Criterion 2

2.6.1 Course Outcomes

4th Cycle of NAAC Accreditation

Submitted

THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

AQAR – 2022-23, Digboi College, Digboi

DEPARTMENT OF ASSAMESE

BA PROGRAMME WITH MAJOR IN ASSAMESE

(NCBCS)

COURSE OUTCOME

Course Code & Course Title	Course Outcome
ASMM – 101 History of Assamese Literature (from the beginning to post Sankardeva period).	Students will get the knowledge of different periods of Assamese literature. Students will know the detailed concept of Assamese literature from the beginning to post Sankardeva period.
ASMM – 201 History of Assamese Literature (From the Arunudoy to post war period). -.:	The course is prepared to provide the concept of the trends and tendencies of modern Assamese literature from the Arunudoy to Post-war periods.
ASMM– 301 Introduction to Linguistics.	This course is prepared to give an introductory idea of language systems and linguistics.
ASMM – 302, Studies on Assamese Poetry.	This course is prepared to give the concept of the history of Assamese poetry as well as the characteristics and diversity of Assamese poetry.
ASMM – 401 Assamese Prose	.This course is prepared to give the concept of the evolution, characteristics and diversity of Assamese fictional and non-fictional prose.
ASMM – 402 Language and Script of Assam.	This course is prepared to provide the knowledge of language and dialects, linguistic specification, Scripts and language exchanges in Assam.

ASMM - 501 Literary theory and criticism.	The course is prepared to learn various aspects of literary theory and criticism.
ASMM – 502 Assamese Drama.	This course will help the students to acquire the knowledge of Assamese Drama and evolution of Assamese theatre and stage.
ASMM - 503 Cultural studies.	The course is prepared to give the idea of culture as a whole and various aspects and characteristics of Assamese culture.
ASMM 504. Comparative Indian Literature.	This course is prepared to provide the idea of comparative literature and the overall concept of comparative Indian literature.
ASMM 601 Various aspects of studying language and literature.	This course is prepared to give proper knowledge of news reading and editing in different media, editing, advertising etc.
ASMM 602. Indo-Aryan Languages and Assamese.	This course is prepared to provide the knowledge of the evolution of Indo-Aryan Languages to highlight the characteristics of Sanskrit and Pali-Prakrit languages, selected text are given. This course will give a clear concept of the origin and development of Assamese language and Assamese grammar.
ASMM – 603 Linguistics study of Assamese Language.	This course is prepared to give the concept of phonology, morphology, syntax, synonyms and word formation of Assamese Language.
ASMM – 604. Introduction to world literature.	This course is prepared to give the concept of world literature with selected text.

ASSAMESE AS A MODERN INDIAN LANGUAGE	
Code – 101 : History of Assamese Literature and studies on Assamese culture Course	Students will get a general idea of the history of Assamese literature and basic concepts of Assamese culture.
CM – 201, Practice of Assamese Language.	The course is prepared to provide the knowledge of letter writing, translation, technical term, pronunciation, correct spelling, etc. so that students can properly communicate with others through Assamese language.
ASMC – 301 Modern Indian Language. Course	Students will get basic knowledge of Assamese language and literature.

BA PROGRAMME WITH HONOURS IN ASSAMESE

CHOICE BASED CREDIT SYSTEM

Sl No.	Semester	Course Name and Code	Course Outcome
1	I	Course Code – AECC. Course Title - Communicative Assamese.	This course is prepared to provide the knowledge of perfect communication.
		Course Code – C1. Course Title: History of Assamese Literature (from the beginning to post Sankardeva period).	Students will get the knowledge of different periods of Assamese literature. It also provides the detailed concept of Assamese literature from the beginning to post Sankardeva period.
		Course Code – C2. Course Title: History of Assamese Literature (From the Arunudoy to recent time).	The course is prepared to provide the concept of the trends and tendencies of modern Assamese literature from Arunudoy to recent.
2	II	Course Code – C3. Course Title: Introduction to Linguistics.	This course is prepared to give an introductory idea of language systems and linguistics.
		Course Code – C4. Course title: Poetics.	This course is prepared to give the primary knowledge of Indian and western poetics.

3	III	Course code – C5. Course Title: Literary criticism. Courses Code – C6. Course Title: Selection from Asamese poetry. Course Code - C7. Course Title: Studies on the Culture of Assam.	The course is prepared to learn various aspects of literary criticism. This course is prepared to give the concept of the history of Assamese poetry as well as the characteristics and diversity of Assamese poetry. Through this course students will get an idea about the development of Assamese poetry from early period to modern period. The course is prepared to give the idea of culture as a whole and various aspects and characteristics of Assamese culture.
4	IV	Course Code - C8. Total Course Title - Theory and practice of Comparative literature. Course Code – C9. Total Course Title - Indo- Aryan Languages and Assamese. Course Code – C10. .Course Title - Selection from Assamese prose.	This course is prepared to provide the idea of comparative literature and the overall concept of comparative Indian literature. This course is prepared to provide the knowledge of the evolution of Indo-Aryan Languages to highlight the characteristics of Sanskrit and Pali-Prakrit languages, selected texts are given. This course will give a clear concept of the origin and development of Assamese language and Assamese grammar. This course is prepared to give the concept of the evolution, characteristics and diversity of Assamese fictional and non-fictional prose.

5	V	Course Code – C11. Course Title - Assamese Drama.	This course will help the students to acquire the knowledge of Assamese Drama and evolution of Assamese theatre and stage.
		Course Code – C12. Course Title – Studies on Assamese Language.	This course is prepared to give the concept of phonology, morphology, syntax, synonyms and word formation of Assamese Language.
		Course Code – DSE 1. Objective: Assamese Grammar, Lexicon and Idiomatic Usage.	This course is prepared to provide the knowledge of perfect pronunciation of Assamese language, proper use of Assamese Grammar and Lexicon and Idiomatic Usage etc.
		Course Code - DSE2. Course Title - Introduction to Indian literature.	this course is prepared to give an idea about Indian Literature through various texts.
6	VI	Course Code – C13. . Course Title – Selection from Assamese Prose.	This course is prepared to give the concept of the evolution, characteristics and diversity of Assamese fictional and non-fictional prose.
		Course Code – C14. Course Title - Language and script of Assam.	This course is prepared to provide the knowledge of language and dialects, linguistic specification, Scripts and language exchanges in Assam.
		Course Code - DSE3. Course Title - Introduction to world literature.	This course is prepared to give an idea about the concept of World Literature through various texts.
		Course Code – DSE4. Total Marks – 100(80+20). Course Title - Special Author. Objective:	This course is prepared for studying the life and literary work of a special Assamese author .

DEPARTMENT OF ECONOMICS

BA PROGRAMME WITH HONOURS IN ECONOMICS

(CBCS)

COURSE OUTCOME

COURSE CODE	COURSE TITLE	COURSE OUTCOME
ECNHC101	Introductory Microeconomics	This course is designed to expose the students to the basic principles of microeconomic theory.
ECNHC102	Mathematical Methods for Economics–I	The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus.
ECNHC201	Introductory Macroeconomics	This course aims to introduce the students to the basic concepts of Macroeconomics. This course discusses the preliminary concepts associated with the determination and measurement of aggregate Macroeconomic variables like savings, investment, GDP, money, inflation and the balance of payments.
ECNHC202	Mathematical Methods for Economics - II	The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and Econometrics set out in this Syllabus.
ECNHC301	Essentials of Microeconomics	The course is designed to provide a sound training in microeconomic theory to formally analyze the behaviour of individual agents. This course looks at the behaviour of the consumer and the producer and also covers the behaviour of a competitive firm.
ECNHC302	Essentials of Macroeconomics	This course introduces the students to formal modeling of a macro-economy in terms of analytical tools. It discusses various alternative theories of output and employment determination in a closed economy in the short run as well as medium run, and the role of policy in this context. It also introduces the students to various theoretical issues related to an open economy.
ECNHC303	Statistical Methods for Economics	This is a course on statistical methods for economics. It begins with some basic concepts and terminology that are fundamental to statistical analysis and inference. It then develops the notion of probability, followed by probability distributions of discrete and continuous random variables and of joint distributions. This is followed by a discussion on sampling techniques used to collect survey data.
ECNHC401	Advanced Microeconomics	This course is a sequel to Essentials of Microeconomics. The emphasis will be on giving conceptual clarity to the student

		coupled with the use of mathematical tools and reasoning. It covers general equilibrium and welfare, imperfect markets and topics under information economics
ECNHC402	Advanced Macroeconomics	This course is a sequel to Essentials of Macroeconomics. In this course, the students are introduced to the long run dynamic issues like growth and technical progress. It also provides the micro-foundations to the various aggregative concepts used in the previous course.
ECNHC403	Introductory Econometrics	This course provides a comprehensive introduction to basic econometric concepts and techniques. It covers statistical concepts of hypothesis testing, estimation and diagnostic checking of simple and multiple regression models. The course also covers the consequences of and tests for misspecification of regression models.
ECNHC501	Indian Economy- I	Using appropriate analytical frameworks, this course reviews major trends in economic indicators in India in the post-Independence period, with particular emphasis on paradigm shifts and turning points.
ECNHC502	Development Economics - I	This is the first part of a two-part course on economic development. The course begins with a discussion of alternative conceptions of development and their justification. It then proceeds to aggregate models of growth and cross-national comparisons of the growth experience that can help evaluate these models.
ECNHC601	Indian Economy- II	This course examines sector-specific polices and their impact in shaping trends in key economic indicators in India. Emphasis needs to be given in capturing the emerging issues.
ECNHC602	Development Economics-II	This is the second module of the economic development sequence. It begins with basic demographic concepts and their evolution during the process of development. The structure of markets and contracts is linked to the particular problems of enforcement experienced in poor countries. The governance of communities and organizations is studied and this is then linked to questions of sustainable growth. The course ends with reflections on the role of globalization and increased international dependence on the process of development.
ECNHDSE505	Money and Financial Markets	This course exposes students to the theory and functioning of the monetary and financial sectors of the economy. It highlights the organization, structure and role of financial markets and institutions. It also discusses interest rates, monetary management and instruments of monetary control. Financial and banking sector reforms and monetary policy with special reference to India are also covered.
ECNHDSE506	Public Economics	The paper deals with the nature of government intervention and its implications for allocation, distribution and stabilization.
ECNHDSE602	Environmental	This course aims to focus on economic causes of

	Economics	environmental problems; in particular, how economic principles are applied to environmental questions and their management through various economic institutions, economic incentives and other instruments and policies. It also aims to address Economic implications of environmental policy as well as valuation of environmental quality, quantification of environmental damages, tools for evaluation of environmental projects such as cost-benefit analysis and environmental impact assessments.
ECNHDSE605	History of Economic Thought	The objective of this course is to acquaint the learners with the historical developments in the economic thoughts propounded by different schools.

DEPARTMENT OF EDUCATION

BA PROGRAMME WITH HONOURS IN EDUCATION

(CBCS)

COURSE OUTCOME

COURSE CODE	COURSE TITLE	OBJECTIVE/Outcome
EDNH101	Philosophical Foundations of Education	On completion of the course, students will be able to -describe the modern concepts, aims, functions and role of philosophy and role of education -Explain the basic tenants of the given Indian and western philosophies and their influence on education -appraise the contribution of given philosophers in the domain of education
EDNH102	Sociological Foundations of Education	On completion of the course, students will be able to -explain the concept, approaches and theories of educational sociology -illustrate social aspects, progress and role of education -describe various social groups, political ideologies and their bearings on education
EDNH201	Psychological Foundations of Education	On completion of the course, students will be able to -explain the concept, nature, scope and uses of psychology in education -explain the influence of growth and development in education -describe the meaning, concept, variables, types and theories of learning -discuss the concept and of theories of learning and creativity -explain the meaning, concept, factors and theories of personality -describe the concept of mental health and mental hygiene
EDNH202	Educational Administration and Management	On completion of the course, students will be able to -explain the concept, types and principles of educational management and

		educational leadership -define the concept of educational planning and its importance -analyse the role and importance of educational supervision
EDNH301	Great Educators and Educational Thoughts	On completion of the course, students will be able to -describe the contribution and relevance of the given philosophers and their educational thoughts
EDNH302	Measurement and Evaluation in Education	On completion of the course, students will be able to -explain the meaning, nature, scope, need and types of measurement and evaluation in education -describe the meaning of psychological test, their characteristics and process of construction -describe some specific tools to measure achievement, intelligence, personality and aptitude -describe the meaning and nature of various statistical measures and their uses.
EDNH303	Experimental Psychology and Laboratory Practical	On completion of the course, students will be able to -explain the concept, scope and need of experimental psychology -conduct and report of psychological experiments -describe the meaning and nature of memory and its related concepts -explain attention and related practical -explain the concept, theories and methods of learning and related practical
EDNH401	Education in Pre independent India	On completion of the course, students will be able to -explain the concept of education in the context of Indian heritage -critically examine and evaluate education in the ancient, medieval and British India
EDNH402	Techniques of Teaching	On completion of the course, students will be able to -explain the meaning, nature and principles of teaching -understand role of teacher, lesion

		planning, teaching and microteaching skills -objective, method and approaches of teaching in different level of education
EDNH4020	Teaching Practice	On completion of the course, students will be able to -demonstrate and integrate teaching skill in classroom
EDNH403	Educational Technology	On completion of the course, students will be able to -describe the concept, nature and components of educational technology -distinguish between educational technology and instructional technology -apply ICT in teaching learning -describe the concept, component, characteristics of effective communication
EDNH501	Education in post independent India	On completion of the course, students will be able to -describe the educational scenario at the time of independence -describe the recent educational development in India
EDNH502	Education in world perspective	On completion of the course, students will be able to -explain the meaning, nature, scope, purpose and methods of comparative education -explain the organization, administration, objectives and examination system of different countries -explain open education in world perspective
EDNH601	Emerging trends in Indian education	On completion of the course, students will be able to -explain the need of constitutional provision for education -identify the challenges of Indian education -explain the political and international influence on education
EDNH602	Child and adolescent psychology	On completion of the course, students will be able to -explain the significance of the study -describe the development changes of adolescence and childhood -explain the role of society in this regard

DSEED501	Guidance and Counseling	On completion of the course, students will be able to -describe meaning, nature, purpose, scope, principles, types, areas, characteristics and functions of guidance and counseling -explain the qualities and role of a counselor
DSEED502	Value Education	On completion of the course, students will be able to -explain the concept, importance and need of value education -explain the promotion of value through education
DSEED503	Inclusive Education	On completion of the course, students will be able to -explain the concept, need and importance of special education, integrated education, inclusive education -describe policy perspective towards education of socially disadvantaged section
DSEED504	Mental Health Issues	On completion of the course, students will be able to -explain the need and importance of mental health issues in emerging society -role of different agencies in this regard -describe various component of positive psychology -integrate yoga in day-to-day life
DSEED601	Human Rights Education	On completion of the course, students will be able to -explain the definition, nature, scope, theories and constitutional perspective of human rights -describe methods and activities of teaching human right education -explain the role of different agencies
DSEED602	Economics of Education	On completion of the course, students will be able to -describe meaning, scope and importance of economics of education -explain the historical development -explain different types of educational cost
DSEED603	Gender and Education	On completion of the course, students will be able to

		-explain the meaning and nature of gender and its related concepts -describe the gender issues related to school education -analyse the laws and policies related to gender equality
DSEED604	Project Work	On completion of the course, students will be able to -prepare a project report

DEPARTMENT OF ENGLISH

BA PROGRAMME WITH HONOURS IN ENGLISH
(CBCS)

COURSE OUTCOME

COURSE CODE	COURSE TITLE	OBJECTIVE
English-C-I	**INDIAN CLASSICAL LITERATURE**	The objective of this course is to acquaint the students with the rich cultural heritage of ancient Indian literature, especially Sanskrit Literature. Indian classical literature can claim the rare distinction of attaining the summit of creative excellence and artistic/aesthetic sensibility, especially in Sanskrit in the immortal plays of Kalidasa, the epics *The Ramayana* and *The Mahabharata*, Shudraka's *Mrcchakatika,* among others.Although Srimanta Sankaradeva of Assam cannot be regarded as 'classical' from the purview of temporality, his works are characterised by classical sensibilities and in the context of Assamese literature and culture, his works are held as immortal classics. Therefore, Sankardeva's inclusion in this course is determined by his works' timeless appeal and relevance. One of his famous plays *Parijata Harana* has been included.

COURSE CODE	COURSE TITLE	OBJECTIVE
English-C-2	**EUROPEAN CLASSICAL LITERATURE**	European Classical literature implies the literature of ancient Greece and Rome. The study of 'ancient Greek literature' implies a study of literature written in Greek in the pre-Christian period, by non-Christians in the first six centuries of the Christian era. Roman literature, written in the Latin language remains an enduring legacy of the culture of ancient Rome. Latin literature drew heavily on the traditions of other cultures, particularly the more mature literary tradition of Greece, and the strong influence of earlier Greek authors are seen. The purpose of this course is to acquaint learners with the great heritage of European classical literature, starting from Homer's epic *The Iliad* to the satires of Horace. The importance of this course rests on the fact that English literature is heavily indebted to the classical works of Greece and Rome. Whether it is tragedy or comedy, satire or criticism, epic or lyric, the influence of classical literature in the works of the English authors is clearly in evidence. Therefore, learners will be acquainted with immortal classics like *The Iliad* and *Metamorphosis*, they get to learn about the difference between the Greek classics and the Latin classics, the different genres dabbled in by the classical writers, such as, tragedy, comedy, epic, satire, criticism and so forth

COURSE CODE	COURSE TITLE	OBJECTIVE
English-C-3	**INDIAN WRITING IN ENGLISH**	Indian Writing in English refers to the body of work by writers in India who write English and whose native language could be one of the numerous languages of India. It is also associated with the works of members of the Indian Diaspora. As a category, this production comes under the broader realm of postcolonial literature- the production from previously colonized countries such as India. Indian English Literature is an honest enterprise to demonstrate the ever rare gems of Indian Writing in English. From being singular and exceptional, rather gradual native flare - up of geniuses, Indian Writing in English has turned out to be a new form of Indian culture and voice in which India converses regularly. Indian Writers - poets, novelists, essayists, and dramatists have been making momentous and considerable contributions to world literature since pre - Independence era, the past few years have witnessed a gigantic prospering and thriving of Indian English Writing in the global market. Indian English Literature has attained an independent status in the realm of world Literature. Wide ranges of themes are dealt within Indian Writing in English. While this literature continues to reflect Indian culture, tradition, social values and even Indian history through the depiction of life in India and Indians living elsewhere, recent Indian English fiction has been trying to give expression to the Indian experience of the modern predicaments. The aim of this course is to introduce learners to Indian Writing in English from the colonial to the postcolonial period. Issues such as identity politics, gendered differences, home, dislocation, language among others shall be underscored with the intention to understand the diversity of Indian culture and tradition across spatiality.

COURSE CODE	COURSE TITLE	OBJECTIVE
English- C-4	Poetics **BRITISH POETRY AND DRAMA: 14TH TO 17TH CENTURIES**	The objective of this course is to acquaint the learners with British poetry and drama from Chaucer to Shakespeare. The texts prescribed relate to the Age of Chaucer, Pre-Elizabethan and Elizabethan periods. Shakespeare figures predominantly in this course, with a tragedy, comedy and two sonnets prescribed. Marlowe's play encapsulates the spirit of the Renaissance, thereby placing the Elizabethan period in a proper perspective.

COURSE CODE	COURSE TITLE	OBJECTIVE
English- C-5	**AMERICAN LITERATURE**	The objective of this course is to introduce the learners to American literature, a field that could be considered as comparatively recent in formulation, when compared to the literature of Britain and Continental Europe. It is a literature steeped in the reactionary philosophy of its Puritan forbears, and has a strong individualistic spirit running through it. The reality or illusion of the Great American Dream, the transcendentalist movement, the history of slavery in the South, the great economic depression etc., forms important contexts to American history and literature, and this course would attempt to highlight these issues as much as possible. All of these would be taken up in this course

COURSE CODE	COURSE TITLE	OBJECTIVE
English-C-6	**POPULAR LITERATURE**	Popular literature includes those writings intended for the masses and those that find favour with large audiences. It can be distinguished from artistic literature in that it is designed primarily to entertain (brittania.com). The objective of this course is to acquaint learners with popular literature, such as crime thriller, graphic fiction, children's literature and so forth, generally regarded by purists to be 'low-brow' and meant for easy mass consumption. However, it would be wrong to assume such a position insofar as the lines of distinction between what is literary and what is popular tends to be blurred

COURSE CODE	COURSE TITLE	OBJECTIVE
English-C-7	**BRITISH POETRY AND DRAMA: 17TH AND 18TH CENTU**	English literature of the Seventeenth and the Eighteenth century was dominated by epoch-making political events, such as the Puritan Interregnum and the Restoration. These events were responsible for ushering in changes in the thought-processes of poets like Milton and Pope, dramatists like Webster and Behn, and so forth. From the romantic excesses of the Elizabethan literature to a literature marked by restraint and order, the learners would be in a position to experience a whole gamut of feelings that define a period and contradistinguishing it from another

COURSE CODE	COURSE TITLE	OBJECTIVE
English- C-8	**BRITISH LITERATURE: 18TH CENTURY**	Continuing with Eighteenth-century literature, this course offers an array of texts across genres. The eighteenth-century was an age in which new modes of creative expression were coming to the fore, particular prose narratives of the likes of Swift and Sterne, among others. Irony and satire became important tools to depict society's ills. The age was also characterised by importance given to gender issues. Congreve's play bears enough testimony to this fact. Since, this period is also referred to as the Age of Enlightenment; 'reason' became the locus from which human's actions and cognition issued forth. Therefore, a fundamental philosophical shift ushered in, in the wake of the culture of positivism that set in during this period

COURSE CODE	COURSE TITLE	OBJECTIVE
English- C-9	**BRITISH ROMANTIC LITERATURE**	The literature of the Romantic period is considered to be the most affective in terms of the ways in which it was able to connect with people across class lines. Product of the revolutionary zeal precipitated by two great revolutions – the French Revolution and the American War of Independence – the highly imaginative, rhetorical, emotive, visionary, metaphysical, epical, sensuous aspects of the works, especially poetry, gave tremendous heft to this literature celebrating Nature in all its beauty, majesty and terror. The Gothic Novel became a dominant genre, which attempted to debunk the structure of rationality by emphasising on the reality of the supernatural

COURSE CODE	COURSE TITLE	OBJECTIVE
English- C-10	**BRITISH LITERATURE: 19TH CENTURY**	The nineteenth-century is emblematic of a certain spiritual crisis that had set in due to the powerful impact of scientific ideology. Utilitarian values exhorting personal aggrandisement at the cost of social responsibility became the practice of daily lives of the people. Such an attitude finds ample illustration in the works of the nineteenth-century novelists and poets. This period, especially after 1837 is termed as 'Victorian' literature – a term that evokes notions of propriety, prudishness, censorship, among others, that was in sharp relief against the spirit of the erstwhile Romantic period. The period is also marked by ground-breaking theories propounded by Darwin, Marx and Freud, which impacted the thought processes of the people to such a remarkable extent that its effects are felt up to the present. Therefore, a reading of nineteenth-century English literature provides a fascinating opportunity to immerse oneself into the fraught historical context determined by contradictory, oppositional drives and processes.

COURSE CODE	COURSE TITLE	OBJECTIVE
English-C-11	**WOMEN'S WRITING**	Unarguably the truest fact about human society is domination of women by men. Patriarchy believes in the superiority of man over women in all walks of life. Therefore, women were denied agency to air their views publicly or in writings. The fact that women had to resort to male pseudonyms in order to find readership is merely one instance to prove how patriarchal ideology has a stranglehold over the society at large. Since women have been systematically silenced by 'phallogocentric' ideology, they find it rather difficult to articulate their views. Privileging women's writing is a way by means of which the thought, anxieties, fears, desires, emotions of the 'second sex' can be addressed. The objective of this course is to introduce learners to women's writing, and in doing so attempting to underline the manner in which power operates to silence women from articulating their views. Apart from that, the course would also try to situate women's writing in a space that transcends or upends the male writing tradition through various (subversive) ways

COURSE CODE	COURSE TITLE	OBJECTIVE
English-C-12	**BRITISH LITERATURE: THE EARLY 20TH CENTURY**	The early Twentieth-century British literature was characterised by experimentations on the level of both form and content. The imperialistic World War I impacted the minds of the people across Europe to such an extent that they began to suffer from various neurotic symptoms. Capitalism with its dehumanized processes and practices produced alienated, disenfranchised subjects, triggering a philosophical shift that was encapsulated in symbolism, existentialism, cubism, Dadaism, expressionism, and nihilism. These philosophies found ample space in Modernism in Literature, and this particular course attempts to chart these philosophical trajectories through early twentieth-century texts, particularly novels and poetry

COURSE CODE	COURSE TITLE	OBJECTIVE
English –C-13	**MODERN EUROPEAN DRAMA**	The twentieth century marked the revival of drama after it was forced to shut down during the Puritan Interregnum. Even though the revival started during the Restoration Period, it subsequently lost ground during the Romantic and the Victorian Period. It was with the onset of the twentieth-century that drama made a magnificent return. It was in Europe, particularly the plays of the Norwegian playwright Henrik Ibsen, the German playwright Bertolt Brecht and French playwright Samuel Beckett that drama became an important vehicle for representing the political, social, individual, economic conditions the post-war Europe, with all its attendant ills and trauma. This course intends to read the plays by placing the epochal events of the period as the backdrop.

COURSE CODE	COURSE TITLE	OBJECTIVE
English- C-14	**POSTCOLONIAL LITERATURES**	This course introduces postcolonial literature to the learners. The importance of postcolonial studies in a globalised world in which more than three-quarters of the people living in the world today have had their lives shaped by the experience of colonialism, cannot be overestimated. The main focus in the course is on literary texts and literary analysis. The literary works chosen are English language texts from the erstwhile colonized countries

COURSE CODE	COURSE TITLE	OBJECTIVE
AECC-1	**ENGLISH COMMUNICATION**	The purpose of this course is to introduce students to the theory, fundamentals and tools of communication and to develop in them vital communication skills which should be integral to personal, social and professional interactions. One of the critical links among human beings and an important thread that binds society together is the ability to share thoughts, emotions and ideas through various means of communication: both verbal and non-verbal. In the context of rapid globalization and increasing recognition of social and cultural pluralities, the significance of clear and effective communication has substantially enhanced. The present course hopes to address some of these aspects through an interactive mode of teaching-learning process and by focusing on various dimensions of communication skills. Some of these are: Language of communication, various speaking skills such as personal communication, social interactions and communication in professional situations such as interviews, group discussions and office environments, important reading skills as well as writing skills such as report writing, note-taking etc. While, to an extent, the art of communication is natural to all living beings, in today's world of complexities, it has also acquired some elements of science.

COURSE CODE	COURSE TITLE	OBJECTIVE
AECC-2	**ALTERNATIVE ENGLISH (SEMESTER 1)**	This course is offered in lieu of MIL, for learners who do not have the required competence to take up any of the modern Indian languages that are part of the undergraduate curriculum. The objective of this course is to acquaint learners with some of the most representative Prose Pieces and Short Stories in the western literary and cultural canon. However, the course also accommodates texts that are significant in Indian writing in English. The rationale for including this course as part of AECC courses is to impart learners with the idea of the best that has been written (or translated) in the East as well as the West

COURSE CODE	COURSE TITLE	OBJECTIVE
DSE-2	**LITERATURE OF THE INDIAN DIASPORA**	Generally, *diasporic literature* deals with alienation, displacement, existential rootlessness, nostalgia, quest for identity, hybridity and so forth. Indian diaspora writers have contributed immensely to literature, especially those writing in English. Salman Rushdie, Amitav Ghosh, Vikram Seth, Jhumpa Lahiri, Rohintron Mistry, V.S. Naipaul etc. are luminaries in the field of fiction and their works have earned both critical acclaim and commercial success. The objective of this course is to introduce learners to literature of the Indian diaspora keeping in view the issues that haunt the writers who have settled abroad, despite being Indians in terms of roots and emotional make-up.

COURSE CODE	COURSE TITLE	OBJECTIVE
DSE-3	**LITERARY CRITICISM**	The course presents an overview of major trends in literary criticism from the Romantic period to the present. The critical trajectory comprises of Romantic theory of poetry propounded by Wordsworth and Coleridge, modernist poetics of Woolf and Eliot, New Criticism of Richards and Cleanth Brooks, and an introduction to recent trends in criticism, particularly feminist criticism (by Maggie Humm

COURSE CODE	COURSE TITLE	OBJECTIVE
DSE-5	**LITERARY THEORY**	Literary theory is a field which is presently in great academic demand. It involves reading texts by deploying discourse/s. These discourses have political, social, economic, gendered, cultural values, and when one reads literature through such discursive lenses, interpretation of texts tend to be multiple and heterogeneous. The objective of this course is to acquaint learners with four relevant discourses or theories. These are Marxism, Feminism, Poststructuralism, and Postcolonial Studies

COURSE CODE	COURSE TITLE	OBJECTIVE
DSE-7	**PARTITION LITERATURE**	The Partition was perhaps the most horrific event of the twentieth-century subcontinent's history. Thousands of innocent people across the divided nation (India and Pakistan) lost their lives, millions lost their homes, and migrations of unimaginable magnitude took place. It is important to understand the backgrounds and reason for the partition, but also to consider its effects on the lives of the people involved. The historical accounts may not be enough; imaginative literature helps fill in the gaps in understanding the emotional impact of these events on people's lives. So, the objective of this course is to read literature that captures the sense of the times. There will also be film screenings since cinema also helps capture both the horror and the repercussions of these events.

DEPARTMENT OF GEOGRAPHY
CBCS

BA PROGRAMME WITH HONOURS IN OTHER SUBJECT AND GEOGRAPHY AS GENERIC ELECTIVE

COURSE CODE	COURSE TITLE	OBJECTIVE
GE 101AT6	DISASTER MANAGEMENT	1. To make the students aware about the concepts of hazards, disasters, risk and vulnerability 2. Attempt has been made to prepare the students about the Do's And Don'ts during and post disaster.
GE201BT6	REGIONAL DEVELOPMENT	1. To introduce the student about the basic of regions and the need of regional planning in India. 2. The students will also learn about the strategies and models used for regional planning.
GE 301AT6	CLIMATE CHANGE: VULNERABILITY AND ADAPTATION	1. to make the students understand climate change and the factors responsible for such changes 2. The students will also learn about the various negative impact of climate change on flora and fauna and its mitigations.
GE401AT6	INDUSTRIAL GEOGRAPHY	1. This paper is to make the students aware about the nature and scope of industrial geography 2. The students will also know about the various industrial policies of India and impact of industries in the environment, society and economy of India

DEPARTMENT OF HINDI

BA PROGRAMME WITH HONOURS IN HINDI

(CBCS)

COURSE OUTCOME

COURSE CODE	COURSE TITLE	COURSE OUTCOME
Hindi- C-1	**हिंदी साहित्य का इतिहास:(रीतिकाल तक)**	हिंदी साहित्य के क्रमिक विकास द्वारा हमें हमारी मध्यकालीन सांस्कृतिक विरासत की दिशा, दशा और साहित्यिक गतिविधियों का पता चलता है; जिसे तीन कालखण्डों में बाँटकर उसे अध्ययन की व्यवस्था की गई है। हिंदी की साहित्यिक गतिविधियों की विकास-यात्रा में विभिन्न पड़ावों को जाने बिना उसका मूल्यांकन संभव नहीं है। इसे ध्यान में रखते हुए पाठ्यक्रम बनाया गया है; ताकि छात्रों को हिंदी की सही दिशा, दशा का पता चल सकेऔर वे उसका लाभ उठाते हुए अपने लक्ष्य की ओर बढ़ सके।
Hindi -C-2	**हिंदी साहित्य का इतिहास : (आधुनिक काल)**	आधुनिक काल में पाश्चात्य प्रभाव के फलस्वरूप कई सामाजिक और ढाँचागत परिवर्तन देखने को मिले जिसने साहित्य की दिशा बादल दी। इस काल में हिंदी साहित्य में कई नई विधाओं का जन्म हुआ। विशेष रूप से गद्य की विभिन्न विधाओं का विकास इस काल की महत्त्वपूर्ण देन है। जिसने एक नयेमूल्य बोध को जन्म दिया, जिसकी उपादेयता आज भी है। परिवर्तन का नित्यत्व एक नई दिशा की ओर इशारा करती है। छात्र उससे प्रभावित हुए बगैर रह जाते। इस बात को ध्यान में रखते हुए इसे पाठ्यक्रम में रखा गया है।
Hindi -C-3	**आदिकालीन एवं मध्यकालीन हिंदी कविता**	हिंदी साहित्य की एक अविच्छिन्न धारा आदिकाल से प्रवाहित होती रही है जिसपर तदयुगीनपरिस्थितियों का प्रभाव देखा जा सकता है। आदिकालीन और मध्यकालीन कवियों ने अपनी कविताओं के माध्यम से उसे दर्शाने का प्रयास किया है। अतः उनकी रचनाओं को जाने वगैर उस युग का मूल्यांकन संभव नहीं है। अतः इस काल की कविताओं कासम्यक अध्ययन इस पत्र का प्रमुख उद्देश्य रहा है।
Hindi-C-4	**आधुनिक हिंदी कविता (छायावाद तक)**	हिंदी साहित्य का आधुनिक काल का प्रारम्भ 1850 ई० से माना जाता है जिसका मूल कारण पाश्चात्य प्रभाव रहा है। पाश्चात्य संसाधनों से रूबरू होने के कारण हमारी सोच में परिवर्तन होने लगा। इस काल में भारत में राष्ट्रीय बीज अंकुरित हुए। छापेखाने का आविष्कार हुआ जिसका प्रभाव प्रत्यक्ष और परोक्ष रूप से हिंदी काव्य पर भी पड़ा। इसकी झलक इस काल की कविताओं में भी दिखाई पड़ता है। अतएव इस काल के विषय में सम्यक अनुशीलन करने तथा जानकारी हासिल करना ही इस पत्र का मुख्य उद्देश्य है।

Hindi-C-5	**छायावादोत्तर कविता**	बीसवीं शताब्दी भारत के लिए उथल-पुथल वाला काल रहा है। हर क्षेत्र में यहाँ बदलाव देखने को मिलता है। साहित्यिक दृष्टि से देखें तो जितना परिवर्तन पिछले सौ वर्षों में नहीं हुआ था; उतना बदलाव अगले 50 वर्षों में दिखने को मिला। इस काल में भारत को आजाद कराने की छटपटाहट और आजादी के बाद राजनीति से बहुत जल्द हीं मोहभंग होने लगा। जिसके प्रति एक विद्रोही स्वर स्वाधीनोत्तर कविताओं में देखने को मिलती है। भारतीय मानसिकता, साहित्य और कविता में होने वाले परिवर्तनों की ओर ध्यान दिलाना इस पत्र का मुख्य उद्देश्य है।
Hindi-C-6	**भारतीय काव्यशास्त्र**	भारतीय काव्यशास्त्रीय चिंतन का क्षेत्र बहुत व्यापक रहा है। इस क्षेत्र की परंपरा सुदीर्घ और शक्तिशाली रही है। इस दृष्टि से छात्रों के भारतीय काव्यशास्त्रीय चिंतन के बारे में जानना जरूरी हो जाता है। काव्यशास्त्र की परंपरा, काव्य लक्षण, काव्य हेतु, काव्य प्रयोजन, विभिन्न साहित्यशास्त्रीय सिद्धांत को इस पाठ्यक्रम में रखा गया है, जो काव्यशास्त्र की महत्वपूर्ण उपलब्धि है। इसके अध्ययन से छात्रों में समीक्षात्मक शक्ति बढ़ेगी।
Hindi-C-7	**पाश्चात्य काव्यशास्त्र एवं नई समीक्षा**	पश्चिम में साहित्य चिंतन की सुदीर्घ परंपरा को विद्यार्थियों के लिए सहज, ग्राह्य रूप से सुलभ कराने की दिशा में प्रस्तुत पाठ्यक्रम एक महत्वपूर्ण प्रयास है। विश्लेषण पद्धति, नई समीक्षा, विभिन्न वाद, इस पाठ्यक्रम का प्रमुख आकर्षण है। भारतीय काव्यशास्त्र के साथ-साथ पाश्चात्य काव्यशास्त्र के बारे में भी जानना आवश्यक है। इसमें विद्यार्थी विभिन्न विद्वानों के द्वारा दिये गए सिद्धांतों के साथ पाश्चात्य काव्यशास्त्र के स्वरूप के बारे भी समझने में सक्षम होंगे।
Hindi -C-8	**भाषा विज्ञान और हिंदी भाषा**	भाषा विज्ञान अध्ययन की वह शाखा है जिसमें भाषा की उत्पति, स्वरूप, विकास आदि का वैज्ञानिक एवं विश्लेषणात्मक अध्ययन किया जाता है। अध्ययन के अनेक विषयों में से आजकल भाषाविज्ञान को विशेष महत्व दिया जा रहा है। विद्यार्थी इस पाठ्यक्रम के अध्ययन के पश्चात भाषा एवं भाषा की प्रकृति के साथ-साथ मानव जीवन में भाषा के महत्व को समझने में सक्षम होंगे। इसके अलावा भाषाविज्ञान के अंगों एवं विभिन्न शाखाओं से परिचित होंगे। भाषाविज्ञान के सैद्धान्तिक पक्ष, भारतीय आर्य भाषाओं का ऐतिहासिक विकास, लिपि के ऊद्भव और विकास,देवनागरी लिपि की जानकारी भी प्राप्त कर सकेंगे। इस बात को ध्यान में रखकर इसे पाठ्यक्रम में जगह दिया गया है।

Hindi -C-9	**हिंदी उपन्यास**	इस पत्र में गद्य साहित्य की महत्वपूर्ण विधा उपन्यास को लिया गया है। उपन्यास के अंतर्गत **'गबन'**,**'त्यागपत्र'**,**'मानस का हंस'**,**'महाभोज'** को शामिल किया गया है। जब प्रेमचंद की उपन्यासों की बात होती है तो **'गोदान'** के बिना उपन्यास साहित्य पर सार्थक चर्चा नहीं हो सकती है। जैनेन्द्र कुमार की महत्वपूर्ण कीर्ति **'त्यागपत्र'** में व्यक्तिमन के विविध बिन्दुओं पर विचार किया गया है। 'क्लासिक' का सम्मान पा चुका **'मानस का हंस'** गोस्वामी तुलसीदास के जीवन पर आधारित अमृतलाल नागर का वह उपन्यास है जिसके द्वारा गोस्वामी जी के जीवन से संबन्धित अनछुए पहलुओं को जाना जा सकता है। मन्नू भण्डारी के **'महाभोज'** उपन्यास में साधारण जन की जनतंत्र में कहाँ जगह है, यह जान पायेंगे। इन्हीं सब बातों को ध्यान में रख कर इन चारों उपन्यासों को पाठ्यक्रम में जगह दी गई है।
Hindi-C-10	**हिंदी कहानी**	इस पत्र के अंतर्गत कहानी के विकास से छात्रों का परिचय कराया जाएगा। युग के परिवर्तन के बीच कहानी की कथावस्तु और रूपविधान में परिवर्तन होता रहा है; और उससे कहानी की दिशा बदलती रहती है। इस पाठ्यक्रम में कहानी की विकास यात्रा की जानकारी इन कहानियों के माध्यम से आप जान सकेंगे। हिंदी के प्रसिद्ध कहानीकारों की कहानियों से जीवन के तमाम महत्वपूर्ण बिन्दुओं की समझ होगी। सन साठ के बाद की कहानियों के बदले हुए तेवर से विद्यार्थियों का परिचय होगा। प्रेमचंद से लेकर कृष्णा सोबती तक की कहानियों का एक कलात्मक यात्रा तय करने के बाद वैश्विकरण के दौर में शैक्षिक लक्ष्यों के साथ-साथ साहित्य साधना में छात्र अपनी भूमिका तलाश कर सकेंगे। इन्हीं सब को ध्यान में रख कर इन कहानियों को पाठ्यक्रम में जगह दी गई है।
Hindi-C-11	**हिंदी नाटक एवं एकांकी**	यह पाठ्यक्रम नाट्य साहित्य से संबन्धित है। इस पत्र का उद्देश्य साहित्य की सर्वाधिक सशक्त एवं प्रभावशाली विधा के रूप प्रचलित नाटक की उपादेयता की ओर ध्यान आकर्षित कराना है। भारतेन्दु तथा उनके समकालीन नाटककारों ने किस तरह लोक चेतना के विकास के लिए नाटकों की रचना की तथा समकालीन सामाजिक समस्याओं को नाटकों में अभिव्यक्त करने का अवसर प्राप्त किया। उसके बाद साहित्यिक रंगकर्म, नाट्यलेखन की परंपरा चली, छात्र उन तमाम बातों की जानकारी प्राप्त कर सकेंगे। समकालीन समय में पूर्णांग नाटक और एकांकी नाटक की प्रासंगिकता पर विचार कर सकेंगे। समग्रतः नाटक के प्रति रूचि उत्पन्न होने से अभिनय द्वारा अपनी आजीविका का संधान कर पायेंगे।

Hindi- C12	**हिंदी निबंध एवं अन्य गद्य विधाएँ**	हिंदी साहित्य में निबंधों की महत्वपूर्ण भूमिका रही हैं । इन निबंधों में निहित संदेशों के माध्यम से विद्यार्थी लाभान्वित होंगे। प्रस्तुत पाठ्यक्रम की प्रमुख विशेषताएँ और उपलब्धियां कुछ इसप्रकार हैं-प्रस्तुत पाठ्यक्रम में हिंदी साहित्य के ऐसे चुनिंदा निबंधों को रखा गया है जिससे विद्यार्थियों को ज्ञान वर्धन होगा । यहाँ निबंध के साथ ललित निबंध तथा व्यंग निबंध आदि का भी संयोजन किया गया हैं।रामचन्द्र शुक्ल, हजारी प्रसाद द्विवेदी, नगेन्द्र, शिवपूजन सहाय, विद्यानिवास मिश्रआदि के उच्च विचारों से वाकिफ़ होने का अवसर प्राप्त होगा ।
Hindi-C-13	**हिंदी की साहित्यिक पत्रकारिता**	हिंदी की साहित्यिक पत्रकारिताका हिंदी साहित्य में महत्वपूर्ण योगदान रहा है; इसीको मद्दे नज़र रखते हुए इसे अनिवार्य पाठ्यक्रम में रखा गया है। इनपत्र-पत्रिकाओंने हिंदी साहित्य को एक नई दिशा प्रदान की थी तथा समय की मांगानुसार हिंदी साहित्य की सटीक आलोचना कर इसका मार्ग दर्शन किया है। प्रस्तुतपाठ्यक्रमके अध्ययन से हिंदी पत्रकारिता का संक्षिप्त परिचय प्राप्त होने के साथ-साथ हिंदीसाहित्यजगतमेंइनपत्र-पत्रिकाओं के योगदानके बारें में भी जानकारी प्राप्त होगी।यहाँ हिन्दी पत्रकारिता के सम्पूर्ण इतिहास का अध्ययन किया जाएगा ।पत्रकारिता के इतिहास के साथ-साथ हर युग की प्रमुख प्रवृत्तियों पर भी विचार किया गया हैं । हर युग की महत्वपूर्ण पत्र-पत्रिकाओं का संक्षिप्त परिचय दिया गया है।
Hindi-C-14	**प्रयोजनमूलक हिंदी**	प्रयोजनमूलक हिंदी मूलतः एक व्यवहारिक पाठ्यक्रम हैं। अनुप्रयुक्त भाषाविज्ञान के अंतर्गत इस पाठ्यक्रम में हिंदी के विविध प्रयोजनमूलक रूपों की चर्चा हैं। इस पाठ्यक्रम के अध्ययन से विद्यार्थियों को हिंदी की शैलियोंहिंदी, उर्दू और हिन्दुस्तानी का ज्ञान प्राप्त होगा तथा हिंदी की संवैधानिक स्थिति के बारें में जानकारी होगी, जो निःसंदेह लाभदायक होगा। हिंदी भाषा के उद्भवविकास के साथ-साथ हिंदी भाषा के मानकीकरण एवं उसके प्रयोगक्षेत्रों पर भी विचार किया गया है । यहाँ विविध प्रकार के सरकारी पत्राचारों का अध्ययन होगा और साथ ही हिंदी की पारिभाषिक शब्दावलियों का अनुशीलन कराया जाएगा । प्रयोजनमूलक हिंदी का सटीक अध्ययन रोजगार प्राप्ति में सहायक सिद्ध होगा ।
Hindi-DSE -1	**असमीया भाषा एवं साहित्य**	यह पत्र असमीया भाषा और साहित्य से संबंधित है। हिंदी के विद्यार्थियों के लिए अध्ययन की दृष्टि से यह पत्र नया होगा। साहित्य चाहे जहाँ का भी हो लेकिन साहित्यिक प्रवृतियाँ थोड़े-बहुत अंतर के बावजूद लगभग एक जैसी ही होती है।असमीया एक आधुनिक भारतीय आर्यभाषा है। इसके उद्भव और विकास की जानकारी का ज्ञान होना जरूरी है। साथ ही वहाँ की साहित्यिक गतिविधियों की जानकारी

		भी आवश्यक है जिसको ध्यान में रखते हुए इस पत्र में असमीया साहित्य के इतिहास का सामान्य परिचय **('आदियुग से लेकर रोमांटिक युग')** तक को पाठ्यक्रम में स्थान दिया गया है। **श्रीमंत शंकरदेव** के बिना असमीया साहित्य की कल्पना अधूरी है, इस बात को ध्यान में रखकर उनके और उनके समर्थ शिष्य **माधवदेव** की **'वरगीतों'** को भी रखा गया है। रोमांटिक युग के **चन्द्र कुमार अगरवाला** और **नलिनीबाला देवी** की कविताओं के साथ **सैयद अब्दुलमलिक** और **भवेन्द्र नाथ शइकीया** की कहानियों को भी स्थान दिया गया है; ताकि विद्यार्थी असमीया भाषा एवं साहित्य की गतिविधियों को भी जान सकें।
Hindi-DSE -2	**छायावाद**	छायावाद आधुनिक हिंदी साहित्य का एक महत्वपूर्ण पड़ाव है। प्रस्तुत पाठ्यक्रम में छायावाद के स्वरूप और विशेषताओं के साथ-साथ चतुष्ट्य कवियों की चुनिंदा कविताओं को स्थान दिया गया है। यह पाठ्यक्रम छात्रों में पाठ्यकृतियों के संदर्भ में समीक्षा की क्षमता को बढ़ायेगें। इस पाठ्यक्रम के अध्ययन के पश्चात छायावाद के स्वरूप और प्रवृतियों के अलावा युगीन प्रमुख कवियों की रचनाओं के अध्ययन, आस्वादन और मूल्यांकन कर सकेंगे। इसी बात को ध्यान में रखकर इसे पाठ्यक्रम में रखा गया है।
Hindi-DSE -3	**तुलसीदास**	संत कवि तुलसीदास की रचनाओं पर आधारित यह पाठ्यक्रम विद्यार्थियों के लिए अत्यंत लाभदायक सिद्ध होगा। उनके द्वारा लिखित भक्ति के पद सम्पूर्ण भक्ति साहित्य काअनमोल निधि हैं । उन्होंने **रामचरितमानस** की रचना कर तत्कालीन अशांत भारत में आदर्श और मर्यादा को पुनः स्थापित किया था। इसीलिए आज भी तुलसीदास की रचनाएँ प्रासंगिक हैं। इस पाठ्यक्रम का उद्देश्य तुलसीदास के असाधारण व्यक्तित्व पर प्रकाश डालना। **रामचरितमानस** के अध्ययन से विद्यार्थियों को आदर्श और मर्यादा के साथ साथ नैतिक ज्ञान भी प्राप्त होगा। **कवितावली** और **गीतावली** के माध्यम से तुलसीदास की काव्य प्रतिभा तथा भक्ति की जानकारी प्राप्त होगी। **विनयपत्रिका** हिंदी साहित्य का अनमोल निधि है। तुलसीदास ने **विनयपत्रिका** में दास्य भक्ति का अत्यंत सुंदर प्रदर्शन किया है।
Hindi DSE -4	**प्रेमचंद**	हिंदी साहित्य के इतिहास में गद्य लेखन का उदय एक महत्वपूर्ण घटना के रूप में सामने आती है।साहित्यिक रूप में गद्य लेखन की

		शुरूआत सर्वप्रथम भारतेन्दु युग से होती है, लेकिन यहाँ भी गद्य का विकसित रूप निखर कर नहीं आ पाता है। 20 वीं शताब्दी के शुरूआत मेंगद्य लेखन का सुव्यवस्थित रूप हमारे सामने उभर कर सामने आता है। कथा सम्राट प्रेमचंद का आगमन इस काल में एक युगांतकारी के रूप में होता है, जो सूर्य की तरह अपने साहित्य से न केवल हिंदी जगत को बल्कि पूरे भारत को प्रकाशित करने लगते है। वे केवल कहानीकार और उपन्यासकार ही नहीं, एक नाटककार और निबंधकार भी थे। ऐसे साहित्यकार के बारे में जानना जरूरी हो जाता है। इस बात को ध्यान में रखकर इसे पाठ्यक्रम में स्थान दिया गया है।
AECC-2	**हिंदी काव्य एवं गद्यसाहित्य**	आधुनिक भारतीय भाषा एक अनिवार्य पत्र है। इस पत्र के माध्यम से विद्यार्थियों को साहित्य की हर विधा से परिचित कराने का प्रयास किया गया है। इस पत्र का मुख्य उद्देश्य छात्रों को भक्तिकालीन उच्चादर्श की ओर ध्यान दिलाना है। इसके साथ ही छायावादी, रहस्यवादी कविताओं के सौन्दर्य के अलावा प्रगतिवाद के समर्थक कवि 'केदारनाथ अग्रवाल' और प्रयोगवाद के जनक कवि 'अज्ञेय' के व्यक्तिवादी व्यक्तित्व को समझने का प्रयास है। बीसवीं शती में जन्म लेकर और कुछ ही समय में विकसित होकर साहित्य के एक महत्वपूर्ण विधा के रूप में स्थान बनाने वाली 'कहानी' और 'गद्य की कसौटी''निबंध' को भी स्थान दिया गया है। भारतीय संस्कृति, सांस्कृतिक एकता और व्यंग निबंधों का मुख्य विषय है।

DEPARTMENT OF HISTORY
CBCS

BA PROGRAMME WITH HONOURS IN OTHER SUBJECT AND HISTORY AS GENERIC ELECTIVE

COURSE CODE	COURSE TITLE	OBJECTIVE
HISGE 1	HISTORY OF ASSAM: 1228 –1826	1. s to give a general outline of the history of Assam from the 13th century to the occupation of Assam by the English East India Company in the first quarter of the 19th century. 2. It aims to acquaint the students with major stages of developments in the political, social and cultural history of the state during the most important formative period
HISGE 2	HISTORY OF INDIA FROM THE EARLIEST TIMES TO 1526	1. s to acquaint the students with the general outline of the history of India from the known earliest times to the coming of the Mughals to India in the first quarter of the 16th century 2. It is aimed at giving them a comprehensive idea of the developments in all spheres of life during this period
HISGE3	HISTORY OF INDIA:1526-1947	
HISGE4.1	HISTORY OF MODERN ASSAM:1826-1947	
HISGE4.2	HISTORY OF EUROPE:1453-1815	

DEPARTMENT OF PHILOSOPHY

BA PROGRAMME WITH HONOURS IN PHILOSOPHY

(CBCS)

COURSE OUTCOME

COURSE CODE	COURSE TITLE	OBJECTIVE/Outcome
C1	Indian Philosophy	This paper intends to acquaint the students with the basic problems of epistemology and metaphysics in classical Indian philosophy
C2	Logic	This paper aims to acquainting the students with logical reasoning and testing of them in Aristotelian and Modern Symbolic Logic
C3	Ancient Greek Philosophy	This paper intends to acquaint the students with the basic problems of epistemology and metaphysics in Greek Philosophy
C4	Indian Logic	This paper intends to acquaint the students with the development of critical understanding of Indian logic
C5	Modern Western Philosophy	This paper attempts to introduce students with the problems of modern western philosophy and to develop systematic and critical understanding
C6	Ethics of Indian Philosophy	This paper intends to acquaint the students with the basic ethical concepts of Indian philosophy and develop critical thinking
C7	Western Ethics	This paper attempts to introduce students with different ethical concepts of western philosophy and develop critical understanding
C8	Contemporary Indian philosophy-I	This paper intends to acquaint the students with the philosophical problems from the perspective of contemporary Indian philosophers
C9	Social and political philosophy	This paper intends to acquaint the students with different social and political ideas from philosophical perspective and to develop systematic and critical understanding about them
C10	Philosophy and Religion	This paper intends to acquaint the students with different philosophical issues and theories regarding religion
C11	Contemporary Indian philosophy-II	This paper intends to explore different interpretations given by contemporary Indian thinkers and to develop critical understanding about them
C12	Phenomenology and Existentialism	This paper attempts to introduce some very important movements and positions of western philosophy with specific thinkers
C13	Comparative Religion	This paper intends to acquaint the students with characteristics and comparative study of different aspects of world religions

C14	Analytical Philosophy	This paper intends to acquaint the analytical trends in western philosophy abd its different dimensions leading to critical analysis

BA PROGRAMME WITH HONOURS IN OTHER SUBJECT AND PHILOSOPHY AS GENERIC ELECTIVE

COURSE CODE	COURSE TITLE	COURSE OUTCOME
GE1	Introduction to logic	This paper aims to make the student familiar with the basic ideas of Aristotelian and symbolic logic
GE2		
GE3	Fundamentals of Indian Philosophy	This paper intends to acquaint the students with the basic problems of epistemology and metaphysics in classical Indian Philosophy
GE4	Applied Ethics	This paper intends to acquaint the students with the basic ideas of applied ethics concerning value in life, environmental ethics and professional ethics

DEPARTMENT OF POLITICAL SCIENCE

BA PROGRAMME WITH HONOURS IN POLITICAL SCIENCE

(CBCS)

COURSE OUTCOME

COURSE CODE	COURSE TITLE	OBJECTIVE/Outcome
C1	Understanding Political Theory	The course introduces the students to the idea of political theory, its history and approaches, and an assessment of its critical and contemporary trends.
C2	Constitutional Government and Democracy in India	This course acquaints the students with the constitutional design of States' structure and institutions, and their actual working over time.
C3	Political Theory: Concepts and Debates	The Course helps the student familiarize with the basic normative concepts of political theory. Each concept is related to a crucial political issue that requires analysis with the aid of our conceptual understanding.
C4	Political Process in India	This course maps the working of 'modern' institutions, premised on the existence of an individuated society, in a context marked by communitarian solidarities, and their mutual transformation thereby. It also familiarizes students with the working of the Indian state, paying attention to the contradictory dynamics of modern state power.
C5	Introduction to Comparative Government and Politics	The purpose of the course is to familiarize students with the basic concepts and approaches to the study of comparative politics. More specifically the course will focus on examining politics in a historical framework while engaging with various themes of comparative analysis in developed and developing countries.
C6	Perspectives on Public Administration	The course provides an introduction to the discipline of public administration. This paper encompasses public administration in its historical context with an emphasis on the various classical and contemporary administrative theories.
C7	Perspectives on International Relations and World History	This paper seeks to equip students with the basic intellectual tools for understanding International Relations. It introduces students to some of the most important theoretical approaches for studying international relations.
C8	Political Processes and Institutions in Comparative Perspective	In this course students will be trained in the application of comparative methods to the study of politics.
C9	Public Policy and Administration in India	The paper seeks to provide an introduction to the interface between public policy and administration in India.
C10	Global Politics	This course introduces students to the key debates on the

		meaning and nature of globalization by addressing its political, economic, social, cultural and technological dimensions.
C11	Classical Political Philosophy	This course goes back to Greek antiquity and familiarizes students with the manner in which the political questions were first posed.
C12	Indian Political Thought-I	This course introduces the specific elements of Indian Political Thought spanning over two millennia. The basic focus of study is on individual thinkers whose ideas are however framed by specific themes.
C13	Modern Political Philosophy	Philosophy and politics are closely intertwined. This course will explore this convergence by identifying five main tendencies here. Students will be exposed to the manner in which the questions of politics have been posed in terms that have implications for larger questions of thought and existence.
C14	Indian Political Thought-II	Based on the study of individual thinkers, the course introduces a wide span of thinkers and themes that defines the modernity of Indian political thought. The objective is to study general themes that have been produced by thinkers from varied social and temporal contexts.
DSE-1A	Contemporary Politics in Assam	The primary aim of this paper is acquaint with the students with the politics of contemporary Assam and its neighbouring states. Moreover, being located in the Northeast region it is invariably the concern of the students to have proper understanding of the region.
DSE-2A	Human Rights in Comparative Perspective	This course attempts to build an understanding of human rights among students through a study of specific issues in a comparative perspective.
DSE 3A	Public Policy in India	This course provides a theoretical and practical understanding of the concepts and methods that can be employed in the analysis of public policy. The course will be useful for students who seek an integrative link to their understanding of political science, economic theory and the practical world of development and social change.
DSE 4A	India's Foreign Policy in a Globalizing World	This course's objective is to teach students the domestic sources and the structural constraints on the genesis, evolution and practice of India's foreign policy.

DEPARTMENT OF RURAL DEVELOPMENT
(CBCS)

BA PROGRAMME WITH HONOURS IN OTHER SUBJECT AND RURAL DEVELOPMENT AS GENERIC ELECTIVE

GE- RD1	FUNDAMENTALS OF RURAL DEVELOPMENT	To give a theoretical background about the subject of Rural Development along with the prospects of its dimensions.
GE- RD2	RURAL ECONOMY OF INDIA	To give an idea on various aspects of rural economy of India and their role in development of rural economy.
GE- RD3	RURAL SOCIETY OF INDIA	To give a brief outline on social sector of rural India along with their status and problems
GE- RD4	RURAL DEVELOPMENT PROGRAMMES AND INSTITUTIONS IN INDIA	1. To impart knowledge to the learners on various rural development programmes currently operated in India which will enable the learners to assess their achievements 2. The course acquaints the learners with the different strategies adopted by different Rural Development Institutions in India

DEPARTMENT OF COMMERCE

B.COM HONOURS

Commerce UG (CBCS)				
Course Objectives and Learning Outcome				
Sl.No.	**Semester**	**Subject**	**Objective**	**Learning Outcome**
1	I	Business Law (C-102)	1. To impart basic knowledge of the important business legislation along with relevant case law. 2. To make students understand different concepts and provisions of business legislations.	1. Students will be able to learn basic concepts of business law. 2. Students will be able to understandpractical implications of the provisions of business law. 3. Students will be able to critically analyze different provisions of business law.
2		Financial Accounting (C-103)	1. To give students a basic understanding of major financial accounting concepts and their applications. 2. To assist students in understanding different financial accounting principles and provisions.	1. Students will be able to learn basic concepts of Financial Accounting. 2. Students will be able to understand practical solution of financial Accounting. 3. Students would be able to critically evaluate various practical Financial accounting solution.
3	II	Corporate Law (C-204)	1. To impart basic knowledge of the provisions of the Companies Act 2013 and the depositories Act, 1996. 2. To discuss cases involving issues in corporate laws	1. Students will be able to understand basic concepts of corporate law. 2. Students will be understand different provisions related to corporate law. 3. Students will be able to critically analyse the provisions of corporate law. 4. Students will be able apply the provisions in real life.
4		Corporate Accounting (C-203)	To help the students to acquire the conceptual knowledge of the corporate accounting and to learn the	1. Students will be able to learn about the journal entries of issue of shares and issue of debentures. 2. Students will be able

			techniques of preparing financial statements.	to know about the meaning of companies and working style of companies. 3. Students will be able know about the final accounts of the companies. 4. The students will be able to understand the valuation method of shares and goodwill and measurement of performance of companies. 5. The students will be able to learn about amalgamation of companies 6. The students will be able to prepare accounts for holding and its subsidiary companies
5	III	Human Resource Management (C-305)	1. To acquaint students with the techniques and principles to manage human resource of an organization. 2. To give students practical understanding the core concepts and principles of human resource management.	1. Students will be able understand the core concepts of human resource management. 2. Students will be able understand different practices of human resource managements. 3. Students will be able apply the concepts in real life.
6		Business Statistics (G-303)	1. To familiarise students with basic statistical tools used for managerial decision making. 2. Know about the practical implications of statistical tools.	1. Students will be able to understand the statistical tools. 2. Students will be able to apply the statistical tools.
7		Management Principles and Application (C-307)	1. Understanding of basic management concept 2. Understanding of management Principles and Practices	1. Students will be able to understand the basic management concept 2. Students will be able to understand the management Principles and Practices

8		Income Tax Law & Practice (C-303)	1. To impart basic knowledge of the provisions of the Income Tax & Law & Practices. 2. To discuss practically solution involving issues Income Tax Law. 3. To teach a fundamental understanding of the provisions of the Income tax Act as well as related laws and practices	1. Students will be able to understand basic concepts of Income tax calculation of all the employees and business sector. 3. Students will be understand provisions related to Income Tax . 3. Students will be able to apply tax calculation in real World situation.
9		Entrepreneurship Development (SE-302)	1. To develop and fortify entrepreneurial quality, i.e., motivation or need for achievement. 2. Understand the merits and demerits of becoming an entrepreneur. 3. To develop managerial skills among small entrepreneurs for improving the performance of small-scale industries.	1. Students will be able to understand the basic entrepreneurship concept. 2. Students will learn the uncertainty involved in running a business.
10	IV	Retail Management (SEC-403)	1. To acquaint students with the basic concepts of retail management. 2. To give students' practical understanding of the concepts so that they can utilise it in real life.	1. Students will be able to grasp the concepts. 2. Students will be able to use the related concepts in real life.

11		Cost Accounting (C-408)	To acquaint the students with basic concepts used in cost accounting, various methods used in cost ascertainment, and cost accounting bookkeeping system	1. Students will be able to learn basic concepts of cost accounting. 2. Students will be able to understand material and labor cost 3. Students will be able to understand overheads 4. Students will be able to understand methods of costing 5. Students will be able to understand bookkeeping in cost accounting 6. Students will be able to understand the practical implications of cost accounting
12	V	Financial Management (C-512)	The objective of this course is to acquaint students with the concepts of financial management.	1. Students will be able to learn basic concepts of financial management. 2. Students will be able to understand working capital management. 3. Students will be able to understand investment decisions. 4. Students will be able to understand dividend policy. 5. Students will be able to understand the practical implications of financial management
13		Management Accounting (DSE- 501)	This course provides the students an understanding of the application of accounting techniques for management.	1. Students will be able to learn basic concepts of management accounting. 2. Students will be able to understand the preparation of cash flow statements. 3. Students will be able to understand absorption and marginal costing 4. Students will be able to understand budgeting for profit planning 5. Students will be able to understand the practical implications of management accounting.

14		Advance Financial Accounting (DSE- 502)	The basic aim of this paper is to acquaint the students with advanced topics in accounting.	1. Students will be able to understand the accounts of banking companies 2. Students will be able to understand the accounts of Life Insurance Companies 3. Students will be able to understand the General Insurance Companies 4. Students will be able to understand investment accounts 5. Students will be able to understand the practical implications of advanced financial accounting
15		Principles of Marketing (C-511)	1. Understanding the concept of marketing. 2. Understanding the applications of marketing	1. Students will be able to understand the concept of marketing. 2. Students will be able to understand the applications of marketing.
16		Consumer Behaviour (DSE-502) G-III	1. Perceiving the students, the principles influencing consumer behaviour. 2. Perceiving the students, the factors influencing consumer behaviour. 3. Understanding the consumer market.	1. Students will be able to perceive the principles influencing consumer behaviour. 2. Students will be able to understandthe factors influencing consumer behaviour. 3. Students will be able to understand the consumer market.
17		Retail Management (DSE-502) G-III	1. Acquaint students with distribution methods. 2. Acquaint students with retailing system.	1. Students will be able acquaint themselves with distribution methods. 2. Students will be able to acquaint themselves with retailing system.
18	VI	Advertising Management DSE 602 (G-III)	The course will acquaint the students about advertisement and sales promotion.	1. Students will be able to understand the importance of advertising in a competitive market scenario. 2. Students will be able understand the merits and demerits of various advertising media.

19		Service Marketing DSE 601 (G-III)	The objective of this course is to acquaint students with the nature and forms of services and their marketing implications.	1. Students will get an idea of the scope of venturing into service marketing.
20		Auditing (C-613)	The course aims at imparting knowledge about the principles and methods of auditing and their applications.	1. Students will be expected to understand the objective of Auditing, the concepts of errors and frauds, principles and different types of audit. 2. Students will be able to construct the factors involved in preparation of Audit plan and Audit programme. 3. Students will be expected to evaluate the importance of assessment of internal control and internal checks. Also, they would learn about Test check and Audit sampling as audit techniques 4. Students will be expected to understand about the audit report
21		GST Law & Practice (C-614)	This course is intended to introduce the students with the structure of Indirect tax in India. The principles of indirect tax and direct taxes are also been included for conceptualization of tax structure.	1. The students are also expected to learn the concept of GST and its history. 2. They will also learn about the record keeping aspects under GST regime and filling of GST return periodically as per the prescribed procedure. 3. The students will be able to understand the constitutional expect of GST. 4. The students will be able to calculate GST liability, registration, and payment of tax.

22		Security Analysis and Portfolio Management (DSE 601)	The objective of this course is to acquaint the students with the basics of Security analysis and portfolio management	1. The students will be able to understand about investment, investment analysis and risk associated with the investment. 2. The students will be able to comprehend about portfolio analysis, diversification and models of diversification 3. The students will be expected to analyse portfolio with different pricing models 4. The students will be able to measure and evaluate portfolio performance and risk and return.
23		Financial statement Analysis (DSE 602)	The basic aim of this course is to acquaint students with the skill of Financial Statement Analysis	1. The students will be expected to learn the different parameters for evaluating financial statements using different tools and techniques. 2. The students will be expected to understand different ratios to evaluate financial statement. 3. The students will be expected to understand financial reporting 4. The students will be expected to be understand about corporate social responsibility and corporate governance. 5. The students will be expected to understand reporting by different financial organizations.

DEPARTMENT OF PHYSICS

M.Sc. PROGRAMME IN PHYSICS

(CBCS)

COURSE OUTCOME

COURSE CODE	COURSE TITLE	OBJECTIVE	COURSE OUTCOME
PH-C-I	**Mathematical Physics**	1. Write a problem in higher level Physics in the language in Mathematics. 2. Identify a range of diverse mathematical techniques to formulate and solve a problem in higher level physics. 3. Analyze various mathematical concepts and methods. 4. Apply the knowledge and understanding of these mathematical techniques to gain insight into a number of branches of physics like Quantum Mechanics, Electromagnetic Theory, Condense Matter Physics, Atomic and Molecular Physics, Nuclear Physics, Particle and High Energy Physics, Physics of Gravity etc.	1. Equip students with required mathematical skills to succeed in Physics. 2. Develop the analyzing ability of the students to solve problems in Physics. 3. Enable the students to pursue a research career in Physics and will ultimately help to contribute new knowledge.
PH-C-II	**Quantum Mechanics**	1. Acquaint the learners with fundamental concepts of Quantum Mechanics. 2. Acquaint the learners with Dirac notation. 3. Enable the learners to solve simple quantum mechanical	1. Understand the basic concepts of quantum mechanics 2. Solve simple quantum mechanical problems 3. Understand quantum dynamics

		problems. 4. Introduce the concepts of symmetry and conservation laws 5. Introduce the techniques of angular momentum algebra	4. Write down eigen values and eigen states of angular momentum
PH-C-III	**General Lab I**	1. To develop practical knowledge by applying the experimental methods and to correlate with the Physics theory. 2. To learn the usage of electrical and optical systemsfor various measurements. 3. To apply the analytical techniques and graphical analysis to interpret the experimental data. 4. To learn error propagation and its role in making conclusions.	1. Learn to minimize contributing variables and recognize the limitations of equipment. 2. Describe the methodology of science and the relationship between observation and theory. 3. Participate in the methodology by performing laboratory exercises.
PH-C-IV	**Classical Mechanics**	1. Acquaint the learners with the subject of classical mechanics in the context of the language and methods of modern nonlinear dynamics. 2. Enable the learners to make a smooth transition from classical mechanics to quantum mechanics and nonlinear dynamics.	1. Understand the basic concepts of Lagrangian and Hamiltonian dynamics 2. Understand the basic concepts of modern nonlinear dynamics 3. Understand canonical and noncanonical flows 4. Make a smooth transition from classical to quantum mechanics
PH-C-V	**Condensed Matter Physics**	1. Familiarize with fundamentals of Condensed Matter Physics.	1. Equip a student with basic concepts of Condensed Matter Physics so that

		2. Know about different lattice structures, behaviour and importance of crystalline state, contribution of X-Ray Diffraction in Crystallography, importance of defects and imperfections in a crystal etc. 3. Understand the behaviour in solids that depend primarily on the motion of electrons inside the solid.	the knowledge can be applied for further development of the subject. 2. Enable a student to work in both theoretical and experimental aspects of Condensed Matter Physics. 3. Help the students in thorough learning of the concepts associated to the course through the numerical, quizzes, assignments, projects etc.
PH-C-VI	**General Lab II**	1. Understand the basic techniques of design and analysis of simple transistor and OPAMP circuit. 2. Apply the knowledge to design and study different electronic circuits.	1. Design electronic circuits using various electronic components. 2. Analyze the circuits and understand their behaviors.
PH-C-VII	**Electronics**	1. To disseminate working knowledge of electronic principle using semiconductor devices 2. To allow students to learn the fundamentals of both analog and digital electronic devices 3. To allow students to apply their knowledge for designing small electronic systems. 4. To introduce students to advanced digital systems like microprocessor and microcontroller 5. To imbibe the spirit of application	1. Critically analyze analog and digital electronic circuits 2. Design small electronic systems as per design specifications 3. Write assembly language programs for doing simple arithmetic operation in microprocessor and microcontroller. 4. Apply their knowledge for real life problems solving in electronic

		oriented learning	
PH-C-VIII	**Electrodynamics**	1. This course utilizes physical and mathematical principles to provide in-depth analysis of the behaviour of electricity and magnetism in matter. 2. To apprise the students regarding the concepts of electrodynamics and Maxwell equations and use them in various situations.	1. Describe the nature of electromagnetic wave and its propagation through different media and interfaces. 2. Explain charged particle dynamics and radiation from localized time varying electromagnetic sources. 3. Understand potential formulation and magnetism in relativistic case.
PH-C-IX	**Computational Methods**	1. Get hands on training in problem solving using FORTRAN language in LINUX operating system. 2. Learn various numerical methods to solve physical problems as well as programming of such methods.	1. Apply their knowledge on computer programming and numerical analysis in solving real physical problems. 2. Deal with scientific computing in different research areas of Physics.
PH-C-X	**Nuclear Physics**	1. Have a basic knowledge of the nuclear force and its properties 2. Be able to visualize the nature of interaction of nucleons inside deuteron nucleus as well as in general nucleon-nucleon scattering 3. Be acquire knowledge about different theoretical models regarding nucleus as well as to apply those in determining nuclear properties	1. Develop knowledge regarding nucleus, its properties, nuclear force, nuclear reactions and 22 mechanisms, nuclear detectors as well as elementary particles and the properties related to them 2. Successfully apply the same knowledge in solving problems in the field of nuclear and particle Physics.

		4. Grasp knowledge about nuclear reactions and their various mechanisms along with an wide understanding of the decay process 5. Understand the basic forces in nature and classification of particles and study in detail conservations laws and quark models in detail 6. Know about the basic working principles of various nuclear detectors	
PH-C-XI	**Statistical Mechanics**	(1) To introduce the advance concepts of Statistical Mechanics so that students will be equipped with a sufficient knowledge of the subject. (2) To develop the critically thinking ability of students to understand the diverse physical phenomena. (3) To develop the interest and ability among students to solved challenging physical problems by the application of techniques of Statistical Mechanics in future.	(1) The students will be equipped with a sufficient knowledge of the Statistical Mechanics and hence will be able to look critically for analyzing any physical phenomena. (2) May motivate students to solve any challenging physical problem in future. (3) Will draw interest to the subject to pursue further higher study in future and will ultimately help to contribute new knowledge.
PH-C-XII	**Atomic and Molecular Physics**	1. Learn the physics of the atoms and molecules 2. Become familiar with various branches of spectroscopy and their applications	1. Determine the atomic and molecular structures 2. Analyze and demonstrate a spectra to identify and quantify information about atoms and molecules

		3. Equip with basic spectroscopic techniques and instrumentation 4. Learn to use spectroscopic techniques to identify materials 5. Learn theoretical background of laser and its application in various disciplines	3. Demonstrate the interaction of electromagnetic spectra with matter and the associated type of spectroscopy 4. Identify elements present in a sample and in the universe using spectroscopic techniques 5. Apply knowledge of spectroscopy or laser spectroscopy in various disciplines of Physics, Chemistry, Atmospheric Science, Astronomy, Laser Communication, remote sensing etc
PH-DSE-IA	**Theory of Relativity**	1. Acquaint the learners with the special theory of relativity, space time continuum. 2. Introduce the basic concepts of tensor calculus 3. Introduce the learners to the general theory of relativity	1. Understand the ideas of space time continuum, four vectors. 2. Understand tensors as geometrical objects, understand coordinate free formulation of physical laws. 3. Understand the basic ideas of geometrical formulation of gravity. 4. Understand basic ideas of cosmology.
PH-DSE-IB	**Atmospheric Physics**	1. Introduce the physics and chemistry of the Earth's neutral atmosphere. 2. Give an in depth introduction to the atmospheric thermodynamics.	1. Acquainted with the different layers of the atmosphere and the related physical phenomena. 2. Develop simple models of the atmosphere.

		3. Introduce atmospheric aerosols and analyse its impact on the global climate.	3. Understand the optical and microphysical properties of aerosol. 4. Understand the atmospheric chemistry of trace gases.
PH-DSE-IIA	**Plasma Physics**	1. Understand collective nature of plasma dynamics. 2. Describe the motion of charged particles in varying electric and magnetic fields. 3. Derive fluid description of collective plasma motion. 4. Learn foundations of plasma waves and instabilities.	1. Define plasma and its fundamental parameters, distinguish the single particle approach, fluid approach and kinetic statistical approach to describe different plasma phenomena 2. Determine the velocities (drift velocities) of charged particles moving in electric and magnetic fields that are either uniform or vary slowly in space and time 3. Classify the electrostatic and electromagnetic waves that can propagate in magnetised and non-magnetised plasmas, and describe the physical mechanisms generating these waves 4. Define and determine the basic transport phenomena such as plasma resistivity, diffusion (classical and anomalous) and mobility as a function of collision frequency and of the fundamental parameters for both magnetised and non-magnetised plasmas

PH-DSE-IIB	**Advanced Quantum Mechanics**	1. Acquaint the learners with the approximation methods in Quantum Mechanics. 2. Introduce the quantum mechanical treatment of scattering 3. Introduce the learners to the relativistic quantum mechanics	1. Understand the idea of different approximation techniques in quantum mechanics 2. Understand the quantum mechanical approach to scattering 3. Understand the consequences of incorporating special theory of relativity in quantum mechanics.
PH-DSE-IIIA	**High Energy Physics I**	1. Express physical quantities in natural units. 2. Explain the physics of relativistic wave equations. 3. Use the formulation of quantum field theory in a number of fields. 4. Apply the concepts of quantum field theory to quantum electrodynamics.	1. After the completion of this course, it is expected that this course will 2. Enable a student to acquire the basics of quantum field theory and realize its importance. 3. Enable a student to apply the framework of field theory to quantum electrodynamics. 4. Prepare a student for advanced topics in field theory and particle physics. 5. Motivate a student to pursue a career in high energy physics.
PH-DSE-IIIB	**Condensed Matter Physics I**	1. Gather a broader knowledge of Electronic Properties of Solids. 2. Understand the chronology in the Development of the Electron theory in Metals. 3. Understand comparatively the	1. Equip a student with quantum mechanical tools for the solution of Condensed Matter Physics problems. 2. Enable a student to work in both theoretical and experimental aspects of Electronic Behavior of Solids.

		Polarization and Magnetization behavior in a solid.	3. Enable the students for further study and contribution towards the development of the subject.
PH-DSE-IIIC	**Communication Electronics**	1. Understand the basic techniques of electronic communication like modulation, multiplexing etc. 2. Apply the knowledge to understand the current generation communication technologies.	1. Identify the basic techniques of communication like modulation, multiplexing. 2. Analyze the modulations schemes and their applicability. 36 3. Analyze present generation systems related to microwave communication, cellular communications, satellite communication.
PH-DSE-IIID	**Advanced Mathematical Physics**	1. Write a complex problem in higher level Physics in the language in Mathematics. 2. Identify a range of diverse mathematical techniques to formulate and solve a complex problem in higher level Physics. 3. Analyze various mathematical concepts and methods required in higher level Physics. 4. Apply the knowledge and understanding of these mathematical techniques to gain insight into a number of advance branches of physics like Theoretical Physics, Particle and High Energy Physics, Physics of Gravity, Cosmology etc.	1. Equip students with required mathematical skills to succeed in Physics. 2. Develop the analyzing ability of the students to solve critical problems in Physics. 3. Enable the students to pursue a research career in Physics and will ultimately help to contribute new knowledge.

PH-DSE-IIIE	**Laser Spectroscopy I**	1. Familiarize with various branches of spectroscopy 2. Equip with the knowledge on spectroscopic techniques and instrumentation 3. Learn to use spectroscopic techniques to apply in wide range of areas 4. Learn theoretical background of laser, its importance as spectroscopic light source and different types	1. Understand and explain fundamental concepts in laser spectroscopy 2. Compare the function and properties of different types of lasers 3. Use laser spectroscopic instruments in practice in physics and allied disciplines 4. Demonstrate the production mechanism of conventional as well as ultrafast lasers
PH-DSE-IVA	**High Energy Physics II**	1. Classify the elementary particles and their interactions. 2. Explain the physics of fundamental particles and their interactions. 3. Analyze the formulation of group theory. 4. Apply group theory to quark model and different interactions.	1. Enable a student to acquire the basic knowledge of elementary particles and their interactions. 2. Enable a student to apply the framework of group theory to particle physics. 3. Prepare a student for advanced topics in field theory and particle physics. 4. Motivate a student to pursue a career in high energy physics.
PH-DSE-IVB	**Condensed Matter Physics II**	1. Provide basic knowledge on Lattice vibration and some properties of solid related to lattice vibration.	1. Use the knowledge in fabrication of different thin film semiconductor devices. 2. Pursue some research or project

		2. Develop the basic knowledge of the thin film Physics. It will provide the knowledge of preparation and characterization of thin films and its application in devices. 3. Enhance the knowledge on semiconducting properties and optical effect in semiconductors.	work on semiconducting thin film device.
PH-DSE-IVC	**Digital and Optical Electronics**	1. Introduce students to microcontroller and programming for building digital systems. 2. Introduce students to digital signal and signal processing principles 3. Introduce students to optical electronic systems 4. Provide students with fundamental principles of optical devices 5. Introduce students to optical communication systems	1. Critically analyze microcontroller based digital electronic circuits 2. Write assembly language programs for microprocessor and microcontroller controlled devices. 3. Analyze optical electronic devices 4. Critically analyze optical communication systems 5. Apply the knowledge of optical electronics to make innovative optical products for real life problem solving.
PH-DSE-IVD	**Space Physics**	1. Introduce the Physics of the Earth's ionosphere. 2. Introduce the atmospheres of the solar system planets. 3. Introduce the Physics of the Sun.	1. Understand the basic plasma process in the Earth's ionosphere. 2. Acquainted with planetary atmospheres. 45

		4. Introduce radio astronomy.	3. Learn about Sun, Solar wind, CME, solar wind interaction with the magnetosphere, Solar -Terrestrial environment. 4. Understand the fundamentals of radio astronomy.
PH-DSE-IVE	**Laser Spectroscopy II**	1. Understand the basic principles of non linear spectroscopy 2. Familiarize with principles and instrumentations in modern non linear spectroscopy 3. Equip with the knowledge on different techniques of laser Raman spectroscopy and applications 4. Familiarize with recent developments in Laser Spectroscopy	1. Understand and explain concepts in non linear spectroscopy 2. Demonstrate the use of modern laser spectroscopic instruments in practice 3. Demonstrate the advantages of use of laser spectroscopy in recent discoveries in Physics and various other areas 4. Use laser spectroscopic techniques in research.
PH-DSE-VA	**High Energy Physics III**	1. Explain the basics of gauge theories. 2. Analyze symmetry breaking in gauge theories. 47 3. Apply the knowledge of gauge theory to QCD. 4. Outline a number of areas in beyond the standard model physics.	1. Enable a student to acquire the basic knowledge of gauge theories. 2. Enable a student to familiarize with the standard model. 3. Prepare a student for advanced topics in field theory and particle physics. 4. Motivate a student to pursue a career in high energy physics.

PH-DSE-VB	**Condensed Matter Physics Lab**	1. Gather a broader knowledge on the experimental techniques of solid state Physics 2. Understand the basic concepts in hands on mode through the basic solid state physics experiments.	1. Equip a student with different experimental techniques used for determination of various properties of solids. 2. Enhance the laboratory skill of a student which will help a student to experimental research work in the area. 3. Enable a student to understand the subject in some more detail.
PH-DSE-VC	**Electronics Lab**	1. To allow students to learn the electronic principles using hands-on philosophy 2. To allow students to design small analog circuit systems like small signal amplifier, filter comparator etc. 3. To allow students to apply their knowledge for assembly language programming to do arithmetic operations and make small data processing software. 4. To introduce students to use microprocessor and microcontroller to interface peripheral devices 5. To introduce students to radiation pattern of antenna through measurement.	1. Design small electronic circuits 2. Write assembly language program to do arithmetic, logical and data processing operations 3. Analyze antenna radiation pattern and characteristics for real life application 4. Understand the working of optical electronics components

		6. To introduce students to optical electronics components and measurements.	
PH-DSE-VD	**Space Physics Lab**	1. To familiarise students with basic tools used in the study of Space Physics 2. To provide students with hands on training of parameters associated to Space Physics study	1. A student will be able to operate basic tools like Ozonometer, aethalometer, scintillation monitor etc. 2. The hands on experience will enable a student to pursue further study in experimental Space Physics curriculum
PH-DSE-VE	**Laser Spectroscopy Lab**	1. Use and handle spectroscopic instruments in laboratory 2. Understand the principles of laser spectroscopy through performance of experiments 3. Provide exposure in practical application of spectroscopic instruments.	1. Handle various spectroscopic instruments in laboratory and use those in research 2. Demonstrate the uses of various laser spectroscopic instruments in the fields of interest
PH-GE-A	**Basic Quantum Mechanics**	1. Know about the development of modern Physics and the theoretical formulation of quantum mechanics. 2. Know the applications of quantum mechanics in solving physical problems.	1. Understand the applications of quantum mechanics in other areas of science. 2. Apply quantum theory to physical problems.
PH-GE-B	**Foundation of Electronics**	1. Know about the basics of semiconductor PN junction, its various types and its application to different electronic circuits. 2. Understand bipolar junction transistor and its applications as	1. Learn the foundation knowledge of analog electronic systems. 2. Learn the working and applications of PN junction and bipolar junction transistors (BJT).

		amplifier and oscillators. 3. Familiarize with operational amplifiers, its applications and analysis. 4. Develop knowledge about analog to digital and digital to analog conversion techniques	3. Learn to analyze circuits containing PN junction and BJT along with the application of BJT as amplifiers and oscillators. 4. Develop basic knowledge of operational amplifier and its applications
PH-GE-C	**Fundamentals of Material Science**	1. The structure of crystalline materials 2. The behaviour of conduction electrons in crystalline materials and the formation of energy bands 3. Various types of phenomena like magnetism and super-conductivity 4. Nanomaterials and their interesting properties	1. Differentiate between different lattice types and explain the concepts of reciprocal lattice and crystal diffraction 2. Predict electrical and thermal properties of solids and explain their origin 3. Explain the concept of energy bands and effect of the same on electrical properties 4. Explain various types of magnetic phenomenon 5. Explain superconductivity 6. Gather knowledge on the underlying principles governing the fascinating behaviour of nano-materials
PH-GE-D	**Thermal Physics**	1. Develop knowledge of thermodynamical properties of matter.	1. Develop critical and analytical thinking on thermodynamics and allied disciplines.

		2. Understand the thermodynamics present in allied fields like Materials science, Condensed matter Physics, Atmospheric Physics, Solar Physics, etc.	2. Use the concept of thermodynamics in real world experiences.
PH-GE-E	**Classical Mechanics**	1. Acquaint the learners with the Lagrangian and Hamiltonian formulation of mechanics 2. Enable the learners to understand the idea of normal modes and normal coordinates. 3. Introduce the students to rigid body dynamics	1. Understand the basic concepts of Lagrangian and Hamiltonian dynamics 2. Understand the idea of normal coordinates and normal modes 3. Understand rigid body dynamics
PH-GE-F	**Meteorology**	1. Familiarize with the structure and composition of the atmosphere of Earth and other planets 2. Provide basic knowledge on the weather, climate and other aspects of atmosphere 3. Provide knowledge on meteorological parameters and their measurement techniques 4. Familiarize with weather forecasting	1. Demonstrate the various atmospheric phenomena and their evolution 2. Use meteorological parameters to explain observations in Atmospheric Physics, Life Sciences, Environmental Science etc. 3. Apply the laws of Physics to explain Atmospheric phenomena 4. Opt for interdisciplinary research
PH-GE-G	**Elements of Modern Physics**	1. Understand the theoretical basis for the understanding of quantum Physics as the basis for dealing with microscopic phenomena.	1. Gather knowledge about various concepts of Modern Physics such as quantum physics, atomic, nuclear physics and particle physics, Laser etc.

		2. Apply concepts of 20th Century Modern Physics to deduce the structure of atoms. 3. Explain the wave-particle duality of the photon. 4. Analyze the structure of matter at its most fundamental. 5. Develop insight into the key principles and applications of Nuclear Physics 6. Learn about different types of fundamental particles along with various elementary particles 7. Understand the basic principle of Laser	2. Successfully apply the same knowledge in solving problems in the field of Modern Physics.
PH-AEC-IA	**Experimental Techniques**	1. Understand the basic concepts of errors in measurements and techniques of data analysis. 2. Understand the principle of sensors and transducers and OPAMP	1. Identify the errors in measurement. 2. Analyze the working of various sensors and transducers.
PH-AEC-IB	**Observational Astronomy**	1. Introduction to observational astronomy. 2. Familiarisation of Coordinate systems, telescopes and observational instruments (CCDs, filters, spectrographs)	1. Develop the knowledge of handling telescopes and other modern image processing devices. 2. Describe the effects of the properties of light and Earth's atmosphere on astronomical observations, coordinate system for stars

		3. Familiarisation of Observational methods and techniques.	3. Acquire the knowledge of photometry and multi wave astronomy
PH-AEC-IIA	**Nano Structured Materials**	1. Provide a systematic coverage and insight into the promising area of nano materials in order to facilitate the understanding of the nature and prospects for the field. 2. Discuss about various types of nanomaterials with specific examples of semiconducting nanomaterials in various dimensions and carbon based nanomaterials, viz., fullerene and carbon nanotubes 3. Provide information about various synthesis and characterization techniques of nanomaterials 4. Discuss wide applications of nanomaterials	1. Know the underlying principles governing the fascinating behavior of nanomaterials 2. Gather knowledge about some of the modern promising nanomaterials such as quantum dots, carbon nanotubes etc. 3. Learn the various methods for synthesis and characterization of nanomaterials as well as their wide variety of applications
PH-AEC-IIB	**Vacuum Technique**	1. To introduce the theory of vacuum to the students. 2. Comprehension of thermal and flow behaviour of gases at very low pressures. 3. Methods of achieving and measurement low pressures. Vacuum pumps and vacuum meters.	1. Recognize the importance of vacuum in modern technology and research 2. Basics of kinetic theory of gases, pressure, particle collisions, velocity and free trajectory 3. Vacuum pumps: classification, basic types, range of application; vacuum meters: classification, basic types and range of application.

PH-AEC-IIC	**Meteorology**	1. Make familiar with the Earth's atmosphere as well as the weather and climate systems 2. Provide basic knowledge on meteorological parameters and their measurement techniques 69 3. Apply the laws of Physics to explain Atmospheric phenomena 4. Get familiar with weather forecasting	1. Demonstrate the various atmospheric phenomena and their evolution 2. Solve problems in the atmospheric sciences and related disciplines 3. Impart expertise in sub-disciplines of atmospheric science or related interdisciplinary areas 4. Develop skills for interpreting and applying atmospheric observation 5. Serve as a meteorologist, climate scientist, take part in policy making
PH-AEC-IID	**Dissertation/ Project**	.....	.....

DEPARTMENT OF BOTANY

BSc PROGRAMME WITH MAJOR IN BOTANY

(NCBCS)

COURSE OUTCOME

Sl. No.	Subject	Course Code	Course Title	Objective
01	BOTANY	BOTMT-101	Algae, Fungi and Lichen	The main objective of this course is to provide basic knowledge of thallus, morphology, reproduction and evolution of lower cryptograms and plant pathology.
02		BOTGT-101	Lower Cyrptograms (Algae, Fungi, Bacteria & Virus, Plant Pathology, Lichen)	
03		BOTMT-201	Plant Pathology and Bryophytes	The main objective is to provide fundamental knowledge on the structure, morphology, reproduction, alternation of generation and tissue organization and spore dispersal mechanism in Bryophytes.
04		BOTGT-201	Bryophyte, Pteridophytes and Gymnosperms	The main objective of this course is to introduce the undergraduate students with the basic knowledge of structure, forms, and reproduction, evolution of tissue systems, seed habit in higher cryptograms and gymnosperms.
05		BOTM-301	Pteridophytes, Gymnosperms and Palaeobotany	The main objective of this course id to provide comparative account of structural morphology, distribution anatomy, reproduction and evolution of seed habit in higher cryptograms; special emphasis is to be given on the stellar structure and evolutionary links.
06		BOTMT-303	Microbiology and Biotechnology	The main aim of this course is to introduce the students with the basic knowledge and microbiology and biotechnology in the light of recent developments.
07		BOTGT-301	Morphology, taxonomy, development and reproduction of angiosperms	The main objective of this course is to introduce the undergraduate students with the terminologies used in description of angiospermic plants, basic knowledge of plant classification, tissues and tissue systems, development of primary and secondary plant bodies and

				development of male and female reproductive components and their functions.
08		BOTMT-401	Morphology and taxonomy of Angiosperms	The main aim of this course is to provide fundamentals of Angiosperm morphology and classification with special reference to the polygenerid relationships of various taxa.
09		BOTMT-403	Cell Biology and Modern Laboratory Techniques	The main objective of this course is to provide fundamental knowledge of structural and functional aspects of cell and cell organelles and the tools and techniques used in modern biological study.
10		BOTGT-401	Physiology and economic botany	The main objective of this course is to introduce the undergraduate students with the basic knowledge of physiological activities of plants through the mechanisms of absorption of inorganic components and production and functions of organic components and role of external factors upon them.
11		BOTMT-501	Development and reproduction in angiosperm	The main objective of this course is to provide fundamental knowledge of structural and functional aspects of cell and cell organelles and the tools and techniques used in modern biological study.
12		BOTMT-503	Genetics and plant breeding, biostatistics	The main objective of this course is to introduce the students with the basic knowledge on plant genetics and application of genetics for improvement of crop, application of statistics in biology.
13		BOTMT-505	Functional and chemical biology	The main objective of this course is to introduce the students with the basic knowledge of modern approaches to functional and chemical biology of plants.
14		BOTMT-507	Plant ecology, phytogeography and evolution.	The main objective of this course is to introduce the students with the basic principles and concepts of plant ecology, structure and function of natural plant units, habitat degradation and role of plant on improvement of habitat, conservation ecology, phytogeography and evolution.
15		BOTGT-501	Cytogenetics, evolution and biostatistics	The main objective of this course is to introduce the undergraduate students with the basic knowledge of

				structures and function of cell and cell organelles, genetic materials, principles of genetics, modern concepts of evolution and the statistical tools useful in biology.
16		BOTMT-601	Plant physiology	The main objective of this course is to introduce the students with the basic knowledge on major physiological aspects of plants.
17		BOTMT-603	Molecular biology and immunology	The main objective of this course is to introduce the students with the fundamentals of molecular biology and immunology.
18		BOTMT-604	Biophysics and bioinformatics	The main objective of this course is to introduce the students with the tools and techniques of physical and computer sciences used in biological study.
19		BOTMT-606	Agrotechnology and sustainable utilization of plants	The main objective of this course is to provide students comprehensive knowledge of usefulness of plant resources for human welfare.
20		BOTGT-601	Biochemistry, plant ecology and plant geography	The main objective of this course is to introduce the undergraduate students with the basic knowledge of acid base concept and its importance, importance of macromolecules, ecological importance of plants, their distribution and ecosystem structure and function of ecosystem.

DEPARTMENT OF CHEMISTRY

BSc PROGRAMME WITH HONOURS/MAJOR IN CHEMISTRY
(CBCS)
COURSE OUTCOME

Sl No.	Semester	Course Name and Code	Outcome and/or Objectives
1	1st SEM Hons.	CHEMISTRY-C-101 (Inorganic Chemistry)	To develop the basic knowledge of chemistry in relation to atomic Structure, bonding, periodicity etc. Expected Learner Outcome: Students will gain an understanding of i. Sign of wave function, counter boundary and probability diagrams etc. ii. Variations of orbital energy with atomic number. iii. Properties of elements, atomic radii, ionic radii, size effect of ionic bond, solvation energy, covalent character of ionic bond, redox equations, principle involved in volumetric analysis etc.

2	1st SEM Hons	CHEMISTRY-C-102 (Physical Chemistry)	Objective of the Course: To emphasize on different states of matter & their mechanical treatment. Expected Learner Outcome: Students will gain an understanding of i. Kinetic molecular model of a gas, behaviour of real gases etc ii. Effect of addition of various solute on surface tension and viscosity. Cleansing action of detergents. iii. Nature of solid state, elementary idea of symmetry. iv. Idea of solubility and solubility product of sparingly soluble salts.
3	3rd SEM Major	Paper: MM 301 Inorganic Chemistry-I	Objective: To understand Coordination Chemistry, mechanism and the importance of d-and f block elements.

4	3rd SEM Major	Paper: MM 303 Organic Chemistry-I	Objective: Importance of Halogenated Hydrocarbons, Chemistry of Carbonyls along-with sulphur containing compound are discussed in this course.
5	3rd SEM NM	Paper: NM 301 Organic Chemistry-I	To understand Organic Chemistry in the light of different types of reaction – to go for the study of broad field of Organic Chemistry.
6	5th SEM Major	Paper: MM 501 Physical Chemistry II	This course is designed to impart the ideas of kinetics, solution equilibrium and surface phenomena amongst the students.
7	5th SEM Major	Paper: MM 503 Inorganic Chemistry II	The objective of the paper is to give knowledge on organometallic compounds, Clusters and organic reagents in inorganic analysis.
8	5th SEM Major	Paper: MM 505 Organic Chemistry-III	To acquire knowledge in different types of organic reaction and to understand Biochemistry.

9	5th SEM Major	Paper: MM 507 Symmetry and Quantum Chemistry	The objective of the paper is to have knowledge on quantum mechanics with special reference to classical mechanics, symmetry and bonding.
10	5th SEM NM	Paper: NM 501 Inorganic Chemistry-II + Physical Chemistry-II	In this course/paper, nuclear chemistry, preparative chemistry, Bio-Inorganic as well as the importance of electrochemistry, surface phenomena and photo chemical processes are dealt with.

	2nd SEM Hons	CHEMISTRY-C-201 (Organic Chemistry)	Objective of the Course: To develop preliminary knowledge in basic organic chemistry, Hydrocarbons, stereochemistry & conformational analysis. Expected Learner Outcome: Students will gain an understanding of --- i. Knowledge of basic organic chemistry, definition, classification of stereoisomerism, optical activity, absolute and relative configuration etc. ii. Knowledge of elimination reaction, electrophilic and nucleophilic addition. iii. Relative stability of cyclic hydrocarbon, Bayer's strain theory etc.

	2nd SEM Hons	CHEMISTRY-C-202 (Physical Chemistry)	Objective of the Course: To develop a strong knowledge on chemical thermodynamics, Their mathematical expression & application. Expected Learner Outcome: Students will gain an understanding of i. The application of mathematical tools to calculate thermodynamic properties ii. The concept of free energy change and spontaneity. iii. Thermodynamics derivation of relation between Gibbs free energy of reaction and reaction quotient. iv. Derive relation between the four colligative properties using chemical potential (Thermodynamics derivation)
13	4th SEM Major	Paper: MM 401 Physical Chemistry-I	Electrochemistry is one of the topics that really revolutionized the world nowadays. This paper deals with this particular aspect.

14	4th SEM Major	Paper: MM 403 Organic Chemistry-II	This paper deals with active methylene compounds, aliphatic and aromatic amines and heterocyclic compounds
15	4th SEM NM	Paper: NM 401 Physical Chemistry-I	To understand Physical Chemistry in the form of Physical forces which govern Our surroundings.
16	6th SEM Major	Paper: MM 601 Physical Chemistry III	To understand different topics like photochemistry, macromolecules, catalysis and Statistical thermodynamics.
17	6th SEM Major	Paper: MM 603 Inorganic Chemistry III	To understand Bio inorganic Chemistry, Role of metal ion in biological system, Metal ion in medicine, material chemistry, supra molecular interaction, Solid state reactions. Nano materials, Chromatographic Methods, Industrial chemistry, Metal toxicology

18	6th SEM Major	Paper: MM 605 Organic Chemistry IV	This paper highlights the concept of disconnection approach in organic chemistry as well as different analytical tools like UV, IR, NMR in organic chemistry. Importance of dyes, lipids, polymers are also dealt with.
19	6th SEM Major	Paper: MM 607 Molecular Spectroscopy	This paper deals with the interaction of electromagnetic radiation with matter in Various forms.
20	6th SEM NM	Paper: NM 601 Organic Chemistry-II	To understand the preparative Organic Chemistry as well as the importance of Organic Chemistry in life processes.

DEPARTMENT OF ELECTRONICS

BSc PROGRAMME WITH HONOURS IN ELECTRONICS
(CBCS)
COURSE OUTCOME

COURSE CODE	COURSE TITLE	OBJECTIVE	COURSE OUTCOMES
ELECTRONICS-C-1	**BASIC CIRCUIT THEORY AND NETWORK ANALYSIS**	1. Understand the basic circuit concepts and devices like resistors, capacitors and inductors. 2. Perform AC and DC circuit analysis. 3. Work with different theorems of network analysis.	1. Acquire the foundation knowledge about voltage, current and passive devices. 2. Analyse AC and DC circuits using available techniques. 3. Analyse different types of networks using the standard network theorem.
ELECTRONICS-C-2	**MATHEMATICS FOUNDATION FOR ELECTRONICS**	1. Acquire the mathematical skills and learn the techniques that are necessary to embark on the field of electronics. 2. Identify, formulate and solve complex problems in mathematics. 3. Gain the mathematical foundation, including differentiation and	1. Apply concepts to do mathematical modelling and analysis of numerical methods. 2. Develop their knowledge and skills for electronics, through a specialist pathway. 3. Perform independent research to help define the frontiers of knowledge in electronics or related interdisciplinary areas.

		integration, multi-variable calculus, linear algebra, differential equations, complex variables, probability and statistics etc. which will help in the study of the broad subject electronics in a much convenient way 4. Apply this knowledge towards modelling and solution of problems in electronics with the help of advanced mathematics that this course provides.	
ELECTRONICS-C-3	**SEMICONDUCTOR DEVICES**	1. Learn the fundamental physics of the semiconductor materials and devices. 2. Identify and characterize the semiconductor devices. 3. Apply the semiconductor devices in various circuits.	1. Understand the basic principles and working of the semiconductor materials and devices. 2. Characterize the device. 3. Apply the knowledge of semiconductor devices in real life application.
ELECTRONICS-C- IV	**APPLIED PHYSICS**	1. Learn about the development of modern physics and the theoretical formation of quantum	1. Apply quantum mechanics to solve physical systems in different areas of science.

		mechanics. 2. Learn about the applications of quantum mechanics in solving physical problems. 3. Learn about the physics of material science by studying mechanical properties, thermal properties, elastic and magnetic properties of materials.	2. Know about the physical behaviour of materials. 3. Learn how the scientific behaviours of materials can be used for human applications.
ELECTRONICS-C-V	**ELECTRONICS CIRCUITS**	1. Understand the various uses and applications of diodes and bipolar junction transistors. 2. Utilise the necessary skill needed to analyse electronic circuits. 3. Comprehend the designing and study of different types of amplifiers.	1. Acquire the basic knowledge about the use and application of diode and transistor circuits. 2. Design and analyse circuits containing diodes and transistors. 3. Learn the designing of transistor amplifiers and identify various types of amplifiers. 4. Develop the knowledge about oscillators and FETs
ELECTRONICS C-VI	**DIGITAL ELECTRONICS AND VERILOG/VHDL**	1. Understand the binary and other number systems and Boolean algebra. 2. Comprehend the digital	1. Identify the digital logic devices and their working principles. 2. Write hardware level program

		principles and devices like logic gates. 3. Understand the hardware programming language like Verilog/VHDL.	in Verilog and VHDL for designing digital circuits. 3. Apply the knowledge to critically asses the pros and cons of various hardware design methodologies.
ELECTRONICS-C-VII	**C PROGRAMMING AND DATA STRUCTURES**	1. Understand high level programming language through C/C++ programming. 2. Learn various sequential and object oriented programming paradigm.	1. Write C/C++ programs for various mathematical and data processing tasks 2. Apply the knowledge of high level programming language to solving various scientific and real life problems using numerical methods 3. Critically assess the applicability of numerical methods and high level language for solving human civilization problems.
ELECTRONICS-C-VIII	**OPERATIONAL AMPLIFIERS AND APPLICATIONS**	1. Understand the fundamentals of LSI circuit device Operational Amplifier (OP-AMP). 2. To develop analytic and synthesis skills in circuits using OP-AMPS.	1. Understand working of the OP-AMP. 2. Characterize various OP-AMP ICs and circuits. 3. Apply the knowledge to use the OP-AMP in scientific and real life applications.
ELECTRONICS-C-IX	**SIGNALS AND SYSTEMS**	1. Understand the basic mathematical	1. Identify different signal types and understand the formalism of

		representation of electronic signals and systems 2. Comprehend the various mathematical tools and techniques for analyzing different types of signals and systems	treating signals and systems in mathematical domain. 2. Apply the mathematical tools to represent signals and analyze time domain and Frequency domain signals and systems like LTI.
ELECTRONICS-C-X	**ELECTRONIC INSTRUMENTATION**	1. Understand the various measurement instruments and the measurement techniques involved. 2. Handle different instruments like power supply, Oscilloscope etc. 3. Develop the knowledge about transducers and sensors.	1. Use and apply various measurement instruments. 2. Measure resistance, capacitance, and temperature using available bridge methods. 3. To design circuits for systems like power supply and sample and hold circuits etc. 4. Acquire theoretical and practical knowledge about various sensors.
ELECTRONICS-C-XI	**MICRO PROCESSOR AND MICROCONTROLLER**	1. Microprocessors and microcontroller**.** 2. Assembly language programming of microprocessors and microcontroller**.**	1. Understand architecture and programming model of microprocessors 8085 and microcontroller 8051 2. Apply the assembly language programming knowledge to build various small systems based on microprocessors 8085 and microcontroller 8051.

			3. Asses the applicability of microprocessors and microcontroller for solving various real life problems
ELECTRONICS-C-XII	**ELECTROMAGNETICS**	1. Understand the physical and mathematical principles of the behaviour of electricity and magnetism in matter. 2. Comprehend the properties of the electromagnetic wave and its interaction with matter with the help of Maxwell's equations. 3. Understand the principles and processes related to polarization, interference, and diffraction along with their applications to the development of wave-guide and optical fibres.	1. Solve problems relevant to interfaces between media with defined boundary conditions. 2. Use Maxwell's equations to describe the behaviour of electromagnetic waves in vacuum as well as medium. 3. Describe states and methods of polarization and analyze the polarization state of a light source
ELECTRONICS-C-XIII	**COMMUNICATION ELECTRONICS**	1. Understand the basic techniques of electronic communication like modulation. 2. Apply the knowledge to understand the current	1. Identify the basic techniques of communication like carrier modulation/demodulation. 2. Analyze the modulations schemes and their applicability.

		generation communication technologies.	3. Analyze present generation systems.
ELECTRONICS-C-XIV	**PHOTONICS**	1. Understand the fundamental of optics and optical devices. 2. Identify and apply optical principles in various applications.	1. Identify various optical devices and principles 2. Characterize the optical devices 3. Apply the knowledge to use optical devices in scientific and real life applications 4. Critically analyze the advantage/disadvantages of optical systems and its applicability.
ELECTRONICS-DSE -I	**POWER ELECTRONICS**	1. Understand the various devices used in power electronics and develop the knowledge to deal with these devices. 2. Realize and work with circuits like, inverter and chopper along with the knowledge of elctro-mechnaical machines.	1. Acquire the knowledge about various types of power devices and their uses. 2. Understand the behaviour of these devices and will be able to use them wherever necessary.
ELECTRONICS-DSE -2	**MODERN COMMUNICATION SYSTEMS**	1. Learn about different types of new generation communication systems and technologies. 2. Familiarize with the knowledge of optical	1. Understand the various techniques and methods used in modern day communication systems. 2. Understand the technology behind different types of

		communication, cellular communication, satellite communication and LAN	communication being used around us.
ELECTRONICS-DSE-3	**NANOELECTRONICS**	1. The world of nanoscience and nanotechnology. 2. The various preparation and characterization techniques of nanomaterials. 3. The optical and electronic transport properties of nanomaterials and their applications.	1. Understand the importance of nanoscience and nanotechnology in our daily lives. 2. Learn about various experimental methodologies with necessary theoretical background, which may be useful for pursuing further studies on the area of nanoscience and technology.
ELECTRONICS-DSE 4	**TRANSMISSION LINES, ANTENNA AND WAVE PROPAGATION**	1. Learn the basics of electromagnetic wave propagation. 2. Learn about transmission lines and waveguides. 3. Develop the knowledge of radiation of electromagnetic waves and types of antenna.	1. Understand the propagation of electromagnetic waves and how the electromagnetic wave can be effective transmitted through transmission lines or wave guides. 2. Comprehend the radiation of electromagnetic waves and the types of antenna 3. Use mathematical simulation software like Scilab, MATLAB etc and to use them to calculate various parameters related to electromagnetic wave propagation, transmission lines, waveguides and antenna.
ELECTRONICS-SEC-1	**DESIGN AND FABRICATION OF PRINTED**	1. Understand the fundamentals of printed	1. Learn the fundamental principles in Robotics.

	CIRCUIT BOARDS	circuit boards and its classification. 2. Develop the knowledge about designing and fabrication of printed circuit boards.	2. Learn robot programming and configuring environments. 3. Understand various Robotic applications.
ELECTRONICS-SEC-2	**ELECTRONICS-SEC-2**	1. Learn the fundamental principles in Robotics. 2. Learn robot programming and configuring environments. 3. Understand various Robotic applications.	1. Identify the and understand working principles of Robotics 2. Install and run Robot programming 3. Apply the knowledge to using Robots for real life situations
ELECTRONICS-GE-1	**ELECTRONIC CIRCUITS AND PCB DESIGNING**	1. Learn various uses and applications of diodes and bipolar junction transistors. 2. Acquire the necessary skill to analyse electronic circuits. 3. Learn about designing and study of small signal amplifiers. 4. Understand the fundamentals of printed circuit boards and its classification. 5. Develop the knowledge about designing and	1. Acquire the basic knowledge about the use and application of diode and transistor circuits. 2. Design and analyse circuits containing diodes and transistors. 3. Learn the designing of transistor amplifiers and identify various types of amplifiers. 4. Develop the knowledge about printed circuit boards in electronic applications and will learn the techniques and processes involved in the design and fabrication of printed circuit boards.

		fabrication of printed circuit boards. 6. Learn etching and soldering process.	
ELECTRONICS-GE-2	**DIGITAL SYSTEM DESIGN**	1. Learn about the digital principles like number systems and Boolean algebra 2. Apply the digital electronic principles in circuit analysis and synthesis.	1. Identify and understand digital electronics principles and systems. 2. Apply the knowledge to build small electronic systems using digital ICs and techniques.
ELECTRONICS-GE-3	**NSTRUMENTATION**	1. Learn about the various measurement instruments and the measurement techniques involved. 2. Handle different instruments like signal generators and Oscilloscope. 3. Develop the knowledge of the students about transducers of different types. 4. Learn about data acquisition systems. 5. Gain theoretical and practical knowledge about various instruments used in	1. Acquire the necessary knowledge to use different measuring instruments for measurements of voltage, currents and resistances. 2. Acquire the knowledge to handle and use oscilloscope, DSO and pulse generators. 3. Equip themselves with the theoretical and practical knowledge about various types of transducers. 4. Learn about the various sections of a data acquisition system (DAQ) and the function of DAQ in general. 5. Learn about some very

		the field of biological sciences and medical science.	important instruments used in the field of biological and medical science.
ELECTRONICS-GE-4	**COMMUNICATION SYSTEMS**	1. Learn the basics of electronic communication systems and the significance of noise in communication. 2. Understand the various types of modulation schemes both theory and practical. 3. Learn about various digital modulation techniques and some associated concepts. 4. Study various types of multiple accessing techniques. 5. Understand cellular communication and satellite communications.	1. Learn some of the most fundamental techniques used in communication. 2. Understand the various aspects of a communication system. 3. Recognise the different available modulation techniques along with the practical knowledge about the technology behind the schemes. 4. Equip themselves with the knowledge to understand analog and digital modulation techniques. 5. Learn about different aspects of cellular communication and satellite communication systems.

DEPARTMENT OF MATHEMATICS

B.CS. WITH MAJOR IN MATHEMATICS

(NON-CBCS)

COURSE CODE	COURSE TITLE	OBJECTIVE AND/OR EXPECTED LEARNER OUTCOMES
MM 101	**(A) CLASSICAL ALGEBRA** **(B) TRIGONOMETRY** **(C) VECTOR CALCULUS**	To infuse the classical ideas of algebraic and analytic structures. The students can have a deeper insight of the developments of the generalized notions of Trigonometry. The students will have an orientation towards the vectorial notations of multivariable calculi.
MM 201	**(A) MATRICES** **(B) ORDINARY DIFFERENTIAL EQUATIONS** **(C) NUMERICAL ANALYSIS**	Students will be able to use matrix methods for solving liners equations, have ideas on the basics of differential equations and also about the numerical methods of obtaining results where complexity of obtaining analytical solutions is sufficiently high.
MM 301	**(A) ANALYSIS-I (REAL ANALYSIS)**	Students will be able to identify the analytical aspects of Mathematical concepts.
MM 302	**(A) CO-ORDINATE GEOMETRY**	The students will be have a deeper understanding of Co-ordinate geometry and a broader insight towards the analytical aspects of Mathematics.
MM 401	**(A) COMPUTER PROGRAMMING (C-PROGRAMMING)** **(B) COMPUTER LAB (C-PROGRAMMING, MATLAB)**	Students will be able to formulate simple programmes for numerical evaluation of computational problems. By Computer Laboratory, they will be exposed to a hand on experience on various Mathematical Software.

MM 402	**(A) LINEAR PROGRAMMING PROBLEM** **(B) ANALYSIS-II(MULTIPLE INTEGRAL)**	Students will be able to determine the Mathematical know how of linear programming problems of Operations Research and also to solve then using LPP techniques. Students will be exposed to he further analytical aspects of Mathematical concepts.
MM 501	**(A) LOGIC AND COMBINATORICS** **(B) ANALYSIS-III**	Students will be able to identify the basics of Mathematical Logic and that of the counting principles. Students will be allowed to have insights to more generalized analytical aspects.
MM502	**(A) LINEAR ALGEBRA** **(B) NUMBER THEORY**	Students will be able to use algebraic structures for explaining geometric concepts. Students will be exposed to the fundamentals of Numbers and their properties.
MM 503	**(A) FLUID MECHANICS**	Students will be introduced to the fundamental concepts of Fluid Mechanics and its various applications in Physical Sciences.
MM 504	**(A) MECHANICS** **(B) INTEGRAL TRANSFORMATION**	Students will be introduced to the Mathematical background of Mechanics and the corresponding problem-solving techniques.
MM 601	**(A) METRIC SPACE** **(B) STATISTICS**	Students will be exposed to the Topological Structures and the generalization concepts arising out of Real Analysis.
MM 602	**(A) DISCRETE MATHEMATICS** **(B) GRAPH THEORY**	The students will be able to identify the relations between Mathematics and Theoretical Computer Science. Students will be introduced to the fundamentals of Graph Theory and different representations of a Graph for practical applications.
MM 603	**(A) ALGEBRA II** **(B) PARTIAL DIFFERENTIAL EQUATIONS**	Students will be able to identify the characteristics of Abstract Algebraic Structures and also can have ideas on the basics of partial differential equations.
MM 604	**GROUP (A)** **(A) FINANCIAL MATHEMATICS** **(B) OPERATIONS RESEARCH**	Students will be introduced to the application of Mathematical principles to the problems of Financial Mathematics and Operations Research.
	GROUP (B)	Students will be introduced to the application of Mathematical

	(A) SPACE DYNAMICS **(B) RELATIVITY**	principles to the problems of Space Dynamics and Relativity.

B.SC. NONMAJOR

SL NO.	SUBJECT	COURSE CODE	COURSE TITLE	OBJECTIVE AND/OR EXPECTED LEARNER OUTCOMES
1.	Mathematics [Non-Major (NM)]	**NM 101**	**(D) CLASSICAL ALGEBRA** **(E) TRIGONOMETRY** **(F) VECTOR CALCULUS**	To infuse the classical ideas of algebraic and analytic structures. The students can have a deeper insight of the developments of the generalized notions of Trigonometry. The students will have an orientation towards the vectorial notations of multivariable calculi.
		NM 201	**(D) MATRICES** **(E) ORDINARY DIFFERENTIAL EQUATIONS** **(F) NUMERICAL ANALYSIS**	Students will be able to use matrix methods for solving liners equations, have ideas on the basics of differential equations and also about the numerical methods of obtaining results where complexity of obtaining analytical solutions is sufficiently high.
		NM 301	**(B) CO-ORDINATE GEOMETRY** **(C) ANALYSIS-I (REAL ANALYSIS)**	The students will be havea deeper understanding of Co-ordinate geometry and a broader insight towards the analytical aspects of Mathematics.
		NM 401	**(C) LINEAR PROGRAMMING PROBLEM** **(D) COMPUTER LAB (MATLAB, MATHEMATICA)**	The students will be able to formulate and solve various practical models using Linear Programming techniques and also by using Computer Laboratory they will attain computational proficiency in dealing with Mathematical Software.
		NM 501	**ANALYSIS-II (COMPLEX**	The students will be able to understand the analytical

			ANALYSIS)	perspective of the complex number system. The students will be able to identify the applicable domain of Mathematics in Physical Sciences.
		NM 601	**GROUP (A)** **(C) ABSTRACT ALGEBRA** **(D) ELEMENTARY STATISTICS**	Students will be able to identify the characteristics of Abstract Algebraic Structures and also can obtain insights of statistical tools for solving various practical problems.
			GROUP (B) **(A) DISCRETE MATHEMATICS** **(B) METRIC SPACE**	The students will be able to identify the relations between Mathematics and Theoretical Computer Science and also have a detailed idea on Metric Spaces as a prelude to the Topological concepts.

DEPARTMENT OF PHYSICS

BSc PROGRAMME WITH HONOURS IN PHYSICS

(CBCS)

COURSE OUTCOME

COURSE CODE	COURSE TITLE	OBJECTIVE	COURSE OUTCOMES
PHYSICS-C-I	MATHEMATICAL PHYSICS – I	1. Write a problem in Physics in the language of Mathematics. 2. Identify a range of diverse mathematical techniques to formulate and solve a problem in basic Physics. 3. Analyze some of the basic mathematical concepts and methods. 4. Apply the knowledge and understanding of these mathematical methods to solve problems in a number of elementary branches of Physics like mechanics, electromagnetic theory, statistical Physics, thermal Physics etc. 5. Learn computer programming and numerical analysis and know its role in solving problems in Physics. 6. Construct a problem in	1. Develop the requisite mathematical skills of a student to understand the fundamental topics in Physics. 2. Develop the ability of a student to critically analyze a topic. 3. Prepare a student for more advanced topics in Physics by providing a solid grip over the fundamental concepts in Physics. 4. Demonstrate the use and importance of computational methods in Physics and enable a student to construct a Physics problem computationally.

		Physics computationally	
PHYSICS-C-II	**MECHANICS**	1. Understand the basic concepts and ideas in mechanics- e.g. motion, force and torque, mass and moment of inertia, linear and angular momentum, kinetic energy and potential energy etc. by parallel studies of linear dynamics and rotational dynamics. 2. Understand the basic conservation laws by studying them in various mechanical systems including collisions, oscillations, gravitational systems etc. 3. Analyze simple harmonic oscillator in detail 4. Study planetary motions as a central force problem. 5. Understand the concept of frame of reference, importance of relative transformations and invariance of laws of Physics. 6. Realize the consequences of non-inertial frame in our real physical world. 7. Know about the peculiar	1. Introduce the students to the basic concepts of mechanics. 2. Enable the students to understand conservation laws as they are the fundamental laws of nature and will help them in realizing a crucial phenomenon of nature- symmetry. 3. Enable the students to understand simple harmonic oscillator as it is a unique mechanical problem and will help them to understand the advanced treatment in quantum mechanics and modern Physics. 4. Develop knowledge of special relativity to understand relativistic formulation of modern theories. 5. Develop knowledge of mechanics which will help students in their everyday life.

		phenomena of special relativity which are not seen in Newtonian relativity and to understand the concept of space-time.	
PHYSICS-C-III	**ELECTRICITY AND MAGNETISM**	1. Gain basic knowledge of electricity and magnetism. 2. Understand the electrical and magnetic properties of matter in brief. 3. Understand the effect of electric field on magnetic field and the effect of magnetic field on current. 4. Understand the basic principle of the electrical circuit (AC) circuit and electrical networking. 5. Acquire the basic theoretical as well as experimental skill on electrical networking.	1. Develop the basic theoretical knowledge as well as experimental skills of the students on electrical networking. 2. Train the students to handle and repair instruments based on electric and magnetic field effects.
PHYSICS-C-IV	**WAVES AND OPTICS**	1. Learn the basics of wave motion. 2. Know about the behaviour of light due to its wave nature. 3. Identify and understand different phenomena due to the interaction of light with light and matter. 4. Analyze some of the	1. Enable the students to analyze different phenomena due to the interaction of light with light and matter. 2. Train the students to use different optical instruments. 3. Help the students to understand various natural phenomena using different

		fundamental laws and principles of light which is used in many important optical instruments.	apparatus in the laboratory.
PHYSICS-C-V	**MATHEMATICAL PHYSICS – II**	1. Write a problem in Physics (slightly more advanced than those in Mathematical Physics I) in the language of Mathematics. 2. Identify a range of diverse mathematical techniques to formulate and solve a problem in basic Physics. 3. Analyze some of the useful mathematical methods. 4. Apply the knowledge and understanding of these mathematical methods to solve problems in a number of fundamental topics in Physics. 5. Construct a problem in Physics computationally.	1. Develop the requisite mathematical skills to understand some of the fundamental topics (slightly more advanced than those in Mathematical Physics I) in Physics. 2. Develop the ability of a student to critically analyze a topic. 3. Prepare a student for more advanced topics in Physics by providing a solid grip over the fundamental concepts in Physics. 4. Enable a student to understand the use and importance of computational / numerical methods in Physics and enable a student to construct a Physics problem computationally.
PHYSICS-C-VI	**THERMAL PHYSICS**	1. Develop knowledge on the classical laws of thermodynamics and their application 2. Use the knowledge of	1. Apply the laws of thermodynamics in real world problems. 2. Conduct scientific problems and experiments on thermodynamics and allied disciplines.

		thermodynamics in various applications in allied fields like Materials science, Condensed matter Physics, Atmospheric Physics, Solar Physics, etc. 3. Probe questions in varied fields of Physics, chemistry and biology based on principles of Thermal Physics. 4. Use the concept of thermodynamics in real world experiences 5. Develop critical and analytical thinking of the student on thermodynamics and allied disciplines	3. Demonstrate a working knowledge of the physical principles in Thermal Physics.
PHYSICS-C-VII	**DIGITAL SYSTEMS AND APPLICATIONS**	1. Know about the basic laboratory equipment electronics**.** 2. Understand basic digital electronics concepts and devices**.** 3. Analyze digital circuits.	1. Identify and understand digital electronic principles and systems. **2.** Apply the knowledge to analyze and apply digital circuits in solving circuit level problems. **3.** Build real life applications using digital systems.
PHYSICS-C-VIII	**MATHEMATICAL PHYSICS-III**	1. Write a problem in Physics (slightly more advanced than	1. Develop mathematical skills of a student to understand some of the fundamental

		those in Mathematical Physics I and II) in the language of mathematics. 2. Identify a range of diverse mathematical techniques/ideas to formulate, simplify and solve some problems in Physics. 3. Analyze some of the useful mathematical ideas and techniques. 4. Apply the knowledge and understanding of these mathematical methods to solve problems in a number of fundamental topics in Physics. 5. Construct a problem in Physics computationally and use simulations to design an experiment.	topics (slightly more advanced than those in Mathematical Physics I and II). 2. Develop the ability of a student to critically analyze a topic. 3. Prepare a student for more advanced topics in Physics by providing a solid grip over the fundamental concepts in Physics. 4. Enable a student to understand the use and importance of computational/ numerical methods in Physics and to construct a problem computationally. 5. Help a student to pursue advanced studies in Physics.
PHYSICS-C-IX	**ELEMENTS OF MODERN PHYSICS**	1. Understand the theoretical basis for the understanding of quantum Physics as the basis for dealing with microscopic phenomena. 2. Apply concepts of 20th Century Modern Physics to	1. Understand and appreciate the theory of modern physics 2. Develop the ability to apply it in solving simple problems in Quantum Mechanics (QM), structure of atoms, Laser, and Nuclear Physics.

		deduce the structure of atoms. 3. Explain the wave-particle duality of the photon. 4. Analyze the structure of matter at its most fundamental. 5. Develop insight into the key principles and applications of Nuclear Physics	
PHYSICS-C-X	**ANALOG SYSTEMS AND APPLICATIONS**	1. Know about the basics of semiconductor PN junction, its various types and its application to different electronic circuits. 2. Understand bipolar junction transistor and its applications as amplifier and oscillators. 3. Familiarize with operational amplifiers, its applications and analysis. 4. Develop knowledge about analog to digital and digital to analog conversion techniques	□□ Learn the foundation knowledge of analog electronic systems. 2. Learn the working and applications of PN junction and bipolar junction transistors (BJT). 3. Learn to analyze circuits containing PN junction and BJT along with the application of BJT as amplifiers and oscillators. 4. Develop basic knowledge of operational amplifier and its applications
PHYSICS-C-XI	**QUANTUM MECHANICS AND APPLICATIONS**	1. Know about the development of modern	**1.** Learn how to apply quantum mechanics to solve physical systems in different areas

		Physics and the theoretical formulation of quantum mechanics. 2. Know the applications of quantum mechanics in solving physical problems.	of science. **2.** Know about the physical behavior of materials. **3.** Learn how the scientific behavior of materials can be used for human applications.
PHYSICS-C-XII	**SOLID STATE PHYSICS**	1. Familiarize with fundamentals of Solid State Physics. 2. Know about the structural, electronic and lattice vibration dependent behaviour of solids. 3. Learn the basic concepts in hands on mode through laboratory experiments associated with the course.	1. Equip a student with basic concepts of solid state Physics so that the knowledge can be applied for further development of the subject. 2. Enable a student to work in both theoretical and experimental aspects of solid state Physics. 3. Help the students in thorough learning of the concepts associated to the course through the laboratory experiments.
PHYSICS-C-XIII	**ELECTROMAGNETIC THEORY**	1. Understand the physical and mathematical principles to provide in-depth analysis of the behavior of electricity and magnetism in matter. 2. Apply Maxwell's equations to explain the properties of the electromagnetic wave and its interaction with matter. 3. Analyze the principles and	1. Solve problems relevant to interfaces between media with defined boundary conditions. 2. Use Maxwell's equations to describe the behaviour of electromagnetic waves in vacuum as well as medium. 3. Describe states and methods of polarization and analyze the polarization state of a light source.

		processes related to polarization, interference, and diffraction along with their applications to the development of wave-guide and optical fibers.	
PHYSICS-C-XIV	**STATISTICAL MECHANICS**	1. Introduce the basic concepts of Statistical Mechanics so that students will be able to cope-up with higher level of such course in future. 2. Develop the critically thinking ability of students to understand the diverse physical phenomena. 3. Develop the interest and ability among students to solved challenging physical problems by the application of techniques of Statistical Mechanics in future.	1. Equip the students with basic knowledge of the Statistical Mechanics and hence will be able to look critically for analyzing any physical phenomena. 2. Create interest to the subject to pursue further higher study in future. 3. Enable the students to solve any challenging physical problem in statistical mechanics
PHYSICS DSE -I	**CLASSICAL DYNAMICS**	1. Understand the underlying facts in the development of classical mechanics and the advantages of its formulation over Newtonian mechanics. 2. Describe mechanics of a system in terms of equation of motion.	1. Prepare for the study of modern Physics. 2. Develop basic theoretical ingredients necessary to study advanced theoretical courses like quantum mechanics. 3. Learn a number of mathematical techniques applicable to Physics problems in different areas.

		3. Understand Lagrangian formulation and Hamiltonian formulation of mechanics and their applications in mechanical problems. 4. Study the theoretical analysis of systems oscillating with small amplitudes. 5. Observe the peculiar phenomena when transformed from Newtonian relativity to special relativity and to understand the concept of space-time.	4. Develop knowledge of special relativity which is essential to understand the relativistic formulation of modern theories.
PHYSICS DSE -2	**PHYSICS OF DEVICES AND INSTRUMENTS**	1. Know about various devices like UJT, FET, MOSFET, CMOS etc. and its application to different electronic circuits. 2. Design rectifiers, passive and active filters, multivibrators etc. 3. Familiarize with the IC fabrication techniques. 4. Learn about digital data communication standards and	**1.** Develop knowledge about various devices like UJT, FET etc. and to use these devices for different applications. **2.** Design and analyse filter circuits, power supply FET amplifiers etc. **3.** Develop the basic knowledge of IC fabrications, data communication standards and communication systems.

		also about communication systems.	
	ASTRONOMY AND ASTROPHYSICS	1. Introduce the fundamental concepts of Astrophysics to the interested students. 2. Motivate students to pursue the further study in future in these challenging, fascinating and important fields of Physics.	1. Equip the students with basic knowledge of the Astrophysics. 2. Create interest to the subjects of Astrophysics and to pursue further higher studies in the subject concerned in future. 3. Develop the critically analyzing ability, which may motivate the students to solve any challenging physical problem in future.
	PHYSICS OF EARTH	**1.** Acquire knowledge on origin and evolution of the Earth and Universe 2. Acquire knowledge on structure, composition and dynamics of the Earth from crust up to space. 3. Understand the interaction among different components of the Earth. 4. Get familiar with the weather and climate systems, climate change. 5. Increase people awareness of the scientific process of the	1. Develop critical and quantitative thinking of scientific issues related to the study of cosmology and Earth Sciences. 2. Understand the basic principles of various processes of the Earth. 3. Apply the acquired knowledge on the study of the Universe 4. Pursue career in Earth Sciences, Cosmology etc. 5. Understand the contemporary dilemmas on Earth and Environmental issues like climate change, air pollution, deforestation etc.

		Earth and its role in the exploration of the Universe.	
PHYSICS DSE -3	**NUCLEAR AND PARTICLE PHYSICS**	1. Understand various concepts in Nuclear Physics. 2. Emphasize on the existing connections with other domains of Physics, in particular Quantum Mechanics, Mathematical Physics and Particle Physics.	1. Develop knowledge regarding nuclear and elementary particle as well as properties and phenomena related to them. 2. Successfully apply the same knowledge in solving problems in the field of nuclear and particle Physics.
PHYSICS DSE -4	**NANO MATERIALS AND APPLICATION**	1. Provide a systematic coverage and insight into the promising area of nano materials in order to facilitate the understanding of the nature and prospects for the field. 2. Provide information about various synthesis and characterization techniques of nano materials. 3. Discuss optical and electronic transport properties of nano materials. 4. Discuss applications of	**1.** Gather sufficient knowledge about the fascinating behaviour of nanomaterials and tuning of such properties for different applications. **2.** Obtain information on experimental methodologies with necessary theoretical background, which may be useful for pursuing further study on the areas of nanoscience and technology.

		nano materials.	
	EXPERIMENTAL TECHNIQUES	1. Enhance experimental knowledge. 2. Develop the theoretical as well as experimental knowledge of different instruments and instrumentation. 3. Enhance the knowledge of some measurement techniques and data and error analysis technique.	1. Develop the theoretical as well as experimental knowledge on different instruments and instrumentation. 2. Develop the knowledge of some measurement techniques and data and error analysis technique, which is very essential for a Physics student. 3. Handle different electrical network based instruments.

BSc PROGRAMME WITH HONOURS IN OTHER SUBJECT
AND
PHYSICS AS GENERIC ELECTIVE
(CBCS)
COURSE OUTCOME

COURSE CODE	COURSE TITLE	OBJECTIVE	COURSE OUTCOMES
PHYSICS-GE-1	**MECHANICS**	1. Understand the basics of vector algebra and the techniques of solving ordinary differential equations.	1. Develop basic knowledge of mechanics as it is helpful to study any other course in science discipline. 2. Develop knowledge of vector algebra

		2. Understand the basic components of mechanics- e.g. motion, force and torque, mass and moment of inertia, linear and angular momenta, kinetic energy and potential energy etc. and the conservation theorems. 3. Study the mechanics of gravitational systems and simple harmonic motion. 4. Study the elastic behaviour of materials. 5. Realize the idea of frame of reference and its implications in the study of special relativity.	and differential equations which will help students in the study of theoretical courses in science. 3. Acquire useful knowledge about material science. 4. Explain the abstract idea of 4-dimensional world to students which are not from physics discipline.
PHYSICS-GE-2	**ELECTRICITY AND MAGNETISM**	1. Understand basic knowledge of electricity and magnetism. 2. Understand basic knowledge of electrical and magnetic properties of matter in brief. 3. Understand the basic knowledge of the effect of electric field on magnetic	1. Perform quantitative analyses of basic problems in Electrostatics and Magnetodynamics. 2. Apply Gauss's Law, Ampere's Law, and Biot-Savart Law to solving practical problems in electricity and magnetism. 3. Apply the fundamental laws of electromagnetism to solve problems of electrostatics, magnetostatics, and electromagnetic induction

		field and the effect of magnetic field on current. 4. Understand the basic principle of the electrical circuit (AC) circuit and electrical networking. 5. Develop the basic theoretical as well as experimental skill on electrical networking.	4. Explain and analyze the behaviour of alternating currents in LCR circuits. 5. Perform and interpret the results of simple experiments and demonstrations of physical principles. **6.** Solve problems relevant to interfaces between media with defined boundary conditions.
PHYSICS-GE-3	**THERMAL PHYSICS AND STATISTICAL MECHANICS**	1. Develop the working knowledge of the laws and methods of thermodynamics and elementary statistical mechanics. 2. Provide insight to the postulates of Statistical Mechanics and statistical interpretation of thermodynamics 3. Understand the laws of radiation and acquire knowledge for their applications in various disciplines in Physics, Chemistry, Biology, Earth and Atmospheric Sciences. 4. Develop application	1. Apply laws of thermodynamics and statistical mechanics to a range of situations in real world problems. 2. Conduct scientific problems and experiments on thermodynamics and allied disciplines . 3. Demonstrate a working knowledge of the physical principles describing the thermal physics.. 4. Explain thermal physics as logical consequences of the postulates of statistical mechanics

		oriented knowledge on laws of statistical mechanics in selected problems 5. Use the methodologies, conventions and tools of thermal and statistical physics to test and communicate ideas and explanation	
PHYSICS-GE-4	**WAVES AND OPTICS**	1. Learn the basic ideas of the behaviour of light based on its wave nature. 2. Develop the knowledge of the different phenomena due to the interaction of light among them and with mater. 3. Learn about some fundamental principles of light which is used in different optical instrument which very essential for Physics student.	1. Justify different phenomena due to light and the interaction of light among them and with matter. 2. Use different optical instruments. 3. Produce different natural phenomena using different apparatus in the laboratory

Overall Course Objective

Subject: ZOOLOGY (NON-CBCS)

The main objective of the course is to provide in-depth knowledge about biodiversity, their development and interaction with environment. The study of Physiology, Endocrinology, Cell Biology and Molecular Biology has been included to provide in-depth knowledge of the subject courses on instrumentation and techniques including Biostatistics, Biotechnology and Bioinformatics are included to provide the students with recent development in the field of biology.

Course Objective

Subject: Zoology Honours (CBCS)

SL NO:	Subject	Course Code	Course Title	Course Outcome
01	ZOOLOGY	ZC101T	NON-CHORDATES I: PROTISTS TO PSEUDOCOELOMATES	The objective of the course is to expose the students to various forms of protozoa and worms; their classification and structural anatomy
02		ZC102T	PRINCIPLES OF ECOLOGY	The objective of the course is to familiarize the students with fundamentals of ecology and impacts of ecological factors on living organisms.
03		ZC203T	NON-CHORDATES II: COELOMATES	The objective of the course is to expose the students to various forms of coelomates, their classification and structural anatomy.
04		ZC204T	CELL BIOLOGY	The objective of the course is to expose the students to structure and function of a cell as the fundamental unit of life.
05		ZC305T	DIVERSITY OF CHORDATA	The objective of the course is to expose the students to various forms of chordates,

				their classification and structural anatomy.
06		ZC306T	ANIMAL PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS	The objective of this course is to provide a foundation for understanding the complexities of the coordination system of animal body.
07		ZC307T	FUNDAMENTALS OF BIOCHEMISTRY	The objective of this course is to expose the students to biomolecules of living organisms, their interactions for perpetuation of life.
08		ZC408T	COMPARATIVE ANATOMY OF VERTEBRATES	The objective of this course is to provide the idea about the different anatomical differences of organs like Circulatory, Urinogenital, Respiratory systems of different groups of organisms.
09		ZC409T	ANIMAL PHYSIOLOGY: LIFE SUSTAINING SYSTEMS	The objective of this course is to provide knowledge about the various organs and their physiology including Digestion, Respiration, Circulation, Renal physiology etc.
10		ZC410T	BIOCHEMISTRY OF METABOLIC PROCESSES	The objective of this course is to give basic idea about the overview of metabolism including Carbohydrate, Protein and Lipid metabolism
11		ZC511T	MOLECULAR BIOLOGY	The objective of this course is to provide idea about Genetic make up like DNA, RNA and the mechanisms like DNA replication,

				Transcription, Translation, Gene Regulation etc.
12		ZC512T	PRINCIPLES OF GENETICS	The objective of this course is to provide the idea about basic genetics Like Mendelian Genetics and Linkage, Crossing over, and Transposable Elements and Advanced genetics like Recombination.
13		ZC613T	DEVELOPMENTAL BIOLOGY	The objective of the course is to give idea about the developmental strategies of developmental process of different organisms including human beings
14		ZC614T	EVOLUTIONARY BIOLOGY	The objective of the course is to provide idea about the evolution process of different species and the origin of species and evolution of man
DISCIPLINE CENTRIC ELECTIVE COURSES				
01	ZOOLOGY	DSE III	ENDOCRINOLOGY	The objective includes introduction to Endocrinology, the systems of Endocrine system etc.
		DSE IV	BIOLOGY OF INSECTA	The objective of this course includes the study of Insect Taxonomy, General Morphology and Physiology of insects and role of insects etc.
		DSE VII	FISH AND FISHERIES	The objective of this course is to aware the students about the fishes and the

				management strategies of fisheries
		DSE VIII	IMMUNOLOGY	The objective of this course is to proved idea about the basics of Immunology and the practical implications of immunology.