and Spherical Coordinate Systems	
X	1	Michelson-Morley Experiment and its outcome. Postulates of Special Theory of Relativity.	
	2	Lorentz Transformations. Simultaneity and order of events.	
	3	Lorentz contraction. Time dilation.	
	4	Relativistic transformation of velocity, frequency and wave number	
	5	Relativistic addition of velocities.	
	6	Variation of mass with velocity	
	7	Massless Particles. Mass-energy Equivalence	
	8	Relativistic Doppler effect.	
	9	Relativistic Kinematics. Transformation of Energy and Momentum .	

Course – Honours

Class/Semester – 3rd Semester (CBCS)

Name of the Paper - PHYSICS-C VII: DIGITAL SYSTEMS AND APPLICATIONS (THEORY)

Units Assigned – from 1 to 12

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Block Diagram of CRO. Electron Gun, Deflection System and Time Base. Deflection Sensitivity	
	2	Applications of CRO: Study of Waveform	
	3	Measurement of Voltage, Current, Frequency, and Phase Difference.	
II	1	Integrated Circuits : Active & Passive components. Discrete components. Wafer. Chip.	
	2	Advantages and drawbacks of ICs. Scale of integration: SSI, MSI, LSI and VLSI.	
	3	Classification of ICs. Examples of Linear and Digital ICs.	
III	1	Difference between Analog and Digital Circuits. Binary Numbers.	
	2	Decimal to Binary and Binary to Decimal Conversion.	
	3	BCD, Octal and Hexadecimal numbers.	
	4	AND, OR and NOT Gates (realization using Diodes and Transistor).	
	5	NAND and NOR Gates as Universal Gates.	
	6	XOR and XNOR Gates and application as Parity Checkers.	
IV	1	De Morgan's Theorems. Boolean Laws.	
	2	Simplification of Logic Circuit using Boolean Algebra.	
	3	Fundamental Products.	
	4	Idea of Minterms and Maxterms.	
	5	Conversion of a Truth table into Equivalent Logic Circuit by Sum of Products Method	
	6	Karnaugh Map.	
V	1	Basic idea of Multiplexers	
	2	De-multiplexers	
	3	Decoders	
	4	Encoders	
VI	1	Binary Addition	
	2	Binary Subtraction using 2's Complement	
	3	Half and Full Adders.	
	4	Half & Full Subtractors	
	5	4-bit binary Adder/Subtractor	
VII	1	SR, D Flip-Flops	
	2	JK Flip-Flops	
	3	Level and Edge Triggered Flip-Flops	
	4	Preset and Clear operations	
	5	Race-around conditions in JK Flip-Flop	
	6	M/S JK Flip-Flop	
VIII	1	IC 555: block diagram	
	2	Astable multivibrator	
	3	Monostable multivibrator.	
IX	1	Serial-in-Serial-out, Serial-in-Parallel-out Shift Registers	
	2	Parallel-in-Serial-out and Parallel-in-Parallel-out	
X	1	Ring Counter	
	2	Asynchronous counters	
	3	Decade Counter	
	4	Synchronous Counter	
XI	1	Input/Output Devices. Data storage (idea of RAM and ROM).	
	2	Computer memory	
	3	Memory organization & addressing	
	4	Memory Interfacing. Memory Map	
XII	1	Main features of 8085. Block diagram. Components. Pin-out diagram.	
	2	Buses. Registers. ALU. Memory. Stack memory	
	3	Timing & Control circuitry	
	4	Timing diagram of MOV and MVI.	
	5	Timing states. Instruction cycle	

XIII	1	Introduction to Assembly Language:	
	2	1 byte, 2 byte & 3 byte instruction	

Course – Honours

Class/Semester – 5th Semester (CBCS)

Name of the Paper -PHYSICS DSE -2 Course title: PHYSICS OF DEVICES AND INSTRUMENTS

Units Assigned – from 1 to 7

Marks Assigned – 60

Unit	Class	Topic/ Unit	Remarks
I	1	Devices: Characteristic and small signal equivalent circuits of UJT and JFET.	
	2	Metal-semiconductor Junction.	
	3	Metal oxide semiconductor (MOS) device. Ideal MOS and Flat Band voltage. SiO ₂ -Si based MOS.	
	4	Enhancement and Depletion Mode MOSFETS, CMOS.	
	5	MOSFET– their frequency limits. Charge coupled devices.	
	6	Tunnel diode.	
II	1	Power supply and Filters: Block Diagram of a Power Supply,	
	2	Qualitative idea of C and L Filters.	
	3	IC Regulators, Line and load regulation, Short circuit protection.	
	4	Active and Passive Filters, Low Pass, High Pass, Band Pass and band Reject Filters.	
	5	Multivibrators: Astable and Monostable Multivibrators using transistors	
III	1	Phase Locked Loop(PLL): Basic Principles,	
	2	Phase detector(XOR & edge triggered	
	3	Voltage Controlled Oscillator (Basics, varactor)	
	4	Loop Filter– Function	
	5	Loop Filter Circuits, transient response, lock and capture.	
	6	Basic idea of PLL IC (565 or 4046)	
IV	1	Basic process flow for IC fabrication, Electronic grade silicon.	
	2	Crystal plane and orientation. Defects in the lattice. Oxide layer.	
	3	Oxidation Technique for Si. Metallization technique.	
	4	Positive and Negative Masks. Optical lithography. Electron lithography..	
	5	Feature size control and wet anisotropic etching	
	6	Lift off Technique. Diffusion and implantation.	
V	1	Serial Communications: RS232, Handshaking, Implementation of RS232 on PC.	
	2	Universal Serial Bus (USB): USB standards, Types and elements of USB transfers.	
	3	Basic idea of UART	
VI	1	Parallel Communications: General Purpose Interface Bus (GPIB),	
	2	GPIB signals and lines	
	3	Handshaking and interface management,	
	4	Implementation of a GPIB on a PC.	
	5	Basic idea of sending data through a COM port.	
VII	1	Block diagram of electronic communication system, Need for modulation.	
	2	Amplitude modulation. Analysis of Amplitude Modulated wave.	
	3	Sideband frequencies in AM wave. CE Amplitude Modulator.	
	4	Demodulation of AM wave using Diode Detector	
	5	Basic idea of Frequency, Phase Modulation	
	6	Pulse and Digital Modulation	
	7	ASK, PSK, FSK	

COURSE PLAN
Course –Physics Honours
Semester- I
Paper Code: PH-C-I
Name of the Paper-Mathematical Physics-I
Units Assigned-IV-IX
Marks Assigned- 39

Class No	Unit	Topic	Number of lectures
1.	UNIT:IV Recapitulation of vectors	Properties of vectors under rotations	5 lectures
2.		Scalar product and its invariance under rotations.	
3.		Vector product, Scalar triple product	
4.		interpretation in terms of area and volume respectively.	
5.		Numericals on the above	
6.	UNIT:V Vector Differentiation	Directional derivatives and normal derivative	8 lectures
7.		Gradient of a scalar field	
8.		Geometrical interpretation of Gradient of a scalar field	
9.		Del and Laplacian operators	
10.		Divergence of a vector field and its applications	
11.		Geometrical interpretation of divergence	
12.		Curl of a vector field and its applications	
13.		Geometrical interpretation of Curl of a vector	
14.	UNIT:VI Vector Integration	Ordinary Integrals of Vectors	14 lectures
15.		Multiple integrals	
16.		Jacobian and its applications	
17.		Notion of infinitesimal line, surface and volume elements	

18.		Line integral of a Vector field.	
19.		Applications of line integral	
20.		Surface integral of a Vector field.	
21		Applications of surface integral	
22		Volume integral of a Vector field	
23		Flux of a vector field.	
24		Gauss' divergence theorem and its proof	
25		Applications of Gauss' theorem	
26		Green's Theorem and its proof.	
27		Applications of Green's theorem	
28		Stokes Theorems and applications	
	UNIT: VII Orthogonal Curvilinear Coordinates	Introduction: Necessity of a General co ordinate system from which all co-ordinate systems can be derived	6 lectures
		Orthogonal Curvilinear Coordinates, scale factor	
		Expression for gradient of a scalar in Orthogonal Curvilinear Coordinates and conversion to spherical and cylindrical co ordinates	
		Expression for divergence of a vector in Orthogonal Curvilinear Coordinates and conversion to spherical and cylindrical co ordinates	
		Expression for curl of a vector in Orthogonal Curvilinear Coordinates and conversion to spherical and cylindrical co ordinates	
		Expression for Laplacian operator in Orthogonal Curvilinear Coordinates and conversion to spherical and cylindrical co ordinates	
	UNIT: VIII Introduction to probability:	Probability, random variables, mean, variance, Probability distribution	4
		Binomial ,Poisson , Gaussian probability distribution and applications.	
		Theorems in probability, hypothesis testing	

		Numericals on probability and probability distribution	
	UNIT: IX Dirac Delta function	Definition and properties of Dirac's delta function and applications	2 lectures
		Representation of Dirac's delta function as limit of a Gaussian function and rectangular function	
Total Lectures			39

Course Plan
Course –Physics Honours
Semester- III
Paper Code:PH-C-V
Name of the Paper-Mathematical Physics-III
Units Assigned- Full paper
Marks Assigned- 60

Class	UNIT	Unit	Remarks
1.	Fourier Series:	Periodic functions. Orthogonality of sine and cosine functions, Dirichlet Conditions	12 Marks
2.		Expansion of periodic functions in a series of sine and cosine functions and determination of Fourier coefficients.	
		Application	
3.		Complex representation of Fourier series and numerical on it.	
4.		Expansion of functions with arbitrary period and its applications.	
5.		Expansion of non-periodic functions over an interval and its applications	
6.		Applications continued	
7.		Even and odd functions and their Fourier expansions.	
8.		Summing of Infinite Series. Term-by-Term differentiation and integration of Fourier Series	
9.		Numericals on the above topic	
10.		Parseval Identity and summing up of Fourier Series	
11.	Frobenius Method and Special	Recap : solutions of Differential equations, Singular Points of Second Order Linear Differential Equations	24 Marks

12	Functions	Introcuction to Series solution of differential equations	
13		Numericals on Series solution of differential equations	
14		Frobenius method and its applications to differential equations	
15		Solution of four different types of differential equation by Frobenius method.	
16		Legendre's equation and its series solution by Frobenius method.	
17		Legendre polynomial of 1 st and 2 nd kind. General form of Polynomial	
18		Finding the first few legendre Polynomial	
19		Expansion of function in a series of Legendre polynomial and examples on it.	
20		Deduction of Rodrigues Formula, Generating Function function of Legendre polynomial.	
21		Numericals based on Generating Function function	
22		Orthogonality condition for Legendre Polynomial	
23		Numericals based on Orthogonality condition	
24		Recurrence formula	
25		Hermite and Laguerre Differential equation	
26		Hermite and Laguerre Polynomial as solutions of the corresponding quations.	
27		Bessel's equation and Bessel's function as solution.	
28		Bessel Functions of the First Kind and Generating Function	
29		Zeros of Bessel Functions $J_0(x)$ and $J_1(x)$	
30		Recurrence relations for Bessel Functions.	
31		Miscellaneous numerical on the unit	
32		Summing Up and home Assignment	

33	Some Special Integrals:	Beta and Gamma Functions properties and applications	4 Marks
34		Applications of Beta and Gamma Functions	
35		Expression of Integrals in terms of Gamma Functions	
36		Error Function and its properties and some simple applications	
37	Theory of Errors:	Types of error: Systematic and Random Errors... Standard and Probable Error..	5 marks
38		Propagation of Errors and applications	
39		Normal Law of Errors	
40		Least-squares fit	
41		Error on the slope and intercept of a fitted line	
42	Partial Differential Equations :	Method of Solutions to partial differential equations, using separation of variables:	14 marks
43		Applications of method of Solutions to partial differential equations, using separation of variables.	
44		Solution of boundary value problems by method of separation of variables.	
45		Laplace's equation in rectangular, cylindrical and spherical coordinates.	
45		Solution of Laplace's Equation in rectangular co-ordinates and B.V. problems	
47		Solution of Laplace's Equation in spherical co-ordinates and B.V. problems.	
48		Solution of Laplace's Equation in cylindrical co-ordinates and B.V. problems.	
49		Derivation of wave equation in 1-dimension: equation of a stretched string.	
50		Solution of vibrational modes of a stretched string and B.V. problems	
51		Derivation of wave equation in 2-dimension: equation of a stretched membrane.	
52		Solution of Diffusion(heat)equation and boundary value problems	
53	Summing Up		NA
54			
	Total Lectures		54

<p style="text-align: center;">COURSE PLAN Course –Physics Honours Semester: V Paper Code: PHYM-501 Name of the Paper-Mathematical Physics-II Units Assigned: FULL PAPER Marks Assigned:60</p>			
Class		Topic/ Unit	marks
1.	Unit: I Differential equations and special functions	Objective of learning DE (Differential Equation): Introduction to DE, Classification of Differential Equations	29
2.		Homogenous differential equations and its solutions	
3.		Solution of non-homogeneous equations	
4.		Solution of ordinary differential equations of second order	
5.		Solution of linear differential equations with constant coefficients	
6.		Solution of linear differential equations with variable coefficients	
7.		Series solution of Differential equations	
8.		Frobenius' method of solution of differential equations	
9.		Solution different types of Differential equations by Frobenius method.	
10.		Legendres equation and Legendre Polynomial as its solution	
11.		Properties and applications of Legendre Polynomial	
12.		Beta and gamma functions, their properties inter relations	
13.		Applications of Beta and gamma functions	

14.		and error functions, properties and simple applications		
15.		Doubt Clearing and summing up of the unit		
16.	Unit:II Complex variables 15 lectures	Objective of learning complex variable. Recap: Complex numbers and their graphical representation	15 marks	
17.		Introduction to complex variables and functions of complex variables.		
		Idea of Limit and continuity, analytic functions		
18.		Cauchy-Riemann conditions and applications		
19.		Different types of Singularities, Contour integration		
		Applications of Contour integration		
20.		Cauchy's theorem, Cauchy's integral formula		
		Applications of Cauchy's theorem and integral formula		
		Taylor's and Laurent's expansion		
		Applications of Taylor's and Laurent's expansion		
		Residue theorem and its application in evaluation of integrals		
		Miscellaneous problems of complex variable		
		Revision of the whole unit		
	Unit III: Fourier series Lectures 10	Introduction and objective of Fourier series. Expansion of a periodic function in terms of sine and cosine functions.	Marks 16	
		Dirichlet's conditions, orthogonality of sine and cosine functions.		
		Determination of Fourier coefficients. Complex representation of Fourier series.		
		Numericals on expanding functions in Fourier Series		
		Fourier series and summing of Infinite Series		
		Fourier series for odd and even functions: sine and cosine series		

		Expansion of fourier series of arbitrary interval		
		Applications of Fourier series to analysis of saw tooth and square waves		
		Miscellaneous examples on Fourier Series.		
		Summing up of Fourier series		

Course Plan 2020-21

Name of the Teacher-Banjit Kumar Das

Course –Honours

Class/Semester- B.A. 1st Semester

Name of the paper- C 2 (Constitutional Government and Democracy in India)

Units Assigned-III, IV & V

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Organs of Government- The Judiciary- The Supreme Court of India- Composition	
2	Powers and functions of the Supreme Court of India	
3	High Court-Composition, Powers and functions	
4	Judicial Review	
5	Judicial Activism	
6	Relation between Executive and Judiciary	
7	Public Interest Litigation	
8	Federalism- Nature of Indian Federation	
9	Federal and non-federal features of the Indian Constitution	
10	Emergency Provisions	
11	Division of Powers between the Centre and States	
12	Administrative relations between Centre and States	
13	Legislative relations between Centre and States	
14	Financial relations between Centre and States	
15	Causes of Centre State conflicts	
16	Fifth & Sixth Schedule of the Indian Constitution	
17	Panchayatiraj institutions- Village Panchayat-functions	
18	73 rd Amendment	
19	74 th Amendment	
20	11 th & 12 th Schedules	

Name of the Teacher-Banjit Kumar Das

Course –Generic

Class/Semester- B.A. 1st Semester

Name of the paper- GE 1A (Nationalism in India)

Units Assigned-III (Nationalist politics and Expansion of its Social Base)

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	The exploitative role of British rule	
2	Nationalist politics under liberals	
3	Swadeshi Movement	
4	Extremist phase of freedom struggle	
5	Beginning of constitutionalism	
6	Indian Council Act, 1909	
7	Government of India Act, 1919	
8	Government of India Act, 1935	
9	Indian Independence Act, 1947	
10	Gandhi and mass mobilization	
11	The non-co-operation Movement	
12	The Civil Disobedience Movement	
13	Quit India Movement	
14	Crip's Mission Plan	

Course plan

Name of the Teacher- Banjit Kumar Das

Course –Honors' / Generic – Honours

Class/Semester- B.A. 2nd Semester

Name of the paper- C-3 (Political Theory-Concepts and Debates)

Units Assigned–II

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Freedom-Introduction, Meaning, Concepts of positive and negative freedom	
2	Kinds of Liberty	
3	Safeguards of liberty	
4	Some dimensions of negative and positive freedom.	
5	Freedom and rights	
6	J.S. Mill on Freedom of Expression	
7	Principles of Utilitarianism	
8	Mill as Utilitarian	
9	Freedom of Expression and Dissent	
10	Discussion	

Course plan

Name of the Teacher-

Course –Honors' / Generic – Honours

Class/Semester-II

Name of the paper- C 4 (Political Process in India)

Units Assigned-I: Political Parties and Party System

III-Regional Aspirations

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	Introduction of Party System	
2	Types of Party system	
3	Role of Political parties	
4	Features of Indian party system	
5	The Congress system in India	
6	Activities of Congress after independence	
7	Decline of Congress	
8	Multi Party coalition system	
9	Evolution of multi-party coalition politics in India	
10	Meaning of Regionalism, Indian approach to regional aspirations	
11	The Punjab crisis	
12	The Naga Secessionist Movement	
13	The Mizo Secessionist Movement	
14	Assam and the issue of migration	
15	The Bodo Movement	
16	ULFA issue	
17	The Kashmir Issue	
18	Kargil conflict	

Name of the Teacher-Banjit Kumar Das

Course – Generic

Class/Semester- B.A. 1st Semester

Name of the paper- GE 2A (Feminism: Theory and Practice)

Units Assigned- III (Genesis of Feminist movement in the West)

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Introduction of feminist movement	
2	Status of women from the historic perspective	
3	Seneca Falls Convention	
4	Summary and resolutions of Seneca Falls Convention	
5	Black feminist movement	
6	Reasons for emergence of Black Feminism	
7	Various period of Afro-American Feminism	
8	Suffragist movement in USA	
9	Suffragist movement in Britain	
10	Suffragist movement in France	
11	French Revolution and declaration of the rights of the women	

Course plan

Name of the Teacher-

Course –Honors' / Generic – Honours

Class/Semester-III

Name of the paper- C -5 Introduction to Comparative Government and Politics

Unit's Assigned-II & IV

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Meaning and development of Capitalism	
2	Advantages of Capitalism	
3	Disadvantages of Capitalism	
5	Meaning and development of Globalization	
6	Advantages of Globalization	
7	Disadvantages of Globalization	
8	Impact of Globalization on Government and Politics	
9	Meaning and growth of Socialism	
10	Advantages of Socialism	
11	Disadvantages of Socialism	
12	Constitutional development of Britain	
13	Political economy of Britain	
14	Features of British Constitution	
15	Constitutional development of American Constitution	
16	Political economy of United States of America	
17	Powers and functions of the British King	
18	Powers and functions of the British Prime Minister	
19	Powers and functions of the British Prime Minister	
20	Powers and functions of the American President	
21	Comparison between British Prime Minister and American President	
22	British Parliament and American Congress	

Course plan

Name of the Teacher-

Course –Honours

Class/Semester-III

Name of the paper-C 6- Perspectives on Public Administration

Unit's Assigned-II & V

Marks Assigned- 16 per Unit

Unit : II Theoretical Perspectives- Classical Theories

Serial number of classes	Topic/ Unit	Remarks
1	Scientific Management theory- Objectives and Characteristics and Principles	
2	Criticism of Scientific Management Theory	
3	Administrative Management theory-Henry Fayol's 14 principles of organisation	
5	Luther Gullick's POSDCORB theory	
6	Criticism of Administrative Management Theory	
7	The Bureaucratic theory	
8	Ideal type of Bureacracy by Max Weber	
9	Criticism of Max Weber's theory of Bureacracy	
10	The Human Relations theory	
11	The Hawthorne Experiment	
12	Criticism of Human Relations Theory	
13	New Public Management- Meaning and emergence of New Public Management	
14	Principles of New Public Management	
15	Elements of New Public Management	
16	Strategy for implementing Public Management Reforms	
17	Meaning of New Public Service Approach	
18	Principles of New Public Service	

	Approach	
19	Good Governance	
20	Characteristics of Good Governance	
21	Importance of Good Governance	
22	Discussion on probable questions	
23	Tutorial	

Name of the Teacher-

Course –Generic

Class/Semester-III

Name of the paper-GE- 3B (Governance: Issues and Challenges)

Unit's Assigned-II & IV

Marks Assigned- 16 per Unit

Unit : II Governance and Development

Serial number of classes	Topic/ Unit	Remarks
1	Western concept of development	
2	Capitalist concept of development	
3	Marxian concept of development	
5	Changing dimensions of Development	
6	Concept of development and United States of America	
7	Concept of development of Third World	
8	Development as regional disparity	
9	United Nations concept of Development	
10	Development as sustainable development	
11	Democracy and Good Governance	
12	Conditions for the success of Democracy	
13	Decentralization: Evolution, significance	
14	Democratic decentralization in India	
15	People's participation in governance	
16	Objectives and types of people's participation in administration	
17	Process people's participation in governance	

18	Problems of people's participation in administration	
19	Importance of people's participation in rural development	
20	Measure to boost people's participation in Governance	
21	discussion	

Course plan

Name of the Teacher- Banjit Kumar das

Course –Honors

Class/Semester-IV

Name of the paper- Political Processes and Institutions in Comparative Perspectives

Units Assigned- –II and IV

Marks Assigned- 16 per unit

Serial number of classes	Topic/ Unit	Remarks
1	The concept of election, Types of election	
2	Proportional representation, Advantages and disadvantages	
3	Party system-characteristics	
5	Party System-types	
6	Coalition politics	
7	Critical evaluation of coalition politics	
8	Coalition in the context of India	
9	Coalition in electoral process	
10	Multi party system	
11	Democratisation: Conceptual Understanding	
12	History of democratization	
13	Process of Democratization	
14	Democratization in the post-colonial countries	
15	Democratization in South Asian countries	
16	Democratization in Africa and Middle East	
17	Democratization in post Authoritarian countries	
18	Democratization in post-communist countries	
19	Obstacles to democratization: Reverse wave	
20	How to sustain democratization	
21	Discussion on probable questions	

Class/Semester-IV

Name of the paper –Public Policy and Administration in India

Units Assigned- IV & V

Marks Assigned- 16

Unit: IV- Citizen and Administration Interface

Serial number of classes	Topic/ Unit	Remarks
1	Public Service Delivery- Meaning	
2	Delivering Local and Municipal Services	
3	Challenges in improving Public Service Delivery	
4	Effective Public Service Delivery	
5	Governance and public service delivery in India	
6	Right to Information Act	
7	Lokpal	
8	Citizen's Charter	
9	Principles of service delivery	
10	Reforming Citizen's Charter to make effective	
11	E-Governance	
12	Concept and approaches of social welfare	
13	Social Welfare Policies	
14	Right to Education	
15	National Health Mission	
16	National Food Security Act	
17	Obligations of the Central and State Government	
18	Challenges to food security	
19	MGNREGA	
20	Discussion	

Class/Semester-IV Generic

Name of the paper – GE 4B (United Nations and Global Conflicts)

Units Assigned- II (The Specialised Agencies)

Marks Assigned- 16

Unit: IV- Citizen and Administration Interface

Serial number of classes	Topic/ Unit	Remarks
1	International Labour Organisation	
2	UNESCO	
3	WHO	
4	UN Programmes and Funds	
5	UNICEF	
6	United Nation's Development Programme	
7	United Nation's Environment Programme	
8	United Nation's High Commissioner for Refugees	
9	Discussion	

Course plan

Name of the Teacher- Banjit Kumar das

Course –Honors

Class/Semester-V

Name of the paper- Classical Political Philosophy

Units Assigned- **–II and III**

Marks Assigned- 16 per unit

Unit II- Plato and Aristotle

Serial number of classes	Topic/ Unit	Remarks
1	Plato's life	
2	Plato's theory of Justice	
3	Criticism of Plato's theory of Justice	
4	Plato's theory of Communism – Communism of wives and property	
5	Criticism of Plato's communism of wives and property	
6	Aristotle' on citizenship	
7	Criticism of Aristotle's theory of citizenship	
8	Aristotle on Justice- Distributive Justice and Corrective Justice	
9	Aristotle on State	
10	Aristotle on Revolution- Causes of Revolution	
11	Prevention of Revolution	
12	Discussion	
13	Early life of Machiavelli, Views on Religion	
14	Machiavelli's views on Ethics and Religion	
15	Machiavelli's views on Human nature	
16	Views on StateTheory of Statecraft	
17	Concept of forms of government	
18	Concept of Law	
19	Place of Machiavelli in the history of political thought	

20	Discussion on probable questions	
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Course plan

Name of the Teacher- Banjit Kumar Das

Course –Honors

Class/Semester-V

Name of the paper- C-12 (Indian Political Thought-I)

Units Assigned- –III

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Cosmic vision of Manu	
2	Manu on Four Ashramas	
3	Manu on Varna System	
4	Sources of Social Laws	
5	Dharma of the four classes	
6	Manu on Organisation of the state	
7	Manu on qualities of the king	
8	Duties of the king	
9	Manu's ideas on social organization	
10	Manu's rules relating to law	
11	Discussion	

Course plan

Name of the Teacher- Banjit Kumar das

Course –Honors

Class/Semester-V

Name of the paper- DSE – IA (Contemporary Politics in Assam)

Units Assigned- – II(Politics of Autonomy in Assam)

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Regionalism: Introduction and Meaning	
2	Causes of Regionalism in Assam	
3	Sub-Regionalism in Assam	
4	Demand for Autonomous state of the Bodos	
5	Demand for Autonomous State of the Karbis	
6	Demand for separate state of the various tribes in Assam	
7	Solution for the demand of autonomous state	
8	Demand for sixth schedule	
9	Provisions f the sixth schedule of the constitution	
10	Discussion	

Name of the paper- DSE – II- A (Human Rights in Comparative Perspectives)

Units Assigned- – III (Rights in National Constitutions: South Africa and India)

Marks Assigned- 16

Serial number of classes	Topic/ Unit	Remarks
1	Bill Of Rights in South Africa	
2	Various sections of Bill of Rights in South Africa	
3	Various sections of Bill of Rights in South Africa	
4	Political Rights in Bill ofRights	
5	Various sections	
6	Various sections of Bill of Rights	
7	Various sections of Bill of Rights	
8	Human Rights in India	
9	Fundamental Rights	
10	Directive Principles of State Policies	
11	National Human Rights	

	Commission	
12	State Human Rights Commission	
13	National Commission for Women	

B.A. 6th Sem(Non- CBCS)

Name of the paper- 604 (Indian Foreign Policy)

Units Assigned- – I, II, III, IV & V

Marks Assigned- 16 per unit

Unit-I (A brief understanding of India's Foreign Policy)

Serial number of classes	Topic/ Unit	Remarks
1	Introduction, Meaning and Definition	
2	Origin and evolution of India's foreign policy	
3	Objectives of Indian foreign policy	
4	Panchsheel policy	
5	Evolution of India's foreign policy	
6	Foreign policy during the time of Nehru	
7	Foreign policy during the time of Indira Gandhi	
8	Determinants of India's foreign policy	
9	Domestic and external factors	
10	Non-alignment in India's foreign policy	
11	Role and relevance of non-alignment	
12	Continuity and changes in Indian foreign policy	

Unit- II (India and Outside World)

Serial number of classes	Topic/ Unit	Remarks
1	Indo-US relations(Cold War period)	
2	Indo-US relations(post Cold War era)	
3	Indo US relations till date	

4	Indo-us relations till date	
5	Indo-USSR relations(Cold War Period)	
6	Indo-Russian Federation relations(post-Cold War Period)	
7	Indo-Russian Federation relations till date	
8	Indo-Soviet Peace, Friendship and Co-operation Treaty, 1971	
9	Indo-China Relations	
10	Indo-China relations and Tibet	
11	India's Look East Policy and South East Asia	
12	Various dimensions of Look East Policy	

Unit- III (India's policy towards neighbor)

Serial number of classes	Topic/ Unit	Remarks
1	Indo- Pak relations	
2	Kashmir Issue	
3	Indo-Pak War, 1965, 1971	
4	The Shimla Pact, 1972	
5	Indo-Bangladesh Relations	
6	Indo Bangladesh relations during the time of Manmohan Singh	
7	Indo-Bangladesh relations during the time of Narendra Modi	
8	Indo-Nepal relations	
9	Indo-Nepal relations during the time of King's rule in Nepal	
10	Indo-Nepal relations after Monarchy in Nepal	
11	Discussion	

Unit-IV (India and Multi-lateral Institutions)

Serial number of classes	Topic/ Unit	Remarks
1	India and United Nations	
2	India and UN Reforms	
3	India's role in UN peace keeping mission	
4	India and SAARC	
5	Main aims and objectives of SAARC	
6	India's policy response to regional co-operation in South	

	Asia	
7	Post-Cold War Indian policy	
8	Economic diplomacy in India's foreign policy	
9	Transformation of India's Economic policy since 1991	
10	Discussion	

Unit-V (India's Approach to Major Global Issues)

Serial number of classes	Topic/ Unit	Remarks
1	The concept of globalization, Meaning	
2	Characteristics of Globalization	
3	India and Globalization	
4	Resistance to globalization	
5	Merits and demerits of globalization	
6	India's approach to nuclear issues	
7	India's nuclear policy	
8	Global terrorism	
9	Definition and characteristics of terrorism	
10	Combating terrorism	
11	Human Rights	
12	Global environmental concerns	

Syllabus/ Course Distribution – Session- September/21 to February/22

SEMESTER	Paper code	Name of the paper	UNIT	Teacher
I	C 1	UNDERSTANDING POLITICAL THEORY	1 & 2 2,3 & 4	JITU BORAH JANARDAN BORAH
I	C 2	CONSTITUTIONAL GOVERNMENT AND DEMOCRACY IN INDIA	1 & 2 2,3 & 4	ARUN DUTTA BANJIT DAS
I	GE 1A	NATIONALISM IN INDIA	1 & 5 2 3 4	JANARDAN BORAH ARUN DUTTA BANJIT DAS JITU BORAH
III	C 5	INTRODUCTION TO COMPARATIVE GOVERNMENT AND POLITICS	1 & 3 2 & 4 5	ARUN DUTTA BANJIT DAS JITU BORAH
III	C 6	PERSPECTIVES ON PUBLIC	1 & 4	ARUN DUTTA

		ADMINISTRATION	2 & 5 3	BANJIT DAS JANARDAN BORAH
III	C 7	PERSPECTIVES ON INTERNATIONAL RELATIONS AND WORLD HISTORY	1 & 2 3,4 & 5	JITU BORAH JANARDAN BORAH
III	GE 3B	GOVERNANCE: ISSUES AND CHALLENGES	1 & 5 2 3 & 4	JITU BORAH JANRDAN BORAH BANJIT DAS
V	C 11	CLASSICAL POLITICAL PHILOSOPHY	1 2 & 3 4 5	JITU BORAH BANJIT DAS JANARDAN BORAH ARUN DUTTA
V	C 12	INDIAN POLITICAL THOUGHT-1	1 & 2 3 4 5	ARUN DUTTA BANJIT DAS JITU BORAH JANARDAN BORAH
V	DSE 1A	CONTEMPORARY POLITICS IN ASSAM	1 & 4 2 3 5	JANARDAN BORAH BANJIT DAS JITU BORAH JANARDAN BORAH
V	DSE 2 A	HUMAN RIGHTS IN COMPARATIVE PERSPECTIVES	1 2 & 5 3 4	ARUN DUTTA JITU BORAH BANJIT DAS JANARDAN BORAH

BANJIT KUMAR DAS

HOD, DEPT. OF POLITICAL SCIENCE

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honours**

Class/Semester- 1st Semester (CBCS)

Name of the Paper-CC I – **Course Code: Zc101t Core Course I: Non-Chordates I: Protists to Pseudocoelomates**

Units Assigned-Unit 2 & 5 (Porifera & Platyhelminthes)

Marks Assigned- 17 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 2:Porifera- General character and classification	
2.	Unit 2: Canal system in sponges	
3.	Unit 2: Canal system in sponges	
4.	Unit 2: Canal system in sponges	
5.	Unit 2: Spicules in Sponges	
6.	Unit 5- Platyhelminthes- General characteristics and Classification up to classes	
7.	Unit 5- Life Cycle and Pathogenicity of <i>Taenia solium</i>	
8.	Unit 5- Life Cycle and Pathogenicity of <i>Fasciola hepatica</i>	
Practical Class	Topic/ Unit	Remarks
1	Unit 3: Study of Sycon (T.S. and L.S.), <i>Hyalonema</i> , <i>Euplectella</i> , <i>Spongilla</i> .	
2	Unit 5: Study of adult <i>Taenia solium</i> and their life cycles (Slides/microphotographs)	
3	Unit 5: Study of adult <i>Fasciola hepatica</i> , and their life cycles (Slides/microphotographs)	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honours**

Class/Semester- 1st Semester (CBCS)

Name of the Paper-CC II – **Core Course II: Principles of Ecology**

Units Assigned-Unit 4 & 5 (Ecosystem & Applied Ecology)

Marks Assigned- 18 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 4: Types of ecosystems with one example in detail (Forest ecosystem)	
2.	Unit 4: Food chain & Food Web	
3.	Unit 4: Detritus and grazing food chains	
4.	Unit 4: Linear and Y-shaped food chains	
5.	Unit 4: Linear and Y-shaped food chains	
6.	Unit 4: Energy flow through the ecosystem	
7.	Unit 4: Energy flow through the ecosystem	
8.	Unit 4: Ecological pyramids	
9.	Unit 4: Ecological efficiencies	
10.	Unit 5: Concept of wildlife conservation (Usefulness, causes and consequences of degradation)	
11.	Unit 5: Management strategies	
Practical Class	Topic/ Unit	Remarks
1	Unit 2: Determination of population density in a natural/hypothetical community by quadrat method and calculation of Shannon-Weiner diversity index for the same community	
2	Unit 2: Determination of population density in a natural/hypothetical community by quadrat method and calculation of Shannon-Weiner diversity index for the same community	
3	Unit 2: Determination of population density in a natural/hypothetical community by quadrat method and calculation of Shannon-Weiner diversity index for the same community	
4	Unit 4: Report on a visit to National Park/Biodiversity Park/Wild life sanctuary/Reserved forest	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Generic**

Class/Semester- 1st Semester (CBCS)

Name of the Paper-CC II – **GE II: Animal Diversity**

Units Assigned-Unit 2, 4 & 5 (Porifera, Aceolomates, Arthropoda)

Marks Assigned- 10 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 2: General Characters of Porifera	
2.	Unit 2: Canal system of Porifera	
3.	Unit 2: Canal system of Porifera	
4.	Unit 2: Canal system of Porifera	
5.	Unit 4: General Characters of Hemintnes	
6.	Unit 4: Life Cycle of <i>Taenia solium</i>	
7.	Unit 7: General Characters of Arthropoda	
8.	Unit 7: General Characters of Arthropoda	
9.	Unit 7: Social Life in Insects	
10.	Unit 7: Social Life in Insects	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: <i>Sycon</i> , <i>Taenia</i> , <i>Peripatus</i> , <i>Limulus</i> , Hermit crab, Daphnia, Millipede, Centipede, Beetle	
2	Unit 2: Dissections of Digestive system of Cockroach	
3	Unit 2: Dissections of nervous system of Cockroach	

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Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honours**

Class/Semester- 2nd Semester (CBCS)

Name of the Paper-CC III – **CCIII – Non-chordates II: Coelomates**

Units Assigned-Unit 3 (Arthropoda)

Marks Assigned- 20 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 3: General Characters of Arthropoda	
2.	Unit 3: Classification of Arthropoda	
3.	Unit 3: Classification of Arthropoda	
4.	Unit 3: Classification of Arthropoda	
5.	Unit 3: Vision in Arthropoda	
6.	Unit 3: Respiration in Arthropoda	
7.	Unit 3: Metamorphosis in Insects	
8.	Unit 3: Social Life in Bees	
9.	Unit 3: Social Life in termites	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: Study of specimens of Arthropoda	
2	Unit 4: Dissections of Digestive system of <i>Periplaneta</i>	
3	Unit 4: Dissections of nervous system of <i>Periplaneta</i>	
4	Unit 4: Mouth parts mounting of various insects	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honours**

Class/Semester- 2nd Semester (CBCS)

Name of the Paper-CC III – **CCIV – Cell Biology**

Units Assigned-Unit 2 & 3 (Plasma membrane and Endoplasmic Reticulum)

Marks Assigned- 20 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 2: Plasma membrane various model	
2.	Unit 2: Structure of Plasma membrane	
3.	Unit 2: Membrane transports (Active, Passive, Facilitated transport)	
4.	Unit 2: Cell Junctions & Tight Junctions	
5.	Unit 2: Desmosomes and Gap Junction	
6.	Unit 3: Structure of Endoplasmic Reticulum	
7.	Unit 3: Function of Endoplasmic Reticulum	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: <i>Preparation of temporary stained of onion root tip to study various stages of mitosis</i>	
2	Unit 2: <i>Study of various stages of meiosis</i>	

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Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Generic**

Class/Semester- 2nd Semester (CBCS)

Name of the Paper- ***CCII-GE-VIII INSECT VECTORS AND DISEASES***

Units Assigned-Unit 1, 3 & 6 (Introduction Insects, Insects as vectors, Hemiptera as vectors)

Marks Assigned- 18 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 1: Introduction to insects: General Characters	
2.	Unit 1: Morphological features, Head,	
3.	Unit 1: Insect eyes, types of antennae	
4.	Unit 1: Mouth parts of insects & feeding Habits	
5.	Unit 3: Classification of Insects	
6.	Unit 3: Classification of insects	
7.	Unit 3: Detailed features of orders with insects as vectors – Diptera, Siphonaptera, Siphunculata, Hemiptera	
8.	Unit 3: Detailed features of orders with insects as vectors – Diptera, Siphonaptera, Siphunculata, Hemiptera	
9.	Unit 7: <i>Hemiptera as Disease Vectors: Bugs as insect vectors</i>	
10.	Unit 7: <i>Blood-sucking bugs; Chagas disease, Bed bugs as mechanical vectors Control and prevention measures</i>	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: <i>Study of different kinds of mouth parts of insects.</i>	
2	Unit 2: <i>Submission of a project report on any one of the insect vectors and disease transmitted.</i>	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honours**

Class/Semester- 3rd Semester (CBCS)

Name of the Paper- *CCV-Diversity of Chordata*

Units Assigned-Unit 4, 5 & 7 (Agnatha, Pisces and Reptilia)

Marks Assigned- 17 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 4: General Characteristics and Classification of Cyclostomata up to class	
2.	Unit 5: General characters of Chondrichthyes and its classification	
3.	Unit 5: General characters of Osteichthyes and its classification	
4.	Unit 5: Fish Migration	
5.	Unit 5: Osmoregulation in fishes	
6.	Unit 5: Parental care in fishes	
7.	Unit 7: General characters and classification up to order of Reptiles	
8.	Unit 7: Affinities of sphenodon	
9.	Unit 7: <i>Poison apparatus in snakes</i>	
10.	Unit 7: <i>Biting mechanism in snakes</i>	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: <i>Identification of reptilian specimens.</i>	
2	Unit 2: <i>Key for identification of poisonous and non-venomous snakes</i>	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honours**

Class/Semester- 3rd Semester (CBCS)

Name of the Paper- *CCVI-Animal Physiology: Controlling and Coordinating Systems*

Units Assigned-Unit 6 (Endocrinology)

Marks Assigned- 18 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 6: Histology of endocrine glands	
2.	Unit 6: Hormones secreted by Pineal, Pituitary Glands	
3.	Unit 6: Hormones secreted by Thyroid Gland and Parathyroid glands	
4.	Unit 6: Hormones secreted by Pancreatic Gland	
5.	Unit 6: Hormones secreted by Adrenal Glands	
6.	Unit 6: Mechanism of actions of hormones	
7.	Unit 6: Classification of Hormones and regulation of their secretion	
8.	Unit 6: Signal transduction pathways for steroidal and non-steroidal hormones	
9.	Unit 6: Hypothalamus (Neuroendocrine glands)	
10.	Unit 6: Principal nuclei involved in neuroendocrine control of anterior pituitary and endocrine system	
11.	Unit 6: Placental hormones	
Practical Class	Topic/ Unit	Remarks
1	Unit 4: <i>Study of permanent slides of Pituitary, Pancreas, Testis, Ovary, Thyroid and Parathyroid.</i>	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honours**

Class/Semester- 3rd Semester (CBCS)

Name of the Paper- *CCVII–Fundamentals of Biochemistry*

Units Assigned-Unit 4 (Nucleic Acids)

Marks Assigned- 12 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 4: Structure of Purines and Pyrimidine,	
2.	Unit 4: Nucleosides, Nucleotides, Nucleic Acid	
3.	Unit 4: Cot curves	
4.	Unit 4: Base pairing	
5.	Unit 4: Denaturation and Renaturation	
6.	Unit 4: Types of DNA	
7.	Unit 4: Types of RNA	
8.	Unit 4: Complementarity of DNA	
9.	Unit 4: Hypo-hyperchromaticity of DNA	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: <i>Qualitative tests of functional groups in carbohydrates.</i>	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Generic**

Class/Semester- 3rd Semester (CBCS)

Name of the Paper- *GE VIII–Human Physiology*

Units Assigned-Unit 1 & 6 (Digestion & Absorption of Food and Endocrinology and Reproductive Physiology)

Marks Assigned- 19 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 1: Structure and function of digestive glands,	
2.	Unit 1: Digestion and absorption of carbohydrates	
3.	Unit 1: Digestion and absorption of fats	
4.	Unit 1: Digestion and absorption of proteins	
5.	Unit 1: Nervous and hormonal control of digestion	
6.	Unit 6: Structure and function of Pituitary Gland	
7.	Unit 6: Structure and function of Pituitary Gland	
8.	Unit 6: Structure and function of thyroid and parathyroid glands	
9.	Unit 6: Structure and function of pancreases Gland	
10.	Unit 6: Structure and function of adrenal Gland	
Practical Class	Topic/ Unit	Remarks

1	Unit 1: <i>study of permanent sections of mammalian oesophagus, stomach, duodenum, rectum, lung, kidney, thyroid, pancreas, adrenal, testis, ovary.</i>	
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DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honour**

Class/Semester- 4th Semester (CBCS)

Name of the Paper- *CC VIII Comparative Anatomy of Vertebrate*

Units Assigned-Unit 2 & 3 (Skeletal system and digestive system)

Marks Assigned- 16 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 2: Overview of axial and appendicular skeleton	
2.	Unit 2: Overview of axial and appendicular skeleton	
3.	Unit 2: Overview of axial and appendicular skeleton	
4.	Unit 2: Jaw Suspenorium	
5.	Unit 2: Visceral arches	
6.	Unit 3: Alimentary canal	
7.	Unit 3: associate glands of alimentary canal	
8.	Unit 3: Dentition	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: Study of placoid, cycloid and ctenoid scales through permanent	

	slides/photographs.	
2	Unit 3: Mammalian skulls: One herbivorous and one carnivorous animal	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honour**

Class/Semester- 4th Semester (CBCS)

Name of the Paper- *CC IX Animal Physiology: Life Sustaining Systems*

Units Assigned-Unit 1 & 3 (Physiology of Digestion and Renal Physiology)

Marks Assigned- 22 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 1: Structural organization and functions of gastrointestinal tract and associated glands	
2.	Unit 1: Structural organization and functions of gastrointestinal tract and associated glands	
3.	Unit 1: Mechanical and chemical digestion of food	
4.	Unit 1: Absorptions of carbohydrates, lipids, proteins, water, minerals and vitamins	
5.	Unit 1: Hormonal control of secretion of enzymes in Gastrointestinal tract.	
6.	Unit 3: Structure of kidney and its functional unit	

7.	Unit 3: Mechanism of urine formation	
8.	Unit 3: Regulation of water balance	
9.	Unit 3: Regulation of acid-base balance	
Practical Class	Topic/ Unit	Remarks
1	Unit 4: Preparation of haemin and haemochromogen crystals.	
2	Unit 4: Examination of sections of mammalian oesophagus, stomach, duodenum, ileum, rectum liver, trachea, lung, kidney	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honour**

Class/Semester- 4th Semester (CBCS)

Name of the Paper- *CC X Biochemistry of metabolic processes*

Units Assigned-Unit 2 (Carbohydrate metabolism)

Marks Assigned- 16 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 2: Sequence of reactions and pathways of glycolysis.	
2.	Unit 2: Sequence of reactions and pathways of citric acid cycle	
3.	Unit 2: Sequence of reactions and pathways of Phosphate pentose pathway	
4.	Unit 2: Gluconeogenesis, Glycogenolysis and Glycogenesis.	
5.	Unit 2: Gluconeogenesis, Glycogenolysis and Glycogenesis.	
Practical Class	Topic/ Unit	Remarks

1	Unit 3: To study the enzymatic activity of Trypsin and Lipase	
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DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Generic**

Class/Semester- 4th Semester (CBCS)

Name of the Paper- ***GE IV Environment and Public Health***

Units Assigned-Unit 4 (Waste Management Technologies)

Marks Assigned- 18 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 4: Sources of waste, types and characteristics,.	
2.	Unit 4: Sewage disposal and its management	
3.	Unit 4: Solid waste disposal	
4.	Unit 4: Biomedical waste handling and disposal.	
5.	Unit 4: Nuclear waste handling and disposal.	

6.	Unit 4: Case histories on Bhopal gas tragedy, Chernobyl disaster, Seveso disaster and Three Mile Island accident and their aftermath.	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: To determine pH, Cl, SO ₄ , NO ₃ in soil and water samples from different locations	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honour**

Class/Semester- 5th Semester (CBCS)

Name of the Paper- *CC XI Molecular Biology*

Units Assigned-Unit 1 & 5 (Nucleic Acids and Post Transcriptional Modifications and Processing of Eukaryotic RNA)

Marks Assigned- 10 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 1: Salient features of DNA and RNA	

2.	Unit 1: Watson and Crick model of DNA	
3.	Unit 5: Structure of globin mRNA	
4.	Unit 5: Split genes: concept of introns and exons	
5.	Unit 5: Splicing mechanism	
6.	Unit 5: Alternative splicing	
7.	Unit 5: Exon shuffling, and RNA editing	
8.	Unit 5: Processing of tRNA	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: Study of Polytene chromosomes from Chironomous / Drosophila larvae	
2	Unit 2: Study and interpretation of electron micrographs/ photograph showing (a) DNA replication (b) Transcription (c) Split genes	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honour**

Class/Semester- 5th Semester (CBCS)

Name of the Paper- **CC XII PRINCIPLES OF GENETICS THEORY**

Units Assigned-Unit 3 & 6 (Mutation and Polygenic Inheritance)

Marks Assigned- 13 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 3: Types of gene mutations (Classification)	

2.	Unit 3: Types of chromosomal aberrations (Classification, figures and with one suitable example of each)	
3.	Unit 3: Molecular basis of mutations in relation to UV light and chemical mutagens	
4.	Unit 3: Molecular basis of mutations in relation to UV light and chemical mutagens	
5.	Unit 3: Detection of mutations: CLB method, attached X method.	
6.	Unit 3: Detection of mutations: CLB method, attached X method.	
7.	Unit 6: Exon shuffling, and RNA editing	
8.	Unit 6: Polygenic inheritance with suitable examples	
9.	Unit 6: Polygenic inheritance with suitable examples	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: Pedigree analysis of some human inherited traits	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honour**

Class/Semester- 5th Semester (CBCS)

Name of the Paper- **DSE Course III: ENDOCRINOLOGY**

Units Assigned- Unit 2: Epiphysis, Hypothalamo-hypophysial Axis

Marks Assigned- 13 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 2: Structure of hypothalamus	

2.	Unit 2: Hypothalamic nuclei and their functions	
3.	Unit 2: Regulation of neuroendocrine glands	
4.	Unit 2: Feedback mechanisms	
5.	Unit 2: Structure of pituitary gland	
6.	Unit 2: Functions of Pituitary Glands	
7.	Unit 2: Hormones and Functions of Pituitary Glands	
8.	Unit 2: Hypothalamo- hypophysial portal system,	
Practical Class	Topic/ Unit	Remarks
1	Unit 1 : Study of the permanent slides of all the endocrine glands	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Honour**

Class/Semester- 5th Semester (CBCS)

Name of the Paper- **DSE Course IV: BIOLOGY OF INSECTA**

Units Assigned- Unit 2 & 3: Insect Taxonomy and General Morphology of Insects

Marks Assigned- 12 /53

Theory Class	Topic/ Unit	Remarks
1.	Unit 2: Basis of insect classification	

2.	Unit 2: Classification of insects up to orders	
3.	Unit 2: Classification of insects up to orders	
4.	Unit 2: Classification of insects up to orders	
5.	Unit 2: Classification of insects up to orders	
6.	Unit 3: External Features; Head	
7.	Unit 3: Insect Eyes	
8.	Unit 3: Types of antennae	
9.	Unit 3: Mouth parts w.r.t. feeding habits	
10.	Unit 3: Types of Legs adapted to diverse habitat	
11.	Unit 3: Thorax: Wings and wing articulation	
12.	Unit 3: Abdominal appendages	
13.	Unit 3: Genitalia	
Practical Class	Topic/ Unit	Remarks
1	Unit 1. Study of one specimen from each insect order	
2	Unit 2. Study of different kinds of antennae, legs and mouth parts of insects	
3	Unit 3. Study of head and sclerites of any one insect	
4	Unit 4. Study of insect wings and their venation. 5. Prepare permanent slide of insect spiracles	
5	Unit 5. Prepare permanent slide of insect spiracles	
6	Unit 6. Methodology of collection, preservation and identification of insects.	
7	Unit 7. Morphological studies of various castes of <i>Apis</i> , and <i>Odontotermes</i>	
8	Unit 8. Study of any three insect pests and their damages	
9	Unit 9. Study of any three beneficial insects and their products	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**

Class/Semester- 4th Semester (**Non-CBCS**)

Name of the Paper- ***Zoo MT- 401: Cell Biology, Histology & Histochemistry***

Units Assigned- Unit 2 & 5 : Plasma Membrane, Histology of Muscles

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
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1.	Unit 1: Structure and functions of plasma membrane (lipid bilayer model)	
2.	Unit 1: Structure of Endoplasmic Reticulum	
3.	Unit 1: Function of Endoplasmic Reticulum	
4.	Unit 1: Structure of Golgi Bodies	
5.	Unit 1: Structure of Golgi Bodies	
6.	Unit 5: Histological structure of muscles	
7.	Unit 5: Animal tissues- types	
8.	Unit 5: functions lung, stomach, intestine & liver.	
Practical Class	Topic/ Unit	Remarks
1	Unit 1. <i>Study of Mitosis in tadpole & onion root tip</i>	

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Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**

Class/Semester- 4th Semester (**Non-CBCS**)

Name of the Paper- ***Zoo MT- 403: Developmental Biology***

Units Assigned- Unit 4 & 5 : Organogenesis Embryonic membrane and placentation

Marks Assigned- 13 /48

Theory	Topic/ Unit	Remarks
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Class		
1.	Unit 4: <i>Organogenesis – development of sense organs-Ears</i>	
2.	Unit 4: <i>Organogenesis – development of sense organs-Ears</i>	
3.	Unit 5: Extra Embryonic Membrane in Birds	
4.	Unit 5: Placentation in Mammals	
5.	Unit 5: Placentation in Mammals	
Practical Class	Topic/ Unit	Remarks
1	Unit 1. <i>Study of permanent slides of developmental stages in chick embryo</i>	
2	Unit 5. <i>Submission of permanent stained preparation of (at least two stages up to 72 hrs. development stages) chick embryo</i>	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Pass Course**

Class/Semester- 4th Semester (**Non-CBCS**)

Name of the Paper- ***Zoo GT- 401: Animal Physiology & Endocrinology***

Units Assigned- Unit 1, 4 & 5 : Digestion, Pituitary & Pancreas

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
1.	Unit 1: <i>Digestion and absorption of carbohydrate</i>	
2.	Unit 1: <i>Digestion and absorption of carbohydrate</i>	
3.	Unit 4: <i>Anatomy of pituitary & pancreas gland</i>	
4.	Unit 4: <i>Neuroendocrine system in insects</i>	
5.	Unit 4: <i>Neuroendocrine system in insects</i>	
6.	Unit 5: <i>Function of pituitary gland</i>	
7.	<i>Unit 5: Function of pituitary gland</i>	
8.	Unit 5: <i>Function of Pancreases Gland</i>	
Practical Class	Topic/ Unit	Remarks
1	<i>Unit 1: Preparation of haemin crystals</i>	
2	<i>Unit 5: Study of histological slides of endocrine glands</i>	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**

Class/Semester- 5th Semester (**Non-CBCS**)

Name of the Paper- *Zoo MT- 501: Genetics and Evolution*

Units Assigned- Unit 4 & 5 : Evolution

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
1.	Unit 4: Evidences and theories of evolution	
2.	Unit 4: Palaeo-biological	
3.	Unit 4: Molecular evidences	
4.	Unit 4: Lamarckism	
5.	Unit 4: Darwinism, Neo Darwinism	
6.	Unit 4: Mutation theory and Modern Synthetic theory	
7.	Unit 4: Origin of life (chemical and biological origin)	
8.	Unit 4: Variation- types and sources	
9.	Unit 4: Isolation; speciation (sympatric, allopatric and peripatric)	
10.	Unit 4: Fossil and fossilization	
11.	Unit 5: Concept of population	
12.	Unit 5: Gene pool	
13.	Unit 5: Gene frequency (Hardy- Weinberg law).	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: Polytene chromosome of chironomus larvae	
2	Unit 1: Polytene chromosome of Drosophila larvae	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**

Class/Semester- 5th Semester (**Non-CBCS**)

Name of the Paper- ***Zoo MT- 503: Animal Physiology***

Units Assigned- Unit 2 & 3 : Digestion and Excretion

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
1.	Unit 2: Digestion- site and sequence of digestion	
2.	Unit 2: Digestive secretions and their regulation	
3.	Unit 2: Mechanism of digestion	
4.	Unit 2: Absorption of Carbohydrates	
5.	Unit 2: Absorption of Fats	
6.	Unit 2: Absorption of Protein	
7.	Unit 2: Role of gastro-intestinal hormones	
8.	Unit 2: Balanced diet	
9.	Unit 3: Excretion- structure and functions of nephron	
10.	Unit 3: Excretion- structure and functions of nephron	
11.	Unit 3: Renal blood supply	
12.	Unit 3: Mechanism and regulation of urine formation	
13.	Unit 3: Renal failure and dialysis	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: Preparation of Haemin crystals	
2	Unit 2: Demonstration of osmosis using toad/frog urinary, bladder/alimentary canal	

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Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**Class/Semester- 5th Semester (**Non-CBCS**)Name of the Paper- **Zoo MT- 505: Environmental Biology and Wildlife**

Units Assigned- Unit 3 & 5 : Remote sensing & EIA; IUCN, Endangered species of NE, Conservation, IWPA, 1972

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
1.	Unit 3: Basic concept of remote sensing	
2.	Unit 3: EIA	
3.	Unit 5: IUCN status of species category	
4.	Unit 5: endangered species: rhinoceros, tiger, golden langur	
5.	Unit 5: endangered species: dancing deer, river dolphin	
6.	Unit 5: endangered species: pigmy hog, white winged wood duck	
7.	Unit 5: endangered species: golden mahseer (<i>Tor spp.</i>)	
8.	Unit 5: threats to biodiversity	
9.	Unit 5: man-wildlife conflict	
10.	Unit 5: <i>ex-situ</i> and <i>insitu</i> conservation strategies	
11.	Unit 5: <i>ex-situ</i> and <i>insitu</i> conservation strategies	
12.	Unit 5: major national parks of NE India	
13.	Unit 5: concept of biosphere reserve and biodiversity hot spot	
14.	Unit 5: Indian Wildlife Protection Act, 1972.	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: Estimation of the size of the population by capture-recapture method (any vertebrate/invertebrate).	
2	Unit 1: Estimation of the size of the population by capture-recapture method (any vertebrate/invertebrate).	

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **General (Pass Course)**

Class/Semester- 5th Semester (**Non-CBCS**)

Name of the Paper- ***Zoo GT- 501: Genetics and Molecular Biology***

Units Assigned- Unit 3 & 4 : Nucleic Acids, transcription & Translation

Marks Assigned- 10 /48

Theory Class	Topic/ Unit	Remarks
1.	Unit 3: Nucleic acids	
2.	Unit 3: DNA as genetic material	
3.	Unit 3: DNA as genetic material	
4.	Unit 3: Structure of DNA	
5.	Unit 3: Function of DNA	
6.	Unit 3: Structure of RNA	
7.	Unit 3: Function of RNA	
8.	Unit 4: Basic steps of transcription	
9.	Unit 4: Basic steps of translation	
Practical Class	Topic/ Unit	Remarks
1	Unit 1 Preparation of slides for study of mitosis using suitable materials	
2	Unit 1 Preparation of slides for study of meiosis using suitable materials	

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**

Class/Semester- 6th Semester (**Non-CBCS**)

Name of the Paper- **Zoo MT- 601: Parasitology and Ethology**

Units Assigned- Unit 1, 2 3 & 4 : *Giardia* sp., *Wucherera* sp., Vectors of diseases & social behaviour

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
1.	Unit 1: Life history, mode of infection and pathogenicity of <i>Giardia intestinalis</i>	
2.	Unit 1: Life history, mode of infection and pathogenicity of <i>Giardia intestinalis</i>	
3.	Unit 2: life history, parasitic adaptation and pathogenicity of <i>Wuchereria bancrofti</i>	
4.	Unit 2: life history, parasitic adaptation and pathogenicity of <i>Wuchereria bancrofti</i>	
5.	Unit 3: : Vectors of human diseases- Yellow fever	
6.	Unit 3: : Vectors of human diseases- dengue fever	
7.	Unit 3: : Vectors of human diseases- haemorrhagic fever	
8.	Unit 3: : Vectors of human diseases- filariasis infection	
9.	Unit 3: : Vectors of human diseases- Japanese B-encephalitis fever	
10.	Unit 3: : measures of control of the vectors	
11.	Unit 5: ex-situ and insitu conservation strategies	
12.	Unit 5: Social behavior in insects	
13.	Unit 5: Social behavior in insects	
Practical Class	Topic/ Unit	Remarks
1	Unit 1: Identification of mosquito species causing malaria, encephalitis and dengue fever	
2	Unit 1 : Identification of mosquito species causing malaria,	

	encephalitis and dengue fever	
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Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**

Class/Semester- 6th Semester (**Non-CBCS**)

Name of the Paper- ***Zoo MT- 603: Molecular Biology and Immunology***

Units Assigned- Unit 1, & 5 : Genome and AIDS

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
1.	Unit 1: <i>Genome organization in prokaryotes</i>	
2.	Unit 1: <i>Genome organization in eukaryotes</i>	
3.	Unit 1: <i>DNA as genetic material</i>	
4.	Unit 1: <i>DNA as genetic material</i>	
5.	Unit 1: <i>structure and functions of DNA</i>	
6.	Unit 1: <i>structure and functions of RNA</i>	
7.	Unit 1: <i>Watson & Crick Model of DNA</i>	
8.	Unit 1: <i>Other forms of DNA (A & Z).</i>	
9.	Unit 5: AIDS	
Practical Class	Topic/ Unit	Remarks
NA	NA	NA

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Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**

Class/Semester- 6th Semester (**Non-CBCS**)

Name of the Paper- *Zoo MT- 604: Biotechnology and Bioinformatics*

Units Assigned- Unit 1, & 3 : Industrial Biotechnology

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
1.	Unit 1: <i>Industrial biotechnology with special reference to production of alcohol</i>	
2.	Unit 1 <i>Industrial biotechnology with special reference to production of antibiotics</i>	
3.	Unit 3: <i>Regulation of biotechnology</i>	
4.	Unit 3: <i>production and application of transgenic animals</i>	
5.	Unit 3: <i>production and application of transgenic plants</i>	
6.	Unit 3: <i>Genetically modified Organism</i>	
7.	Unit 3: <i>GMO benefits and risk assessment</i>	
8.	Unit 3: <i>IPR</i>	
9.	Unit 3: <i>patents and ethical issues related to biotechnology.</i>	
Practical Class	Topic/ Unit	Remarks

1	<i>Determination of blood group and Rh factor</i>	
2	<i>Immunodiffusion / Blood grouping (Ag-Ab reaction)</i>	

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Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **Major**

Class/Semester- 6th Semester (**Non-CBCS**)

Name of the Paper- **Zoo MT- 606: Economic Zoology**

Units Assigned- Unit 1 : Insect Pests

Marks Assigned- 13 /48

Theory Class	Topic/ Unit	Remarks
1.	<i>Unit 1: Major insect pests of paddy</i>	
2.	<i>Unit 1: Major insect pests of tea</i>	
3.	<i>Unit 1: Major insect pests of store grained and their biology</i>	
4.	<i>Unit 1: Pest management- chemical</i>	
5.	<i>Unit 1 : Pest management- cultural</i>	
6.	<i>Unit 1 : Pest management- Biological</i>	
7.	<i>Unit 1 : Pest management- cultural</i>	
8.	<i>Unit 1: integrated pest management</i>	
Practical	Topic/ Unit	Remarks

Class		
1	Unit 2: Submission of life cycles of eri/ muga/ mulberry silkworms.	
2	Unit 3: Study of important pests of paddy, tea plants and stored grains and their submission	

DIGBOI COLLEGE, DIGBOI

Course Plan

DEPARTMENT: ZOOLOGY

Name of the Teacher- Rajib Rudra Tariang

Course – **General**

Class/Semester- 6th Semester (**Non-CBCS**)

Name of the Paper- **Zoo MT- 601: Animal Ecology and Biostatistics**

Units Assigned- Unit 2 and 4 : Basic concept of Food Chain and its related and concepts of endangered fauna

Marks Assigned- 10 /48

Unit-2: Food chain and energy flow, food web

Theory Class	Topic/ Unit	Remarks
1.	Unit 2: Food chain, food web	
2.	Unit 2: Energy flow	

3.	Unit 4: Basic concept of wildlife and Protected Areas of Assam	
4.	Unit 4: Basic concept of wildlife and Protected Areas of Assam	
5.	Unit 4: Endangered fauna of NE India and their conservation	
6.	Unit 4: Endangered fauna of NE India and their conservation	
Practical Class	Topic/ Unit	Remarks
1	<i>Unit 2:</i> Find out the biotic components of a grassland/pond ecosystem and make probable food chain and food web	
2	<i>Unit 2:</i> Study of man-made ecosystems (biotic and abiotic components)	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- Ist Semester (CBCS)

Name of the Paper-CC I – Non-Chordates I

Units Assigned-Unit 6

Marks Assigned- 9 /53

Class	Topic/ Unit	Remarks
1.	Unit 6: Nematelminthes- Gen character and classification	

2.	Unit 6: <i>Ascaris lumbricoides</i> - life cycle	
3.	Unit 6: <i>Ascaris</i> pathogenicity, <i>Wuchereria bancrofti</i>	
4.	Unit 6- Life cycle of <i>W. bancrofti</i> , pathogenicity	
5.	Unit 6- Parasitic adaptation in helminthes	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- Ist Semester (CBCS)

Name of the Paper-CC II – Principles of Ecology

Units Assigned-Unit 3

Marks Assigned- 10 /53

Class	Topic/ Unit	Remarks
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1.	Unit 4: Community-characteristics –species richness, dominance	
2.	Unit 4: Species diversity, abundance, vertical stratification	
3.	Unit 4: Ecotone , Edge effect	
4.	Unit 4: Edge effect, Ecological succession –types, hydrosere	
5.	Unit 4: Theories of climax community	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- II Semester (CBCS)

Name of the Paper-CC III – Non- Chordates II

Units Assigned-Unit 5

Marks Assigned- 9 /53

	Topic/ Unit	Remarks
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Class		
1.	Unit 5: Mollusca-Gen character and classification	
2.	Unit 5: Respiration in mollusca	
3.	Unit 5:Torsion -detorsion	
4.	Unit 5: Torsion -detorsion	
5.	Unit 5: Pearl formation	
6.	Unit 5: Evolutionary significance of Trochophore larva	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – Honours

Class/Semester- II Semester (CBCS)

Name of the Paper-CC IV – Cell Biology

Units Assigned-Unit 6 & Unit 8

Marks Assigned- 16 /53

Class	Topic/ Unit	Remarks
1.	Unit 6: Nucleus- structure , envelope, pore complex	
2.	Unit 6: Pore complex, Nucleolus, chromatin	
3.	Unit 6: Chromatin- euchromatin and heterochromatin	
4.	Unit 6: Packaging - Nucleosome	
5.	Unit 8: Cell Signaling- Receptors- GPCR	
6.	Unit 8: GPCR	
7.	Unit 8: Second messenger- cAMP	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- III Semester (CBCS)

Name of the Paper-CC V – Diversity of Chordata

Units Assigned-Unit 6 & Unit 9

Marks Assigned- 18 /53

Class	Topic/ Unit	Remarks
1.	Unit 6: Amphibia- Origin of Tetrapoda	
2.	Unit 6: -Gen character and classification	
3.	Unit 6: Parental care	
4.	Unit 6: Parental care	
5.	Unit 9: Mammals- General character and classification	
6.	Unit 9: Affinities of Prototheria-	
7.	Unit 9: Adaptive radiation of locomotory appendages	
8.	Unit 9: Adaptive radiation of locomotory appendages	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- III Semester (CBCS)

Name of the Paper-CC VI – Animal Physiology

Units Assigned-Unit 2 & Unit 3

Marks Assigned- 16 /53

Class	Topic/ Unit	Remarks
1.	Unit 2: Bone and Cartilage- structure of bones	
2.	Unit 2: Types of bones , Cartilage structure and types	
3.	Unit 2: Ossification, bone growth and resorption	
4.	Unit 3: Nervous system-structure of neuron, Action potential propagation	
5.	Unit 3: Myelinated and non-myelinated nerves and impulse propagation	
6.	Unit 3: Synapse and transmission of impulse	
7.	Unit 3: Neuromuscular junction, reflex action	
8.	Unit 3: Physiology of Hearing- anatomy of ear	
9.	Unit 3: Hearing mechanism	
10.	Unit 3: Vision- Eye structure – image formation	
11.	Unit 3: Physiology of vision – eye problems	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- III Semester (CBCS)

Name of the Paper-CC VII – Fundamentals of Biochemistry

Units Assigned- Unit 3: Proteins

Marks Assigned- 12 /53

Class	Topic/ Unit	Remarks
1.	Unit 3: Proteins- Amino acid structure, classification,	
2.	Unit 3: General properties of amino acids, Physiological importance	
3.	Unit 3: Essential –non essential amino acids	
4.	Unit 3: Proteins- bonds stabilizing protein structure	
5.	Unit 3: Levels of organization of proteins	
6.	Unit 3: Denaturation, Simple and conjugated proteins, Immunoglobulins	
7.	Unit 3: Structure of Ig, classes, function , antigenic determinants	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- IV Semester (CBCS)

Name of the Paper-CC VIII – Comparative anatomy of Vertebrates

Units Assigned- Unit 1 and Unit 4

Marks Assigned- 15 /53

Class	Topic/ Unit	Remarks
1.	Unit 1: Integumentary system – structure, function, derivatives	
2.	Unit 1: Integumentary derivatives	
3.	Unit 4: Respiratory system- skin, gills	
4.	Unit 4: Lungs and air sacs, accessory respiratory organs	
5.	Unit 4: Accessory respiratory organs	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- IV Semester (CBCS)

Name of the Paper-CC IX – Animal Physiology- Life sustaining system

Units Assigned- Unit 2

Marks Assigned- 12 /53

Class	Topic/ Unit	Remarks
1.	Unit 2: Physiology of Respiration – Histology of Trachea and Lungs	
2.	Unit 2: Mechanism- pulmonary ventilation, Respiratory volumes	
3.	Unit2: Respiratory capacity; Transport of oxygen	
4.	Unit 2: Transport of Co ₂ , Respiratory pigments	
5.	Unit 2:Dissociation curves, Carbon monoxide poisoning	
6.	Unit 2: Control of Respiration	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- IV Semester (CBCS)

Name of the Paper-CC X – Biochemistry of Metabolic processes

Units Assigned- Unit 1 and Unit 5

Marks Assigned- 12 /53

Class	Topic/ Unit	Remarks
1.	Unit 1: Overview of Metabolism- Shuttle systems and Membrane transporters	
2.	Unit 1: Shuttle systems and Membrane transporters	
3.	Unit 1: ATP as energy currency	
4.	Unit 5: Oxidative Phosphorylation Redox system ; Mitochondrial respiratory system	
5.	Unit 5: Mitochondrial respiratory system	
6.	Unit 5: Inhibitors and uncouplers of Electron Transport System	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- V Semester (CBCS)

Name of the Paper-CC XI – Molecular Biology

Units Assigned- Unit 2 and Unit 5

Marks Assigned- 16 /53

Class	Topic/ Unit	Remarks
1.	Unit 2: DNA replication – Prokaryotic DNA replication-	
2.	Unit 2: Eukaryotic DNA replication; Mechanisms	
3.	Unit 2: Mechanism-	
4.	Unit2: RNA priming; Circular DNA replication	
5.	Unit 2: Linear ds- DNA replication	
6.	Unit 3: Transcription RNA polymerase, Transcription unit, Transcription factors	
7.	Unit 3: Mechanism of Transcription in Prokaryotes	
8.	Unit 3: Mechanism of Transcription in Eukaryotes	
9.	Unit 3: Mechanism of Transcription in Eukaryotes, synthesis of r-RNA	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- V Semester (CBCS)

Name of the Paper-CC XII – Principles of Genetics

Units Assigned- Unit 1 and Unit 5

Marks Assigned- 16 /53

Class	Topic/ Unit	Remarks
1.	Unit 1: Mendelian Genetics and Extension Principles of Inheritance, Incomplete dominance, Co-dominance	
2.	Unit 1: Multiple & lethal alleles, Epistasis	
3.	Unit 1: Sex linked inheritance	
4.	Unit 1: Sex limited and influenced inheritance	
5.	Unit 5: Extra-chromosomal Inheritance Criteria, Antibiotic resistance in <i>Chlamydomonas</i>	
6.	Unit 5: Mitochondrial mutations in yeast, Maternal influence and infective heredity in <i>Paramecium</i>	
7.	Unit 5: Maternal influence and infective heredity in <i>Paramecium</i>	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- V Semester (CBCS)

Name of the Paper – **DSE I** - Biology of Insecta

Units Assigned- Unit 4 and Unit 5

Marks Assigned- 10/53

Class	Topic/ Unit	Remarks
1.	Unit 4: Insect Society Social insects and their life	
2.	Unit 4: Social organization and behaviour	
3.	Unit 4: Social behaviour in insect	
4.	Unit 5: Theory of Co-evolution, Allelochemicals	
5.	Unit 5: Allelochemicals and host plant mediation, host plant selection	
6.	Unit 5: Host plant selection by phytophagous insects,	
7.	Unit 5: Insects as pests	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Honours**

Class/Semester- V Semester (CBCS)

Name of the Paper – **DSE II** - Endocrinology

Units Assigned- Unit 3

Marks Assigned- 10/53

Class	Topic/ Unit	Remarks
1.	Unit 3:Peripheral Endocrine Glands – Structure, hormones , functions and regulation of Thyroid gland	
2.	Unit 3: Regulation of Thyroid gland, Parathyroid gland	
3.	Unit 3: Adrenal gland	
4.	Unit 3: Pancreas	
5.	Unit 3: : Pancreas, Ovary	
6.	Unit 3: : Ovary, Testis	
7.	Unit 3: Testis	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **GENERIC**

Class/Semester- 1st Semester (CBCS)

Name of the Paper- Animal Diversity

Units Assigned- Unit 8, Unit 12, Unit 14 and Unit 15

Marks Assigned- 20 /53

Class	Topic/ Unit	Remarks
1.	Unit 8: Mollusca- General characters, Pearl formation	
2.	Unit 8: Pearl formation	
3.	Unit 12:Amphibia- General characters, terrestrial adaptations	
4.	Unit12 : Parental care	
5.	Unit 12: Parental care	
6.	Unit 14 : Aves – Origin of birds	
7.	Unit 14 : Origin of birds, Flight adaptaions	
8.	Unit 14: Flight adaptaions	
9.	Unit 15: Mammalia- Early evolution	
10.	Unit 15: Mammalia- primates, Dentition	
11.	Unit 15: Mammalia- Dentition im Mammals	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **GENERIC**

Class/Semester- 2nd Semester (CBCS)

Name of the Paper- Insect vectors and Diseases

Units Assigned- Unit 2, Unit 4

Marks Assigned- 12 /53

Class	Topic/ Unit	Remarks
1.	Unit 2: Concept of Vectors- Carrier and Vectors, Reservoirs	
2.	Unit 2: Host- vector relationship , vectorial capacity	
3.	Unit 2: Adaptations as vectors, host specificity	
4.	Unit 4: Siphonapera as disease vectors	
5.	Unit 4 Siphonapera as disease vectors	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **GENERIC**

Class/Semester- 3rd Semester (CBCS)

Name of the Paper- Human physiology

Units Assigned- Unit 2

Marks Assigned- 10 /53

Class	Topic/ Unit	Remarks
1.	Unit 2: Functioning of Excitable tissues (Nerve and Muscle)- Neuron	
2.	Unit 2: Propagation of nerve impulse	
3.	Unit 2: Propagation of nerve impulse	
4.	Unit 2: Structure of muscle cell	
5.	Unit 2: Mechanism of muscle contraction, Neuro-muscular junction	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **GENERIC**

Class/Semester- 4th Semester (**CBCS**)

Name of the Paper- Environment and Public Health

Units Assigned- Unit 2

Marks Assigned- 10 /53

Class	Topic/ Unit	Remarks
1.	Unit 2: Climate Change Greenhouse gases, Global warming	
2.	Unit 2: Acid rain, Ozone depletion	
3.	Unit 2: Effects of Climate change on Public Health	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 1st Semester Major NCBCS

Name of the Paper- ZooMT-101- Non-chordate Diversity, Systematics and Evolution

Units Assigned- Unit 4 & 5

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit 4: Mollusca-Gen characters and classification	
2.	Unit 4: Digestive and respiratory system of Pila	
3.	Unit 4: Excretory system of Pila, shell diversity	
4.	Unit 4: Torsion and Detorsion in Mollusca.	
5.	Unit 4: Echinodermata –gen characters & classification, Water vascular system,	
6.	Unit 4: Echinoderm larvae	
7.	Unit 4: Echinoderm larvae	
8.	Unit 5: Systematics and classification, form and hierarchy	
9.	Unit 5: Modern species concept	
10.	Unit 5: Modern species concept	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 2nd Semester Major

Name of the Paper- ZooMT-201- Biochemistry

Units Assigned- Unit 3 & 5

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit 3: General concept of Metabolism- Glycolysis	
2.	Unit 3: Glycolysis, Kreb's cycle	
3.	Unit 3: Kreb's cycle	
4.	Unit 3: Electron Transport System	
5.	Unit 3: Electron Transport System	
6.	Unit 3:ATP synthesis	
7.	Unit 5: Structure of DNA	
8.	Unit 5: Structure of RNA	
9.	Unit 5: Structure of RNA	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 3rd Semester Major

Name of the Paper- ZooMT-301- Chordate Diversity and Comparative Anatomy

Units Assigned- Unit 3, 4 and 5

Marks Assigned- 20/48

Class	Topic/ Unit	Remarks
1.	Unit 3: General character and classification of Amphibia, Parental care	
2.	Unit 3: Parental care, Metamorphosis	
3.	Unit 3: Metamorphosis, Neoteny	
4.	Unit 3: Neoteny	
5.	Unit 4: Mammalia general character and classification	
6.	Unit 4: Affinities of Monotremes and Marsupialia	
7.	Unit 4: Dentition in mammals	
8.	Unit 4: Echolocation in bats, adaptation in aquatic mammals	
9.	Unit 5: Comparative circulatory system in reptiles, birds and mammals	
10.	Unit 5: Comparative circulatory system in birds	
11.	Unit 5: Comparative circulatory system in mammals	
12.	Unit 5: Comparative circulatory system in mammals	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 3rd Semester Major

Name of the Paper- ZooMT-303- Bioinstrumentation and Biostatistics

Units Assigned- Unit 1 and 5

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit 1: Chromatography- Paper Chromatography	
2.	Unit 1: Ion exchange Chromatography, Thin layer Chromatography	
3.	Unit 5: Scope and utility of statistics in Bioscience	
4.	Unit 5: Sampling	
5.	Unit 5: Collection of data and representation	
6.	Unit 5: Representation of data	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 4th Semester Major

Name of the Paper- ZooMT-401 – Cell biology, Histology and Histochemistry

Units Assigned- Unit 1, 2 , 4 and 5

Marks Assigned- 16/48

Class	Topic/ Unit	Remarks
1.	Unit 1: Structure and function of Mitochondria	
2.	Unit 1: Structure and function of Mitochondria	
3.	Unit 1: Structure and function of Nucleus	
4.	Unit 1: Structure and function of Nucleus	
5.	Unit 2: DNA packaging in prokaryotes and eukaryotes	
6.	Unit 2: DNA packaging in eukaryotes, heterochromatin and euchromatin	
7.	Unit 4: Basic concept of Cell Signaling – second messenger	
8.	Unit 4: Cell surface receptors	
9.	Unit 4: Cell surface receptors, G-proteins	
10.	Unit 4: GPCR	
11.	Unit 5: Histological structure of bone	
12.	Unit 5: Histological structure of bone	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 4th Semester Major

Name of the Paper- ZooMT-403 – Developmental Biology

Units Assigned- Unit 2 and 3

Marks Assigned- 14/48

Class	Topic/ Unit	Remarks
1.	Unit 2: Fertilization- types, mechanism	
2.	Unit 2: Mechanism of Fertilization	
3.	Unit 2: Mono and polyspermy , parthenogenesis	
4.	Unit 2: parthenogenesis	
5.	Unit 3: Cleavage – patterns	
6.	Unit 3: Blastulation in chick	
7.	Unit 3: Blastulation in chick	
8.	Unit 3: Gastrulation in chick	
9.	Unit 3: Gastrulation in chick	
10.	Unit 3: Fate maps , fate of germ layers	
11.	Unit 3: Fate of germ layers	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 5th Semester Major

Name of the Paper- ZooMT-501 – Genetics and Evolution

Units Assigned- Unit 1 & 5

Marks Assigned- 14/48

Class	Topic/ Unit	Remarks
1.	Unit 1:Mendel's Laws and critical analysis	
2.	Unit 1: Gene and allele, Physical basis of heredity	
3.	Unit 1: Gene interaction, incomplete dominance	
4.	Unit 1:Complementary and supplementary factors, epistasis	
5.	Unit 1: Lethal factors, Inhibitory factors	
6.	Unit 1: Quantitative genetics	
7.	Unit 5:Continental drift	
8.	Unit 5: Divergent and convergent evolution	
9.	Unit 5: convergent evolution	
10.	Unit 5: Endemism, Adaptive radiation	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 5th Semester Major

Name of the Paper- ZooMT-503 – Animal Physiology

Units Assigned- Unit 5

Marks Assigned- 10/48

Class	Topic/ Unit	Remarks
1.	Unit 5:Nervous system, membrane potential	
2.	Unit 5: Propagation of nerve impulse along myelinated nerve	
3.	Unit 5: Propagation of nerve impulse along non-myelinated nerve	
4.	Unit 5:Synapse- synaptic transmission	
5.	Unit 5: Neurotransmitters , neuromuscular junction	
6.	Unit 5: Reflex activity, Vision- eye structure	
7.	Unit 5:Image formation, eye defects	
8.	Unit 5: Drug addiction, impacts on society	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 5th Semester Major

Name of the Paper- ZooMT-505 – Environmental biology and Wildlife

Units Assigned- Unit 4 and 5

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit 4:Environmental pollution- water pollution	
2.	Unit 4: Bioindicators, Ecological succession	
3.	Unit 4:Ecological succession, Greenhouse effect	
4.	Unit 4:Ecological backlash	
5.	Unit 5: Threats to biodiversity, man-wildlife conflict	
6.	Unit 5: Ex-situ and In-situ conservation	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 5th Semester Major

Name of the Paper- ZooMT-507 – Endocrinology

Units Assigned- Unit 1, 2 and 4

Marks Assigned- 15/48

Class	Topic/ Unit	Remarks
1.	Unit 1: Comparative anatomy of Thyroid gland in fish, amphibia , bird and mammal	
2.	Unit 1: Comparative anatomy of Thyroid gland in, bird and mammal	
3.	Unit 1: Comparative anatomy of Thyroid gland in mammal	
4.	Unit 4:Hormones of reproductive cycle, pregnancy	
5.	Unit 4: Hormones of lactation, parturition	
6.	Unit 4: Contraception methods	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 6th Semester Major

Name of the Paper- ZooMT-601 – Parasitology and Ethology

Units Assigned- Unit 1, 2 and 5

Marks Assigned- 15/48

Class	Topic/ Unit	Remarks
1.	Unit 1: Parasitism, types of parasites, hosts and vectors	
2.	Unit 1: Parasitic adaptations and effects on hosts	
3.	Unit 1:Life history, pathogenicity of <i>Entamoeba</i>	
4.	Unit 1: Life history, pathogenicity of <i>Trypanosoma</i>	
5.	Unit 2:: Life history of <i>Fasciola hepatica</i>	
6.	Unit 2: Parasitic adaptations and pathogenicity of <i>Fasciola hepatica</i>	
7.	Unit 5: Different types of orientation in animals	
8.	Unit 5: Different types of communication in animals	
9.	Unit 5: Comparative aspects of learning	
10.	Unit 5: Offensive and defensive behaviour	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 6th Semester Major

Name of the Paper- ZooMT-603 – Molecular biology and Immunology

Units Assigned- Unit 4

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit4: Immunity –types, cells and organs of immunity	
2.	Unit 4: Organs of immunity	
3.	Unit 4: Lymphoid organs	
4.	Unit 4:Antigens- properties, Adjuvants	
5.	Unit 4: Haptens, antigen- antibody	
6.	Unit 4: Antigen –antibody interaction	
7.	Unit 4: Vaccine and vaccination	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 6th Semester Major

Name of the Paper- ZooMT-604 – Biotechnology and Bioinformatics

Units Assigned- Unit 2 and 4

Marks Assigned- 10/48

Class	Topic/ Unit	Remarks
1.	Unit2: Omics- concept of structural and functional genomics	
2.	Unit 2: Introduction to Proteomics and Transcriptomics	
3.	Unit 2: Transcriptomics	
4.	Unit 4: Fundamentals of bioinformatics, scope, sources of information	
5.	Unit 4: World wide web, Biological database	
6.	Unit 4: Primary database	
7.	Unit 4: Secondary database	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS Major**

Class/Semester- 6th Semester Major

Name of the Paper- ZooMT-606 – Economic Zoology

Units Assigned- Unit 2 and 4

Marks Assigned- 10/48

Class	Topic/ Unit	Remarks
1.	Unit 4: Principles and practice of Aquaculture, Fish culture	
2.	Unit 4: Prawn culture	
3.	Unit 4: Different types of ponds and their management	
4.	Unit 4: Induced breeding and hybridization technique	
5.	Unit 4: Methods of fish preservation, fish by-product	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS GENERAL**

Class/Semester- 1st Semester General

Name of the Paper- ZooGT-101 – Biotechnology and Bioinformatics

Units Assigned- Unit 4 and 5

Marks Assigned- 10/48

Class	Topic/ Unit	Remarks
1.	Unit 4: Mollusca- torsion -detorsion	
2.	Unit 4: Economic importance of molluscs, Echinodermata	
3.	Unit 4: Feeding and locomotion in starfish	
4.	Unit 5: Systematics- classification	
5.	Unit 5: Classification	
6.	Unit 5: Hierarchy of classification	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS GENERAL**

Class/Semester- 2nd Semester General

Name of the Paper- ZooGT-201 – Cell Biology and Biochemistry

Units Assigned- Unit 1, 2 and 5

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit 1: General structure and function of Prokaryotic cell	
2.	Unit 1: General structure and function of Eukaryotic cell	
3.	Unit 2: Structure of Mitochondria	
4.	Unit 2: Function of Mitochondria	
5.	Unit 5: Function of Mitochondria, Electron transport system	
6.	Unit 5: Electron transport system	
7.	Unit 5: Electron transport system, ATP synthesis	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS GENERAL**

Class/Semester- 3rd Semester General

Name of the Paper- ZooGT-301 – Chordate diversity and Developmental Biology

Units Assigned- Unit 1, 2 and 5

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit 1: Fishes- classification, respiratory organs	
2.	Unit 1: respiratory organs, Migration	
3.	Unit 2: Amphibia, classification, Parental care	
4.	Unit 2: parental care	
5.	Unit 5: Cleavage patterns, germ layers	
6.	Unit 5: Germ layers- gastrulation	
7.	Unit 5: Fate maps, cell lineage	

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Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS GENERAL**

Class/Semester- 4th Semester General

Name of the Paper- ZooGT-401 –Animal Physiology and Endocrinology

Units Assigned- Unit 1, 2, 4 and 5

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit 1: Digestion and absorption of proteins	
2.	Unit 1: Digestion and absorption of fats	
3.	Unit 2: Physiology of blood coagulation	
4.	Unit 4: Blood coagulation, Anatomy of Adrenal gland	
5.	Unit 5: Functions of hormones of adrenal gland	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Aparajita Gogoi

Course –Honours / Generic – **Non- CBCS GENERAL**

Class/Semester- 5th Semester General

Name of the Paper- ZooGT-501 –Genetics and Molecular Biology

Units Assigned- Unit 1

Marks Assigned- 12/48

Class	Topic/ Unit	Remarks
1.	Unit 1: Mendel's Laws	
2.	Unit 1: Mendels laws, linkage	
3.	Unit 1: Linkage	
4.	Unit 1: Crossing over	
5.	Unit 1: Crossing over	
6.	Unit 1: Non-chromosomal inheritance	
7.	Unit 1: Non-chromosomal inheritance	
8.	Unit 1: Sex determination	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- **Aparajita Gogoi**

Course –Honours / Generic – **Non- CBCS GENERAL**

Class/Semester- 6th Semester General

Name of the Paper- ZooGT-601 – Animal Ecology and biostatistics

Units Assigned- Unit 1

Marks Assigned- 9/48

Class	Topic/ Unit	Remarks
1.	Unit 1: Concept of Ecosystem	
2.	Unit 1: Biotic and abiotic factors of grassland ecosystem	
3.	Unit 1: Biotic and abiotic factors of aquatic ecosystem	
4.	Unit 1: Population - structure	
5.	Unit 1: Population - structure	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester –1st Semester (**CBCS**)

Name of the Paper - Core Course I: Non-Chordates I: Protists to Pseudocoelomates

Units Assigned – Unit 1: Protista, Parazoa and Metazoa

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1: General characteristics and Classification up to Classes	
2.	Unit 1: General characteristics and Classification up to Classes	
3.	Unit 1: Structural organization & nutrition of Euglena	
4.	Unit 1: Structural organization & nutrition of Euglena	
5.	Unit 1: Structural organization & nutrition of Amoeba	
6.	Unit 1: Structural organization & nutrition of Amoeba	
7.	Unit 1: Structural organization & nutrition of Paramoecium	
8.	Unit 1: Structural organization & nutrition of Paramoecium	
9.	Unit 1: Life cycle and pathogenicity of Plasmodium vivax	
10.	Unit 1: Life cycle and pathogenicity of Plasmodium vivax	
11.	Unit 1: Locomotion and Reproduction in Animal protista	
12.	Unit 1: Locomotion and Reproduction in Animal protista	
13.	Unit 1: Locomotion and Reproduction in Animal protista	
14.	Unit 1: Locomotion and Reproduction in Animal protista	
15.	Unit 1: Evolution of symmetry and segmentation of Metazoa	
16.	Unit 1: Evolution of symmetry and segmentation of Metazoa	

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester –1st Semester (**CBCS**)

Name of the Paper - CORE COURSE II: PRINCIPLES OF ECOLOGY

Units Assigned – Unit 1 and Unit 2

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1: Introduction to Ecology History of ecology, Autecology and synecology	
2.	Unit 1: Introduction to Ecology Levels of organization	
3.	Unit 1: Introduction to Ecology Laws of limiting factors,	
4.	Unit 1: Introduction to Ecology Study of abiotic factors	
5.	Unit 1: Introduction to Ecology Study of abiotic factors	
6.	Unit 2: Population Unitary and Modular populations	
7.	Unit 2: Population Unique and group attributes of population: Density, natality, mortality	
8.	Unit 2: Population life tables	
9.	Unit 2: Fecundity tables	
10.	Unit 2: Survivorship curves,	
11.	Unit 2: Population age ratio, sex ratio, dispersal and dispersion strategies	
12.	Unit 2: Population Exponential and logistic growth, equation and patterns, r and K	
13.	Unit 2: Population Exponential and logistic growth, equation and patterns, r and K	
14.	Unit 2: Population Exponential and logistic growth, equation and patterns, r and K	

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Generic

Class/Semester –1st Semester **(CBCS)**

Name of the Paper - GE II: ANIMAL DIVERSITY

Units Assigned – Unit 1, Unit 5, Unit 9 and Unit 10

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1. Protista: General characters of Protozoa	
2.	Unit 1. Protista: Life cycle of Plasmodium.	
3.	Unit 5. Pseudocoelomates - General characters of Nemethehelminthes	
4.	Unit 5. Pseudocoelomates - Parasitic adaptations.	
5.	Unit 9. Coelomate Deuterostomes- General characters of Echinodermata	
6.	Unit 9. Coelomate Deuterostomes- Water Vascular system in Starfish.	
7.	Unit 9. Coelomate Deuterostomes- Water Vascular system in Starfish.	
8.	Unit 10. Protochordata- Salient features	

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Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester –2nd Semester (**CBCS**)

Name of the Paper - **CCIII – Non-chordates II: Coelomates**

Units Assigned – Unit 1, Unit 2 and Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit -1 Introduction To Coelomates- Evolution of Coelom and Metamerism.	
2.	Unit -1 Introduction To Coelomates- Evolution of Coelom and Metamerism.	
3.	Unit- 2 General Characteristics And Classification up To Classes	
4.	Unit- 2 General Characteristics And Classification up To Classes	
5.	Unit – 2: Excretion In Annelida	
6.	Unit 4: Onychophora General Characteristics and Evolutionary Significance	
7.	Unit 4: Onychophora General Characteristics and Evolutionary Significance	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester –2nd Semester (**CBCS**)

Name of the Paper - **CCIV –: Cell Biology**

Units Assigned –Unit 4 and Unit 5

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit -4: Mitochondria And Peroxisomes: Mitochondria Structure,	
2.	Unit -4: Mitochondria And Peroxisomes: Semi-Autonomous Nature, Endosymbiotic Hypothesis,	
3.	Unit -4: Mitochondria And Peroxisomes: Semi-Autonomous Nature, Endosymbiotic Hypothesis,	
4.	Unit -4: Mitochondria And Peroxisomes: Mitochondrial Respiratory Chain,	
5.	Unit -4: Mitochondria And Peroxisomes: Mitochondrial Respiratory Chain,	
6.	Unit -4: Mitochondria And Peroxisomes: Chemi-Osmotic Hypothesis,	
7.	Unit -4: Mitochondria And Peroxisomes: Peroxisomes.	
8.	Unit -4: Mitochondria And Peroxisomes: Peroxisomes.	
9.	Unit –5: Cytoskeleton-Structure And Functions: Microtubules,	
10.	Unit –5: Cytoskeleton-Structure And Functions: Microfilaments And IntermediateFilaments.	
11.	Unit –5: Cytoskeleton-Structure And Functions: IntermediateFilaments.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Generic

Class/Semester –2nd Semester (CBCS)

Name of the Paper - **CCII-GE- Viii Insect Vectors and Diseases**

Units Assigned –Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit IV: Dipteran as Disease Vectors.	
2.	Unit IV: Dipterans as important insect vectors – Mosquitoes	
3.	Unit IV: Dipterans as important insect vectors –Sand fly,	
4.	Unit IV: Dipterans as important insect vectors – Houseflies;	
5.	Unit IV: Study of mosquito-borne diseases – Malaria	
6.	Unit IV: Study of mosquito-borne diseases –Dengue, Chikungunya, Viral	
7.	Unit IV:Study of mosquito-borne diseases –Dengue, Chikungunya, Viral encephalitis,	
8.	Unit IV: Control of mosquitoes.	
9.	Unit IV: Study of sand fly-borne diseases – VisceralLeishmaniasis, Cutaneous Leishmaniasis, Phlebotomus fever; Control of Sand fly.	
10.	Unit IV: Study of sand fly-borne diseases – VisceralLeishmaniasis, Cutaneous Leishmaniasis, Phlebotomus fever; Control of Sand fly.	
11.	Unit IV: Study of sand fly-borne diseases – VisceralLeishmaniasis, Cutaneous Leishmaniasis, Phlebotomus fever; Control of Sand fly.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Hnours

Class/Semester –3rd Semester (**CBCS**)

Name of the Paper - CORE COURSE V: DIVERSITY OF CHORDATA

Units Assigned – Unit 1, Unit 2, and Unit 3

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1: Introduction to Chordates- General characteristics and outline classification	
2.	Unit 1: Introduction to Chordates- General characteristics and outline classification	
3.	Unit 2: Protochordata - General characteristics of Hemichordata	
4.	Unit 2: Protochordata - General characteristics of Urochordata	
5.	Unit 2: Protochordata - General characteristics of Cephalochordata	
6.	Unit 2: Protochordata - Study of larval forms in protochordates	
7.	Unit 2: Protochordata - Study of larval forms in protochordates	
8.	Unit 10. Protochordata- Retrogressive metamorphosis in Urochordata	
9.	Unit 10. Protochordata- Retrogressive metamorphosis in Urochordata	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Hnours

Class/Semester –3rd Semester **(CBCS)**

Name of the Paper - Core Course VI: Animal Physiology: Controlling and Coordinating Systems

Units Assigned – Unit 1 and Unit 5

Class	Topic/ Unit	Remarks
1.	Unit 1: Tissues- Structure, location, classification and functions of epithelial tissue	
2.	Unit 1: Tissues- Structure, location, classification and functions of epithelial tissue	
3.	Unit 1: Tissues - Structure, location, classification and functions of connective tissue	
4.	Unit 1: Tissues - Structure, location, classification and functions of connective tissue	
5.	Unit 1: Tissues - Structure, location, classification and functions of nervous tissue	
6.	Unit 1: Tissues - Structure, location, classification and functions of nervous tissue	
7.	Unit 5: Reproductive System - Histology of testis and ovary	
8.	Unit 5: Reproductive System - Histology of testis and ovary	
9.	Unit 5: Reproductive System - Physiology of male and female reproduction	
10.	Unit 5: Reproductive System - Physiology of male and female reproduction	
11.	Unit 5: Reproductive System - Physiology of male and female reproduction	
13.	Unit 5: Reproductive System – Puberty	
14.	Unit 5: Reproductive System - Methods of contraception in male and female	
15.	Unit 5: Reproductive System - Methods of contraception in male and female	

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester –3rd Semester (**CBCS**)

Name of the Paper – **Core Course VII: Fundamentals of Biochemistry**

Units Assigned – Unit 5

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 5: Enzymes- Nomenclature and classification	
2.	Unit 5: Enzymes- Nomenclature and classification	
3.	Unit 5: Enzymes - Cofactors	
4.	Unit 5: Enzymes - Specificity of enzyme action	
5.	Unit 5: Enzymes - Isozymes	
6.	Unit 5: Enzymes - Mechanism of enzyme action	
7.	Unit 5: Enzymes - Mechanism of enzyme action	
8.	Unit 5: Enzymes - Enzyme kinetics	
9.	Unit 5: Enzymes - Enzyme kinetics	
10.	Unit 5: Enzymes - Factors affecting rate of enzyme-catalyzed reactions	
11.	Unit 5: Enzymes - Factors affecting rate of enzyme-catalyzed reactions	
13.	Unit 5: Enzymes- Derivation of MichaelisMenten equation	
14.	Unit 5: Enzymes- Concept of Km and Vmax, Lineweaver-Burk plot	
15.	Unit 5: Enzymes - Multisubstrate reactions	
16.	Unit 5: Enzymes - Enzyme inhibition	
17.	Unit 5: Enzymes - Enzyme inhibition	
18.	Unit 5: Enzymes- Allosteric enzymes and their kinetics	
19.	Unit 5: Enzymes- Regulation of enzyme action.	

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – **Generic**

Class/Semester –3rd Semester (**CBCS**)

Name of the Paper – **GE VII: HUMAN PHYSIOLOGY**

Units Assigned – Unit 3 and Unit 6

Class	Topic/ Unit	Remarks
1.	Unit 3: Respiratory Physiology Ventilation, External and internal Respiration,	
2.	Unit 3:Transport of oxygen and carbon dioxide in blood,	
3.	Unit 3:Transport of oxygen and carbon dioxide in blood	
4.	Unit 3: Factors affecting transport of gases	
5.	Unit 6: Endocrine and Reproductive Physiology Structure and function of endocrine glands (ovaries, and testes),	
6.	Unit 6: Endocrine and Reproductive Physiology Structure and function of endocrine glands (ovaries, and testes),	
7.	Unit 6: Endocrine and Reproductive Physiology Structure and function of endocrine glands (ovaries, and testes),	
8.	Unit 6: Brief account of spermatogenesis and oogenesis	
9.	Unit 6: Brief account of spermatogenesis and oogenesis	
10.	Unit 6: Menstrual cycle.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- **Dr. Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester –4th Semester (CBCS)

Name of the Paper - **Core Course VIII: Comparative Anatomy of Vertebrate**

Units Assigned – Unit 7 and Unit 8

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 7: Nervous System Comparative account of brain	
2.	Unit 7: Nervous System Comparative account of brain	
3.	Unit 7: Autonomic nervous system	
4.	Unit 7: Autonomic nervous system	
5.	Unit 7: Spinal cord, Cranial nerves in mammals	
6.	Unit 7: Spinal cord, Cranial nerves in mammals	
7.	Unit 7: Cranial nerves in mammals	
8.	Unit 7: Cranial nerves in mammals	
9.	Unit 8: Sense Organs Classification of receptors	
10.	Unit 8: Sense Organs Classification of receptors	
11.	Unit 8: Brief account of visual receptors in man	
12.	Unit 8: Brief account of visual receptors in man	
13.	Unit 8: Brief account of auditory receptors in man	
14.	Unit 8: Brief account of auditory receptors in man	

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Course Plan

Name of the Teacher- Dr. **Dr. Kishor Haloi**

Course –Honours / Generic – Honours

Class/Semester –4th Semester (**CBCS**)

Name of the Paper - **Core Course IX: Animal Physiology: Life Sustaining Systems**

Units Assigned – Unit 5

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 5: Physiology of Heart Structure of mammalian heart	
2.	Unit 5: Physiology of Heart Coronary circulation	
3.	Unit 5: Physiology of Heart Structure and working of conducting myocardial fibers	
4.	Unit 5: Physiology of Heart Structure and working of conducting myocardial fibers	
5.	Unit 5: Physiology of Heart Origin and conduction of cardiac impulses Cardiac cycle	
6.	Unit 5: Physiology of Heart Origin and conduction of cardiac impulses Cardiac cycle	
7.	Unit 5: Physiology of Heart Cardiac output and its regulation	
8.	Unit 5: Physiology of Heart Frank-Starling Law of the heart	
9.	Unit 5: Physiology of Heart nervous and chemical regulation of heart rate	
10.	Unit 5: Physiology of Heart Electrocardiogram	
11.	Unit 5: Physiology of Heart Blood pressure and its regulation	
12.	Unit 5: Physiology of Heart Blood pressure and its regulation	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Kishor Haloi

Course –Honours / Generic – Honours

Class/Semester –4th Semester (CBCS)

Name of the Paper – **CORE COURSE X: Biochemistry of Metabolic Processes**

Units Assigned – Unit 1 and Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1: Overview of Metabolism Use of reducing equivalents and cofactors;	
2.	Unit 1: Overview of Metabolism basics of intermediary metabolism and overview of regulatory strategies.	
3.	Cofactors; Specificity of enzyme action; Isozymes; Mechanism of enzyme action; Enzyme kinetics; Factors affecting rate of enzyme-catalyzed reactions; Derivation of MichaelisMenten equation, Concept of Km and Vmax, Lineweaver- Burk plot; Multisubstrate reactions; Enzyme inhibition; Allosteric enzymes and their kinetics; Regulation of enzyme action	
4.	Unit 4: Protein Metabolism Catabolism of amino acids	
5.	Unit 4: Protein Metabolism Transamination	
6.	Unit 4: Protein Metabolism Deamination	
7.	Unit 4: Protein Metabolism Urea cycle	
8.	Unit 4: Protein Metabolism Urea cycle	
9.	Unit 4: Protein Metabolism Fate of C-skeleton of Glucogenic and Ketogenic amino acids.	
10.	Unit 4: Protein Metabolism Fate of C-skeleton of Glucogenic and Ketogenic amino acids.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Kishor Haloi

Course –Honours / Generic – **Generic**

Class/Semester –4th Semester (**CBCS**)

Name of the Paper – **GE IV: ENVIRONMENT AND PUBLIC HEALTH**

Units Assigned – Unit 1 and Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	UNIT I: Introduction: Sources of Environmental hazards, hazard identification and accounting.	
2.	UNIT I: Introduction: Sources of Environmental hazards, hazard identification and accounting	
3.	UNIT I: Introduction: Fate of toxic and persistent substances in the environment	
4.	UNIT I: Introduction: Dose Response Evaluation	
5.	UNIT I: Introduction: Exposure Assessment	

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Course Plan

Name of the Teacher- Dr. Kishor Haloi

Course –Honours / Generic – **Honours**

Class/Semester –5th Semester (CBCS)

Name of the Paper – **Core Course XI: Molecular Biology**

Units Assigned – Unit 4, Unit 7 and Unit 8

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 4 : Genetic code	
2.	Unit 4 :Degeneracy of the genetic code and Wobble Hypothesis and assembly in prokaryotes	
3.	Unit 4 :Process of protein synthesis in prokaryotes: Ribosome structure	
4.	Unit 4 : Fidelity of protein synthesis,	
5.	Unit 4 : Aminoacyl tRNA synthetases and charging of tRNA	
6.	Unit 4 : Proteins involved in initiation, elongation and termination of polypeptide chain	
7.	Unit 4 : Proteins involved in initiation, elongation and termination of polypeptide chain	
8.	Unit 4 :Inhibitors of protein synthesis	
9.	Unit 4 :Difference between prokaryotic and eukaryotic translation	
10.	Unit 7: DNA Repair Mechanisms Pyrimidine dimerization and mismatch repair	
11.	Unit 7: DNA Repair Mechanisms Pyrimidine dimerization and mismatch repair	
12.	Unit 8: Regulatory RNAs Concept of Ribo-switches	
13.	Unit 8: RNA interference, miRNA, siRNA	
14.	Unit 8: RNA interference, miRNA, siRNA	

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Course Plan

Name of the Teacher- Dr. Kishor Haloi

Course –Honours / Generic – **Honours**

Class/Semester –5th Semester (CBCS)

Name of the Paper – **Core Course XII: Principles of Genetics**

Units Assigned – Unit 6, Unit 7 and Unit 8

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 6: Polygenic Inheritance Polygenic inheritance with suitable examples; simple numericals based on it	
2.	Unit 6: Polygenic Inheritance Polygenic inheritance with suitable examples; simple numericals based on it	
3.	Unit 7: Recombination in Bacteria and Viruses Conjugation, Transformation, Transduction	
4.	Unit 7: Recombination in Bacteria and Viruses Conjugation, Transformation, Transduction,	
5.	Unit 7: Complementation test in Bacteriophage	
6.	Unit 8: Transposable Genetic Elements Transposons in bacteria	
7.	Unit 8: Transposable Genetic Elements Ac-Ds elements in maize and P elements in <i>Drosophila</i>	
8.	Unit 8: Transposable Genetic Elements Ac-Ds elements in maize and P elements in <i>Drosophila</i>	
9.	Unit 8: Transposable Genetic Elements Transposons in humans	
10.	Unit 8: Transposable Genetic Elements Transposons in humans	

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Course Plan

Name of the Teacher- Dr. Kishor Haloi

Course –Honours / Generic – **Honours**

Class/Semester –5th Semester (**CBCS**)

Name of the Paper –

Units Assigned – Unit 6, Unit 7 and Unit 8

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems - Integumentary	
2.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems - Integumentary	
3.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems - excretory	
4.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems - excretory	
5.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems - circulatory	
6.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems -circulatory	
7.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems - respiratory	
8.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems - respiratory	
9.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems - endocrine	
10.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems –endocrine	
11.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems – reproductive	
12.	Unit IV: Physiology of Insects Structure and physiology of Insect body systems – reproductive	
13.	Unit IV: Physiology of Insects - Sensory receptors and nervous system	
14.	Unit IV: Physiology of Insects - Sensory receptors and nervous system	
15.	Unit IV: Physiology of Insects - Growth and metamorphosis	
16.	Unit IV: Physiology of Insects - Growth and metamorphosis	

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Course Plan

Name of the Teacher- Dr. Kishor Haloi

Course –Honours / Generic – **Honours**

Class/Semester –5th Semester (**CBCS**)

Name of the Paper – **DSE Course III: Endocrinology**

Units Assigned – Unit 1, and Unit 2

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1: Introduction to Endocrinology History of endocrinology, Classification	
2.	Unit 1: Introduction to Endocrinology History of endocrinology, Classification	
3.	Unit 1: Characteristic and Transport of Hormones	
4.	Unit 1: Characteristic and Transport of Hormones	
5.	Unit 1: Neurosecretions and Neurohormones	
6.	Unit 1: Neurosecretions and Neurohormones	
7.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis Structure of pineal gland,	
8.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis Secretions and their functions in biological rhythms and reproduction.	
9.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis - Structure of hypothalamus,	
10.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis - Hypothalamic nuclei and their functions,	
11.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis - Regulation of Neuroendocrine glands	
12.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis - Feedback Mechanisms	
13.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis - Hormones and their Functions,	
14.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis - Hypothalamo- hypophysial portal system	
15.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis - Disorders of pituitary gland.	
16.	Unit 2: Epiphysis, Hypothalamo-hypophysial Axis - Disorders of pituitary gland.	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –1st Semester (CBCS)

Name of the Paper - **Course Code: Zc101t Core Course I: Non-Chordates I: Protists to Pseudocoelomates**

Units Assigned – Unit 3 and Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 3: Cnidaria- General characteristics and Classification up to classes	
2.	Unit 3: Cnidaria- General characteristics and Classification up to classes	
3.	Unit 3: Cnidaria- Metagenesis in Obelia	
4.	Unit 3: Cnidaria- Polymorphism in Cnidaria	
5.	Unit 3: Cnidaria- Polymorphism in Cnidaria	
6.	Unit 4: Ctenophora General characteristics	
7.	Unit 4: Ctenophora- Evolutionary significance of Ctenophora	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –1st Semester (CBCS)

Name of the Paper - **Core Course II: Principles of Ecology**

Units Assigned – Unit 2 and Unit 3

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 2: Population Population regulation - density-dependent and independent factors Population interactions,	
2.	Unit 2: Population Population regulation - density-dependent and independent factors Population interactions,	
3.	Unit 2: Population Population regulation - density-dependent and independent factors Population interactions,	
4.	Unit 2: Gause's Principle with laboratory and field examples	
5.	Unit 2: Gause's Principle with laboratory and field examples,	
6.	Unit 2: Lotka-Volterra equation for competition and Predation, functional and numerical responses.	
7.	Unit 2: Lotka-Volterra equation for competition and Predation, functional and numerical responses.	
8.	Unit 4: Ecosystem - Nutrient and biogeochemical cycle with Nitrogen cycle as an example Human modified ecosystem	
9.	Unit 4: Ecosystem - Nutrient and biogeochemical cycle with Nitrogen cycle as an example Human modified ecosystem	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Generic**

Class/Semester –1st Semester (**CBCS**)

Name of the Paper - **GE II: Animal Diversity**

Units Assigned – Unit 3, Unit 6, Unit 11 and Unit 13

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 3. Radiata - General characters of Cnidarians and polymorphism	
2.	Unit 3. Radiata - Polymorphism	
3.	Unit 3. Radiata - Polymorphism	
4.	Unit 6. Coelomate - Protostomes General Characters of Annelida	
5.	Unit 6. Coelomate - Metamerism	
6.	Unit 11. Pisces - Osmoregulation	
7.	Unit 11. Pisces -Migration of Fishes	
8.	Unit 13. Reptiles - Amniotes	
9.	Unit 13. Reptiles - Origin of reptiles.	
10.	Unit 13. Reptiles - Terrestrial adaptations in Reptiles	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –2nd Semester (CBCS)

Name of the Paper - **CCIII – Non-chordates II: Coelomates**

Units Assigned – Unit 5

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit: 5 - General Characters of Mollusca	
2.	Unit: 5 - Classification of Mollusca	
3.	Unit: 5 - Classification of Mollusca	
4.	Unit: 5 - Pearl formation in Mollusca	
5.	Unit: 5 - Pearl formation in Mollusca	
6.	Unit: 5 - Respiration in Mollusca	
7.	Unit: 5 - Respiration in Mollusca	
8.	Unit: 5 - Evolutionary significance of Trocophore larva	
9.		

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –2nd Semester (CBCS)

Name of the Paper - **CCIV – Cell Biology**

Units Assigned – Unit 1, Unit 2 and Unit 3 and Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1: Prokaryotic and Eukaryotic cells	
2.	Unit 1: Virus	
3.	Unit 1: Viroids	
4.	Unit 1: Mycoplasma	
5.	Unit 1: Prions	
6.	Unit 2: Mitosis	
7.	Unit 2: Mitosis	
8.	Unit 2: Cell Cycle and its regulation.	
9.	Unit 2: Cell Cycle and its regulation.	
10.	Unit 3: Structure & functions: Golgi Bodies	
11.	Unit 3: Structure & functions: Golgi Bodies	
12.	Unit 3: Structure & functions: Lysosomes	
13.	Unit 3: Structure & functions: Lysosomes	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Generic**

Class/Semester –**2nd Semester (CBCS)**

Name of the Paper - **CCII-GE- VIII Insect Vectors and Diseases**

Units Assigned – Unit 4 and Unit 5

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit IV: Dipteran as Disease Vectors: Study of house fly as important mechanical vector,	
2.	Unit IV: Myiasis and Control of house fly.	
3.	Unit V: Siphunculata as Disease Vectors: Human louse (Head, Body and Pubic louse) as important insect vectors;	
4.	Unit V: Siphunculata as Disease Vectors: Human louse (Head, Body and Pubic louse) as important insect vectors;	
5.	Unit V: Study of louse-borne diseases –Typhus fever	
6.	Unit V: Study of louse-borne diseases – Relapsing fever	
7.	Unit V: Study of louse-borne diseases - Trench fever	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Honours**

Class/Semester –**3rd Semester (CBCS)**

Name of the Paper - **Core Course V: Diversity of Chordata**

Units Assigned – Unit 8 and Unit 10

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 8: Aves- General characteristics and classification	
2.	Unit 8: Aves- General characteristics and classification	
3.	Unit 8: Aves- Archaeopteryx-- a connecting link	
4.	Unit 8: Aves- Principles and aerodynamics of flight	
5.	Unit 8: Aves- Principles and aerodynamics of flight	
6.	Unit 8: Aves-Flight adaptations	
7.	Unit 8: Aves-Flight adaptations	
8.	Unit 8: Aves-Migration in birds	
9.	Unit 8: Aves-Migration in birds	
10.	Unit 10: Zoogeography - Zoogeographical realms	
11.	Unit 10: Zoogeography - Theories pertaining to distribution of animals	
12.	Unit 10: Zoogeography - Plate tectonic and Continental drift theory	
13.	Unit 10: Zoogeography - Distribution of vertebrates in different realms	
13.	Unit 10: Zoogeography - Distribution of vertebrates in different realms	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Honours**

Class/Semester –**3rd Semester (CBCS)**

Name of the Paper - **Core Course Vi: Animal Physiology: Controlling And Coordinating Systems**

Units Assigned – Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 4: Muscle - Histology of different types of muscle	
	Unit 4: Muscle - Histology of different types of muscle	
2.	Unit 4: Muscle - Ultra structure of skeletal muscle	
3.	Unit 4: Muscle - Molecular and chemical basis of muscle contraction	
4.	Unit 4: Muscle - Molecular and chemical basis of muscle contraction	
5.	Unit 4: Muscle - Characteristics of muscle twitch	
6.	Unit 4: Muscle - Summation and tetanus.	
7.	Unit 4: Muscle - Motor unit	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Honours**

Class/Semester –**3rd Semester (CBCS)**

Name of the Paper - **Core Course Vi: CCVII–Fundamentals of Biochemistry**

Units Assigned – Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1: Carbohydrates - Structure and Biological importance: Monosaccharides	
2.	Unit 1: Carbohydrates - Structure and Biological importance: Monosaccharides	
3.	Unit 1: Carbohydrates - Structure and Biological importance: Disaccharides	
4.	Unit 1: Carbohydrates - Structure and Biological importance: Disaccharides	
5.	Unit 1: Carbohydrates - Structure and Biological importance: Polysaccharides	
6.	Unit 1: Carbohydrates - Structure and Biological importance: Polysaccharides	
7.	Unit 1: Carbohydrates - Structure and Biological importance: Glycoconjugates	
8.	Unit 1: Carbohydrates – Structure and Biological importance: Glycoconjugates	
9.	Unit 2: Lipids - Structure and Significance	
10.	Unit 2: Lipids - Physiologically important saturated and unsaturated fatty acids	
11.	Unit 2: Lipids - Tri-acylglycerols, Phospholipids, Glycolipids, Steroids.	
12.	Unit 2: Lipids - Tri-acylglycerols, Phospholipids, Glycolipids, Steroids.	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Generic**

Class/Semester –**3rd Semester (CBCS)**

Name of the Paper – **GE VII: Human Physiology**

Units Assigned – Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 4: Renal Physiology - Functional anatomy of kidney	
2.	Unit 4: Renal Physiology - Mechanism and regulation of urine formation	
3.	Unit 4: Renal Physiology - Mechanism and regulation of urine formation	
4.	Unit 5: Cardiovascular Physiology - Structure of heart, Coordination of heartbeat, Cardiac cycle, ECG	
5.	Unit 5: Cardiovascular Physiology - Structure of heart,	
6.	Unit 5: Cardiovascular Physiology -Coordination of heartbeat,	
7.	Unit 5: Cardiovascular Physiology - Cardiac cycle	
8.	Unit 5: Cardiovascular Physiology - ECG	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –4th Semester (CBCS)

Name of the Paper - **Core Course VIII: Comparative Anatomy Of Vertebrate**

Units Assigned – Unit 5 and Unit 6

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 5: Circulatory System General plan of circulation	
2.	Unit 5: Evolution of heart	
3.	Unit 5: Evolution of heart	
4.	Unit 5: Evolution of aortic arches	
5.	Unit 5: Evolution of aortic arches	
6.	Unit 6: Urinogenital System	
7.	Unit 6: Succession of kidney	
8.	Unit 6: Succession of kidney	
9.	Unit 6: Evolution of urinogenital ducts	
10.	Unit 6: Evolution of urinogenital ducts	
11.	Unit 6: Types of mammalian uteri	
12.	Unit 6: Types of mammalian uteri	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –4th Semester (CBCS)

Name of the Paper - **Core Course IX: Animal Physiology: Life Sustaining Systems**

Units Assigned – Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 4: Blood Components of blood and their functions	
2.	Unit 4: Blood Components of blood and their functions	
3.	Unit 4: Blood Structure and functions of haemoglobin	
4.	Unit 4: Blood Haemostasis	
5.	Unit 4: Blood Blood clotting system,	
6.	Unit 4: Blood Blood clotting system,	
7.	Unit 4: Blood Kallikrein-Kininogen system,	
8.	Unit 4: Blood Complement system & Fibrinolytic system	
9.	Unit 4: Blood Complement system& Fibrinolytic system	
10.	Unit 4: Blood Haemopoiesis	
11.	Unit 4: Blood Blood groups: Rh factor, ABO and MN.	
12.	Unit 4: Blood Blood groups: Rh factor, ABO and MN.	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –4th Semester (CBCS)

Name of the Paper – **CORE COURSE X: Biochemistry of Metabolic Processes**

Units Assigned – Unit 1 and Unit 3

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 1: Overview of Metabolism Catabolism vs Anabolism, Stages of catabolism	
2.	Unit 1: Overview of Metabolism Compartmentalization of metabolic pathways	
3.	Unit 3: Lipid Metabolism β -oxidation and omega -oxidation of saturated fatty acids with even and odd number of carbon atoms	
4.	Unit 3: Lipid Metabolism β -oxidation and omega -oxidation of saturated fatty acids with even and odd number of carbon atoms	
5.	Unit 3: Lipid Metabolism β -oxidation and omega -oxidation of saturated fatty acids with even and odd number of carbon atoms	
6.	Unit 3: Lipid Metabolism β -oxidation and omega -oxidation of saturated fatty acids with even and odd number of carbon atoms	
7.	Unit 3: Lipid Metabolism Biosynthesis of palmitic acid	
8.	Unit 3: Lipid Metabolism Biosynthesis of palmitic acid	
9.	Unit 3: Lipid Metabolism Ketogenesis	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Generic**

Class/Semester –4th Semester (**CBCS**)

Name of the Paper – **GE IV: Environment and Public Health**

Units Assigned – Unit 1 and Unit 5

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 3: Pollution- Air pollution sources and effects	
2.	Unit 3: Pollution -Water pollution sources and effects	
3.	Unit 3: Pollution Noise - pollution sources and effects	
4.	Unit 5 Diseases - Causes, symptoms and control of tuberculosis	
5.	Unit 5 Diseases - Causes, symptoms and control of tuberculosis	
6.	Unit 5 Diseases - Causes, symptoms and control of Asthma	
7.	Unit 5 Diseases - Causes, symptoms and control of Asthma s	
8.	Unit 5 Diseases - Causes, symptoms and control of Cholera	
9.	Unit 5 Diseases - Causes, symptoms and control of Cholera	
10.	Unit 5 Diseases - Causes, symptoms and control of Minamata Disease	
11.	Unit 5 Diseases - Causes, symptoms and control of Minamata Disease	
12.	Unit 5 Diseases - Causes, symptoms and control of typhoid	
13.	Unit 5 Diseases - Causes, symptoms and control of typhoid	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Honours**

Class/Semester –5th Semester (**CBCS**)

Name of the Paper – **CORE COURSE XI: Molecular Biology**

Units Assigned – Unit 6

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 6: Gene Regulation - Transcription regulation in prokaryotes: Principles of transcriptional regulation	
2.	Unit 6: Gene Regulation - Transcription regulation in prokaryotes: Principles of transcriptional regulation with examples from <i>lac</i> operon	
3.	Unit 6: Gene Regulation - Transcription regulation in prokaryotes: Principles of transcriptional regulation with examples from <i>trp</i> operon;	
4.	Unit 6: Gene Regulation - Transcription regulation in eukaryotes: Activators, repressors, enhancers, silencer elements; Gene silencing, Genetic imprinting	
5.	Unit 6: Gene Regulation - Transcription regulation in eukaryotes: Activators, repressors, enhancers, silencer elements; Gene silencing, Genetic imprinting	
6.	Unit 6: Gene Regulation - Transcription regulation in eukaryotes: Activators, repressors, enhancers, silencer elements; Gene silencing, Genetic imprinting	
7.	Unit 6: Gene Regulation - Transcription regulation in eukaryotes: Activators, repressors, enhancers, silencer elements; Gene silencing, Genetic imprinting	
8.	Unit 6: Gene Regulation - Transcription regulation in eukaryotes: Activators, repressors, enhancers, silencer elements; Gene silencing, Genetic imprinting	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Honours**

Class/Semester –5th Semester (**CBCS**)

Name of the Paper – **CORE COURSE XII: PRINCIPLES OF GENETICS**

Units Assigned – Unit 2 and Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Linkage and crossing over	
2.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Cytological basis of crossing over	
3.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Cytological basis of crossing over	
4.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Molecular mechanisms of crossing over including models of recombination	
5.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Molecular mechanisms of crossing over including models of recombination	
6.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Recombination frequency as a measure of linkage intensity, Two factor and three factor crosses, Interference and coincidence, Somatic cell hybridization.	
7.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Two factor and three factor crosses, Interference and coincidence, Somatic cell hybridization.	
8.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Two factor and three factor crosses, Interference and coincidence, Somatic cell hybridization.	
9.	Unit 2: Linkage, Crossing Over and Chromosomal Mapping Two factor and three factor crosses, Interference and coincidence, Somatic cell hybridization.	
11.	Unit 4: Sex Determination Chromosomal mechanisms of sex determination in Drosophila and Man	
12.	Unit 4: Sex Determination Chromosomal mechanisms of sex determination in Drosophila and Man	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Honours**

Class/Semester –5th Semester (**CBCS**)

Name of the Paper – **DSE Course III: ENDOCRINOLOGY**

Units Assigned –Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit 4: Regulation of Hormone Action Hormone action at Cellular level and molecular level	
2.	Unit 4: Regulation of Hormone Action Hormone action at Cellular level and molecular level	
3.	Unit 4: Regulation of Hormone Action - Hormone receptor : signal transducer, second messenger	
4.	Unit 4: Regulation of Hormone Action - Hormone receptor : signal transducer, second messenger	
5.	Unit 4: Regulation of Hormone Action - Hormones in homeostasis	
6.	Unit 4: Regulation of Hormone Action - Hormones in homeostasis	
7.	Unit 4: Regulation of Hormone Action - Disorders of endocrine glands	
8.	Unit 4: Regulation of Hormone Action - Disorders of endocrine glands	
9.	Unit 4: Regulation of Hormone Action - Disorders of endocrine glands	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – **Honours**

Class/Semester –5th Semester (**CBCS**)

Name of the Paper – **DSE Course IV: BIOLOGY OF INSECTA**

Units Assigned –Unit 4

Marks Assigned – 13.25 out of 53

Class	Topic/ Unit	Remarks
1.	Unit I: Introduction - General Features of Insects	
2.	Unit I: Introduction - Distribution and Success of Insects on the Earth	
3.	Unit VI: Insects as Vectors Insects as mechanical and Biological vectors,	
4.	Unit VI: Insects as Vectors Brief discussion on houseflies and mosquitoes as important insect vectors	
5.	Unit VI: Insects as Vectors Brief discussion on houseflies and mosquitoes as important insect vectors	
6.	Unit VI: Insects as Vectors Brief discussion on houseflies and mosquitoes as important insect vectors	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester – 4th Semester (**Non CBCS**)

Name of the Paper – **Zoo MT- 401: Cell Biology, Histology & Histochemistry**

Units Assigned – Unit 1, Unit 2 and Unit 5

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit 1 Overview of prokaryotic and eukaryotic cells	
2.	Unit 1 Extra cellular matrix	
3.	Unit 1 : Structure and functions of chromosome	
4.	Unit 1 : Polytene and lamp brush chromosomes	
5.	Unit 1 : Chromatin- molecular organization	
6.	Unit 1 : Nucleosome	
7.	Unit 2 : Heterochromatin and euchromatin	
8.	Unit 2 : Models of chromosomal movements	
9.	Unit 2 : Models of chromosomal movements	
10.	Unit 5 : Animal tissues- types and functions – Epithelium	
11.	Unit 5: Animal tissues- types and functions – Epithelium	
12.	Unit 5: Animal tissues- types and functions – Epithelium	
13.	Unit 5: Animal tissues- types and functions – Epithelium	
14.	Unit 5: Animal tissues- types and functions – Epithelium	
15.		

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –4th Semester (**Non CBCS**)

Name of the Paper - **Zoo MT- 403: Developmental Biology**

Units Assigned – Unit 3

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit-3: Cleavage and gastrulation- cleavage pattern	
2.	Unit-3: Cleavage and gastrulation- cleavage pattern	
3.	Unit-3: Blastulation in chick	
4.	Unit-3: Gastrulation in chick	
5.	Unit-3: Gastrulation in chick	
6.	Unit-3: Cleavage and gastrulation- cleavage pattern	
7.	organisers	
8.	Unit-3: Primary organisers	
9.	Unit 3: Induction, property and mechanism of action of inductive substances	
10.	Unit 3: Induction, property and mechanism of action of inductive substances	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –5th Semester (**Non CBCS**)

Name of the Paper - **ZooMT- 501: Genetics and Evolution**

Units Assigned – Unit 2 and Unit 5

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit-2: Linkage and crossing over	
2.	Unit-2: Basic knowledge of gene mapping	
3.	Unit-2: Determination of sex,	
4.	Unit-2: Sex-linked inheritance; cytoplasmic inheritance	
5.	Unit-2: Cytoplasmic inheritance	
6.	Unit-5: Change in gene frequency (genetic drift, gene flow, genetic load)	
7.	Unit-5: Continental drift; parallel, divergent and convergent evolution; endemism and adaptive radiation	
8.	Unit-5: Divergent and convergent evolution	
9.	Unit-5: Endemism and adaptive radiation	
10.	Unit-5: Endemism and adaptive radiation	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –5th Semester (**Non CBCS**)

Name of the Paper - **ZooMT- 503: Animal Physiology**

Units Assigned –Unit 5

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit-5: Nervous system- neurons, resting membrane potential and its basis, action potential	
2.	Unit-5: Propagation of nerve impulse in myelinated and non-myelinated nerve fibre	
3.	Unit-5: Types of synapses and synaptic transmission; neuro-transmitters- their release and action	
4.	Unit-5: Types of synapses and synaptic transmission; neuro-transmitters- their release and action	
5.	Unit-5: Neuromuscular junction	
6.	Unit-5: Types of reflexes; reflex activity; reflex arc;	
7.	Unit-5: Types of reflexes; reflex activity; reflex arc;	
8.	Unit-5: Physiology of vision;	
9.	Unit-5: Addictive drugs-types; drug addiction- causes, physiological effects; social implications.	
10.	Unit-5: Addictive drugs-types; drug addiction- causes, physiological effects; social implications.	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –5th Semester (**Non CBCS**)

Name of the Paper - **ZooMT- 505: Environmental Biology and Wildlife**

Units Assigned –Unit 4

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit-4: Environmental pollution (water, air and soil);	
2.	Unit-4: Environmental pollution (water, air and soil);	
3.	Unit-4: Environmental pollution (water, air and soil);	
4.	Unit 4: Bioindicators in pollution studies;	
5.	Unit 4: Ecological succession	
6.	Unit 4: Ecological backlash	
7.	Unit 4: Greenhouse effect	
8.	Unit 4: Ozone layer depletion and its impact.	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –5th Semester (**Non CBCS**)

Name of the Paper - **ZooMT- 507: Endocrinology**

Units Assigned –Unit 1, Unit 2 and Unit 4

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit-1: Comparative anatomy of pancreas in fish, amphibia, birds and mammals.	
2.	Unit-1: Comparative anatomy of pancreas in fish, amphibia, birds and mammals.	
3.	Unit-1: Comparative anatomy of pancreas in fish, amphibia, birds and mammals.	
4.	Unit-2: Hormones secreted by endocrine glands (pancreas) and their functions in mammals	
5.	Unit-2: Hormones secreted by endocrine glands (pancreas) and their functions in mammals	
6.	Unit-2: Hormones secreted by endocrine glands (pancreas) and their functions in mammals	
7.	Unit-4: Roles of hormones in reproductive cycle	
8.	Unit 4: Pregnancy, parturition and lactation; methods of contraception;	
9.	Unit 4: Pregnancy, parturition and lactation; methods of contraception;	
10.	Unit 4: Amniocentesis and IVF.	

DIGBOI COLLEGE, DIGBOI

Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –6th Semester (NONCBCS)

Name of the Paper - **Zoo MT- 601: Parasitology and Ethology**

Units Assigned – Unit 5

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit 1: Life History And Mode of Infection And Pathogenicity Of Trichomonas Vaginalis	
2.	Unit 1: Life History And Mode of Infection And Pathogenicity Of Trichomonas Vaginalis	
3.	Unit 1: Life History And Mode of Infection And Pathogenicity Of Trichomonas Vaginalis	
4.	Unit 1: Life History And Mode of Infection And Pathogenicity Of Plasmodium.	
5.	Unit 1: Life History And Mode of Infection And Pathogenicity Of Plasmodium.	
6.	Unit 1: Life History And Mode of Infection And Pathogenicity Of Plasmodium.	
7.	Unit 2: Life History of Taenia Solium	
8.	Unit 2: Parasitic Adaptation and Pathogenicity of Taenia solium	
9.	Unit 2: Life History of Ancylostoma duodenale.	
10.	Unit 2: Parasitic Adaptation and Pathogenicity of Ancylostoma duodenale	
11.	UNIT 4: Sense organs and behaviour; genetical and ecological aspects of behavior	
12.	Unit 4: Genetical aspects of behavior	
13.	Unit 4: Ecological aspects of behavior	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –**6th Semester (NONCBCS)**

Name of the Paper - **ZooMT- 603: Molecular Biology and Immunology**

Units Assigned – Unit 3 and Unit 5

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit 3: Concept of transposons and plasmids	
2.	Unit 3: Regulation of gene expression in prokaryotes, operon concept (Lac operon)	
3.	UNIT 5: Clonal selection theory	
4.	Unit 5: Polyclonal and monoclonal antibodies	
5.	Unit 5: Major histocompatibility complex- structure and functions;	
6.	Unit 5: Major histocompatibility complex- structure and functions	
7.	Unit 5: Immune system in health and disease.	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –6th Semester (NONCBCS)

Name of the Paper - **ZooMT- 604: Biotechnology and Bioinformatics**

Units Assigned – Unit 1, Unit 2 and Unit 3

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit 1: Introduction, history and scope, basic knowledge of genetic engineering	
2.	Unit 1: Protoplast fusion and somatic hybridization technique	
3.	Unit 1: Protoplast fusion and somatic hybridization technique	
4.	Unit 2: DNA sequencing	
5.	Unit 2: DNA sequencing	
6.	Unit 2: Human genome project.	
7.	Unit 3: Methods of sequence alignment	
8.	Unit 3: Methods of sequence alignment	
9.	Unit 3: Phylogenetic analysis: basic concept, steps in evaluation of phylogeny	
10.	Unit 3: Constructing Phylogenetic trees	

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Course Plan

Name of the Teacher- Dr. Moni Kankana Kalita

Course –Honours / Generic – Honours

Class/Semester –6th Semester (NON CBCS)

Name of the Paper - **ZooMT- 606: Economic Zoology**

Units Assigned – Unit 5

Marks Assigned – 12 out of 48

Class	Topic/ Unit	Remarks
1.	Unit 5: Piggery: management and practices of pig rearing;	
	Unit 5: Piggery: management and practices of pig rearing;	
2.	Unit 5: Poultry: selection of breed (chicken and duck) and their scientific rearing methods;	
	Unit 5: Poultry: selection of breed (chicken and duck) and their scientific rearing methods;	
3.	Unit 5: Poultry: selection of breed (chicken and duck) and their scientific rearing methods;	
4.	Unit 5: Poultry: selection of breed (chicken and duck) and their scientific rearing methods;	
5.	Unit 5: Poultry: selection of breed (chicken and duck) and their scientific rearing methods;	
6.	Unit 5: Poultry: selection of breed (chicken and duck) and their scientific rearing methods;	
7.	Unit 5: Poultry diseases and its prevention/control.	
8.	Unit 5: Poultry diseases and its prevention/control.	