PROGRAM OUTCOMES, PROGRAM SPECIFIC OUTCOMES AND COURSE OUTCOMES
GORESWAR COLLEGE, GORESWAR

Goreswar College has adopted the curriculum provided by its affiliating University i.e, Gauhati University. College offers wide range of programmes under three streams i.e Arts, Commerce and Science and it offers Major and General Courses in all streams. A total of 16 subjects are given Major and General Courses for the students. From this academic session CBCS system has been introduced by Gauhati University and this system also introduced in this college as per CBCS regulation of the University.

SUBJECT:: ASSAMESE

Programme Outcome:

Under Graduate course in Assamese Major deals with linguistics and the history of Assamese literature. It incorporates Assamese literature from the 9th to the 21st century and also includes Western and Eastern Literature and Cultural History. The cultural history paper includes various aspects like tourism, archaeology, agriculture and fashion. This paper requires the students to acquire knowledge on indigenous dress and ornaments. It also encompasses information on various religious and historical places of interest and archaeology. Variety and scope of agriculture is another area that it covers.

Programme Specific Outcome:

After completion of this course students will gaininformation on the Assamese culture and tradition. The course will provide skills in creativewriting. Competence in the language will empower them with communicative skills.It gives knowledge on the life of famous poets and authors as well as they are famous work.They will also know about research work by their field project.

Course Outcome :

After passing out with Major in Assamese students can opt for Post Graduate in literature, Linguistics, Culture Studies, Mass Communication and Tourism. They can engage themselves as teaching related joband other jobs like Reporter, Proofreader, News-reader.

ASM-HC-1016	History of Assamese Literature (Early Period)	Unit:I: Classification of Assamese literary Era Unit:II: Early Assamese Literature Unit: III: Pre-Sankari Era Unit: IV: SAakari Era	Through this Paper students can learn about the History of Assamese.
ASM-HC-1026	History of Assamese Literature (Post Sankari to Orodudai Period)	Unit:I: Background of Post Sankari Era Unit:II: Post Sankari Literature Unit:III: Background of Pre Oronudai and Oronudai Era Unit:IV Literature of Pre Oronudai and Oronudai Era	Through this Paper students can learn about the History of Assamese. i.e. Post Sankari to Orodudai Period

ASM-HC-2016	Introduction to Linguistics	Unit:I General Introduction to Linguistics Unit:II: Branches of Linguistics Unit:III: Steps of Linguistics Studies (Phonology, Morphology, Semantics and Syntax) Unit:IV: History of Study of Linguistics	The Learner will know about the Linguistics, its branches, steps and history of Linguistics
ASM-HC-2026	Literary Criticism	Unit:I Nature and definition of Rasa, Dhwani, Guna and Riti Unit:II: position of Imagination in Poem, Symbolism, Imagism. Unit:III Tragedy, Absurd, Trend of Brekhtrial Drama Unit:IV Short Stories and Novel.	The main intention of this paper is to impart knowledge about the theory of Literary Criticism
M-304	Study of Assamese Language	Unit -1: Introduction to Indo-European Language family Unit-II: Concept of development of Pali-Prakrit and Apabhramsha and Relation between Assamese and Prakrit-Apabhramsha Unit-III: Origin and development of Assamese Language, Introduction to non Aryan languages of Assam and its contribution towards Assamese Language Unit-IV: Dialect and vocabulary of Assamese	The purpose of this paper to enhance the knowledge about the origin and development of Assamese Language and its different elements from non Aryan languages
M-305	Special Author Sankardeva/ Laxminath Bezbaruah	Unit-I: Selected part of Kirtana Unit –II: Rukmini Haran Unit-III: Selected Borgeet Unit-IV Parijat Haran …….. Unit-I: Sadhukathar Kunki Unit –II: Surabhi Unit-III: Kripabar Baruar Ubhatani Unit-IV Selected poem	In this paper student can opt any one author Sankardeva or Laxminath Bezbaruah. Through this paper student will learn about the significant contributions of these two legendary figure
M-401	Study on Assamese Grammar	Unit-I: History of Assamese Grammar and Classification Unit- II: Elements of Grammar-Phonology, Syntax Unit- III: Elements of Grammar-Morphology	The student will know about the Assamese Grammar and various concept of Linguistics
M-402	Introduction to Assamese race and culture	Unit-I: Different elements in the formation of Assamese races Unit- II: definition of culture, Assamese folk culture- its elements, folk custom, folk festival etc. Unit- III: The tradition of Sakta, Soiba and Boishnab religious tradition of Assam.	Main focus of this paper is to give depth knowledge about Assamese races, culture and religious tradition of Assam.

M-501	Old Assamese Drama	Unit -1: Rukmini Haran of Sankar Deva Unit-II: ArjunBhanjan of Madhabdeva Unit-III: Subhadra Haran of Sriram Ata Unit-IV: Janmajatra of Gopaldeva	Students will learn about the Ankiya Nat or Origin of Assamese Drama
M-502	Sample of Old Assamese Prose	Unit-I: Katha Gita Unit –II: Selected Prose of Sankardeva and Gopal Charan Dwija Unit-III: Selected Prose of Raghunath Mahanta, Ratnakar Kandali and Arjun Das Boiragi Unit-IV Selected Prose Srinath Duwara Barua and Nathan Brown	Students will learn about the Origin and Development of AssameseProse.
M-503	Study on Brajabuli Literature	Unit-I: Origin and development of Brajabuli Language Unit- II: selected Poetry of Sankardeva and Madhabdeva Unit- III: Selected Poetry of Bidyabati and Ray Ramanda Unit- IV Selected Poetry of Gyandas and Gobinda Das	The student will know about the Assamese cultural studies and various religion of Assam
M-504	Grammar and Literature of Pali-Prakrit	Unit-I: Origin and development of Pali-Prakrit Language Unit- II: Dharmmapada and Karpur Manjari Unit- III: Abhijyanam-Sakuntalam Unit- IV Linguistics Studies of PaliPrikrit and Abahattha Language	The student will learn about the Pali-Prakrit language and Literature
M-505	Literary criticism	Unit –I Concept of Eastern Criticism Unit –II Concept of western Criticism Unit-III Western Criticism-Drama and Poem Unit IV Western Criticism-Novel and short Stories	The students will learn about the theory of Literary criticism on the base of East and west tradition.
M-506	Nature of Language	Unit I : Brief Introduction to Language families Unit – II Co-relation between Language, Race, Society and Culture Unit-III Form of Different Language First Language, State Language, National Language, Regional Language, Slandered Language, Dialect, and Lingua Franka Unit IV : Change of Language.	The students will learn about the linguistics variety and change of Language.

M-601	Modern Assamese Drama	Unit-I: Trend of Modern Assamese Drama Unit-II: Rupalim by JyotiPrasad Agarawala Unit- III: ManiramDewan by PrabinPhukan Unit- IV: Hengdang by UttamBarua	The students will learn about the Modern Assamese Drama
M-602	Modern Assamese Prose	Unit I : Selected prose of Hemchandra Barua and Gunabhiram Barua Unit II : Selected prose of Lambudar Bora and Laxminath Bezbarua Unit III : Selected prose of Hemchandra Goswami and Nilmoni Phukan Unit IV : Selected prose of Banikanta Kakati and Tirthanath Sarma	Main intention of this paper is to impart knowledge about the Modern Assamese Prose
M-603	Studies on Modern Indian Literature	Unit –I Introduction to latest trend of Indian Literature Unit –II Selected short stories of Rabindra nath and Munchi Premchand Unit-III Padma Nadir Majhi by Manik Bandopadhyaya Unit-IV MayalaAnchal by Phanidhar Nath Renu	Main focus of this paper is to give new dimensions of Modern Indian Literature
M-604	Study on Assamese Short stories and novel	Unit- Trend of Assamese Short stories Unit-II Trend of Assamese Novel Unit-III Selected Sort Stories of Lakhidhar Sarma, Laxminandan Bora, PrabinaSaikia Unit-IV Mamore Dhara Taruwal by Mamoni Roycham Goswami	This paper will help the students to acquaint about the Assamese Short stories and novel
M-605	Chanda And Alankar	Unit-I General Introduction of Chanda Unit-II Different types of Chanda Unit-III Importance of Anankar in poetry Unit-IV Concept of Sabdalankar and Arthalankar	It is endeavour to increased knowledge about the ancient Indian criticism i.e. Chanda And Alankar
M-606	Introduction to Linguistics	Unit-I Branches of Linguistics Unit-II Phonology and Morphology Unit-III Semantics and Syntax Unit –IV Dialectology And socio-linguistics	The purpose of this paper to enhance the knowledge about the linguistics theories.

SUBJECT :: EDUCATION

PROGRAMMED OUTCOME

Bachelor in Education The Department of Education is offering three year Bachelor in Education Programme comprises of total 6 (six) semesters viz. 1st, 2nd, 3rd, 4th, 5th and 6th for both Major and General Course. For imparting the programme based learning experiences, the syllabus of Gauhati University is being adopted.

PROGRAMME OUTCOMES (BACHELOR IN EDUCATION) MAJOR & GENERAL COURSE

After completion of the programme, it is expected that the students will be -

- able to Know the meaning, concept and aims of education. They will be able to know the philosophical and sociological bases of education,
- able to Know the meaning, concept and different branches of psychology. They will possess in-depth knowledge of educational psychology to deal with the complex human behaviour in educational set up.
- able to Learn how to construct and administer different psychological tests, conduct psychological experiments along with the measurement and evaluation.
- able to Know the historical background of education, development of education in pre independent and post-independent India.
- able to Get knowledge about the hierarchy and systems involved in educational administration, management and planning. They will also be able to know the interrelationships between education and economy.
- able to Know the prevailing educational systems in other developed nations and the best practices adopted by them.
- able to Possess qualities to some extent of a guide or a counsellor to cope up with the psychological, societal or career related issues in educational environment those may affect the pupils' mental health and hygiene.
- able to Know the constitutional provisions, recent trends and reforms in policy matters of education with special reference to holistic and inclusive education.
- able to acquaint themselves with the best teaching skills.
-

PROGRAMME SPECIFIC OUTCOMES MAJOR & GENERAL COURSE

SEMESTER WISE PROGRAMME OUTCOMES

SEMESTER	PAPER	OUTCOME
1st Semester	EDU-HC-1016 Principles of Education	Learner will be acquainted with the sound principles of education, concepts of Education, Curriculum, Democracy, Discipline and Freedom, Develop knowledge about different Aims of Education, various types of Curriculum, Correlation of Studies and Forms of Discipline, Familiarise the students with democratic idea of modern education
	EDU-HC-1026 Psychological Foundations Of Education	This paper will enable the students to understand the relationship between education and psychology, need of educational psychology in teaching learning process, nature and theories of learning and role of motivation in learning, concept of memory, forgetting, attention and interest, intelligence, its theories and measurement, types of personality and

		the adjustment mechanism
2nd semester	EDU-HC-2016 Philosophical And Sociological Foundation Of Education	This programmed specific course will acquaint the students with the concept of philosophy and its relationship with education, implications of different Indian and Western schools of philosophy, concept of sociology and its relationship with education, social groups and socialisation.
	EDU-HC-2026 Development Of Education In India-I	This paper will acquaint the students with concept of Ancient Indian education system , particularly Vedic Education ,Medieval India, and British Period
3rd Semester	3.01 Emerging Issues and Education	Ddevelop awareness and understanding about different literacy programmes, women empowerment, Human rights, globalization, vocationalization of secondary education, understanding regarding students indiscipline –its causes and remedies, about national integration and International understanding and the role of education in promoting them, importance and means of life skill education, methods and programmmes of Peace Education.
	3.02 Measurement and Evaluation in Education	Acquire knowledge of the concept of measurement and evaluation in education, different types of educational tests and their uses, procedure of constructing educational and psychological tests, about intelligence test, personality test, aptitude, interest and attitude test, and educational achievement test, and also about new trends in evaluation
4th Semester	4.01 Educational Technology	Enable the students to understand the concept and scope and objectives of Educational Technology, teaching technology, behavioural technology and instructional technology, communication, process, teaching aids, system approach and use of computer and internet in educational technology, innovations in Education through Educational Technology –Team Teaching, E-Learning and E-Library
	4.02 Environmental and Population Education	Enable the students to understand the concept, scope and importance of environmental education, environmental education at different levels of education, knowledge on disaster management education. It also enable the students to understand the effect of population growth on poverty, health and hygiene and the importance of population education in school levels.
	5.01 Philosophy of Education	Gives the philosophical ideas , relationship between philosophy and education, knowledge about Idealism, Naturalism and Pragmatism and familarise with the Indian schools of philosophical thought — Vedic, Buddhist and Islamic thought.
	5.02 Educational Thinkers-Oriental and Occidental	Students will be able to understand the philosophy of life of different educational thinkers eastern and western and their contribution to present day educational thought.
	5.03 Teacher Education	Students will be able to understand the concept,

5th Semester		aims, scope and development of teacher education in India, different policies and practices and quality assurance in Teacher education, importance of in-service and pre-service training programmes, and professional ethics and accountability of teacher, and different organizations involved in teacher education
	5.04 Teaching –Learning Method and Pedagogy	Students will be able to know the teaching learning process, the principles, maxims fundamental of teaching, various methods , strategies, models and devices of teaching and it will form a positive attitude towards the teaching profession
	5.05 Statistics in Education	This course will enable the students to understand the basic concept of statistics, different statistical procedures used in Education, about the Normal Probability Curve and its applications in Education.
	5.06 Practical paper	Enable the students to understand the concept of experimental psychology, methods of conducting various psychological experiments and tests and develop scientific attitude amongst students
6th Semester	6.01 Developmental Psychology	Enable the students to understand the basic concepts relating to development, about heredity and environmental factors affecting pre-natal Development, development aspects during infancy and childhood, development aspects of adolescence, importance of adolescence period and problems associated with this stage.
	6.02 Continuing Education and Distance Education	Enable the students to understand the concept of continuing education , methods and techniques of continuing education, development of Adult Education in India, major problems confronting adult education, meaning, characteristics, merits and demerits of distance, different forms of instructional strategies in distance education along with the distance mode of learning.
	6.03 Special Education	Enable the students to understand the meaning and importance of special education, different types of special children with their behavioural characteristics, different issues, education provisions and support services of special children.
	6.04 Guidance and Counselling	Enable the students to understand the concept, nature, scope, need and importance of Guidance and counseling its types, programmes and organizations.
	6.05 Educational Management and Administration	This course will enable the students to understand the basic concepts of management, organization and administration and supervision , its Types, Principles and Functions and institutional planning
	6.06 Project Work	Students will be able to conduct survey in different areas by following the research format .

SEMESTER WISE PROGRAMME OUTCOMES (**GENERAL COURSE**)

SEMESTER	PAPER	OUTCOME
1st semester	EDU-RC-1016 FOUNDATIONS OF	Learner will be acquainted with the sound principles of education, concepts of Education, Curriculum,

	EDUCATION	Democracy, Discipline and Freedom, Develop knowledge about different Aims of Education, various types of Curriculum, Correlation of Studies and Forms of Discipline, Familiarise the students with democratic idea of modern education
2nd semester	EDU-RC-2016 PSYCHOLOGY OF ADOLESCENTS	After completion of this course the learner will be able to understand the period of adolescence, significance of the adolescence period in human life , various problems associated with this stage and importance of adolescence period and problems associated with this stage.
3rd semester	3.01 Development of Education in India	This paper will acquaint the students with concept of Ancient Indian education system , particularly Vedic Education ,Medieval India, and British Period
4th semester	4.01 Sociological Foundations of Education	This programmed specific course will acquaint the students with the concept of sociology and its relationship with education, social groups and socialisation.
5th semester	5.01 Emerging Issues and Education	Ddevelop awareness and understanding about different literacy programmes, women empowerment, Human rights, globalization, vocationalization of secondary education, understanding regarding students indiscipline –its causes and remedies, about national integration and International understanding and the role of education in promoting them, importance and means of life skill education, methods and programmmes of Peace Education.
	5.02 Measurement and Evaluation in Education	Acquire knowledge of the concept of measurement and evaluation in education, different types of educational tests and their uses, procedure of constructing educational and psychological tests, about intelligence test, personality test, aptitude, interest and attitude test, and educational achievement test, and also about new trends in evaluation
6th semester	6.01 Educational Technology	Enable the students to understand the concept and scope and objectives of Educational Technology, teaching technology, behavioural technology and instructional technology, communication, process, teaching aids, system approach and use of computer and internet in educational technology, innovations in Education through Educational Technology –Team Teaching, E-Learning and E-Library
	6.02 Environmental and Population Education	Enable the students to understand the concept, scope and importance of environmental education, environmental education at different levels of education, knowledge on disaster management education. It also enable the students to understand the effect of population growth on poverty, health and hygiene and the importance of population education in school levels.

COURSE OUTCOME

The Programme of B.A Education Major & General equips the student for competitive exams like,Teacher Eligibility Test (TET), SSC, RAIL, P.O. etc. and enhances employability. It also motivates the students for professional courses like, D.L.Ed., B.Ed., L.L.B., B.L.I.S., Computer, Guidance & Counselling, Fashion Design, Inclusive Education courses, Psychological Counsellor, Montessori Teacher Training etc.

Xxxxxx

SUBJECT: PHILOSOPHY

Programme Outcome

The primary goal of philosophy course is to address some of those ultimate questions so as to enable students to lead a more substantive and meaningful life and have a reasoned foundations conductive to support for human values; to an awareness of a duty to work for justice, compassion, and peace; and to the integrated and rich human life worth living, thus providing students the abilities and opportunities to be more responsible for the interdependent world in which they find themselves. The philosophy program seeks to promote the development of the person as an individual and as a meaningful contributor to the society. Moreover, philosophical training is intrinsically as well as extrinsically valuable. It seeks to foster in students the skills they need to develop, establish, reconstruct, and evaluate arguments in any field. Philosophical training also helps students seek general explanatory principles, reflect upon what really matters, look for alternatives to widely-accepted views, and learn to distinguish what is significant from what is not. Students will develop ability in critical thinking and understanding of concepts of right, wrong, good andbad and an understanding of moral principles and their application in everyday life.

Programme Specific Outcome

To develop in students a sense of the value and limits of philosophy, a reflective attitude and sensitivity to the difficulties and complexities of philosophical judgments, and a life-long commitment to learning and inquiry. The course acquaints students with Greek Philosophy, Indian and Western Philosophy, Ethics, Philosophy of Religion, Political Philosophy and Social Philosophy, Analytic Philosophy, Logic etc. Students also become familiar with some of the major figures and schools of thought in the intellectual tradition, and develop an appetite for further study and learning.

Papers	Course	Outcome
PHI-HC-1016	INDIAN PHILOSOPHY-I	The aim of this paper is to acquaint students of theUpanishadic Philosophy and the origin of Indian Philosophy. Moreover, students are also acquaint with various forms of Vedic and No-vedic systems of Indian Philosophy.
PHI-HC-1026	LOGIC-I	In this paper students acquaint with the preliminary concept of Logic and the concept of categorical proposition and categorical syllogism, Venn Diagram technique, set and set notations etc.
PHI-HC-2016	GREEK PHILOSOPHY	In this paper students can learn the nature of ultimate reality of the universe. Students acquaint themselves with the philosophical theories of Greek Philosopher Thales, Pythagoras, Socrates, Plato, Aristotle etc.
PHI-HC-2026	LOGIC-II	. In this paper students learn about the nature of symbolic logic and Modern classification of propositions and the relation between Modern and traditional logic. Students can determine the validity of arguments with the help of Truth table method. Moreover, students are also acquaint with shorter truth table method, formal proof of validity, standard form of categorical syllogism.
M.304	INDIAN PHILOSOPHY-I	This paper intends to acquaint the students with the ancient Indian Texts-Vedas, Upanisadic philosophy. It also concentrates on various schools of Indian philosophy system i.e, Carvaka, Jainism and Buddhism.
M. 305	HISTORY OF MODERN WESTERN PHILOSOPHY-I	This paper aims to acquaint the students with various theories of Descartes, Spinoza and Leibniz.
M.404	INDIAN PHILOSOPHY-II	Thispaper concentrates on different theories of the Nyaya, Vaisesika, Sankhya, and Yoga philosophy, It also aims to acquaint students with Samkara and Ramanuja's philosophy.
M. 405	HISTORY OF MODERN WESTERN PHILOSOPHY-II	This paper aims to acquaint the students with various theories of empiricist philosophers such as Locke, Hume. Kant's concept of knowledge, categories, space & time are also included in this paper.
M.501	GREEK PHILOSOPHY-I	It intends to acquaint students with the

		philosophical doctrine of primary stuff of Thales, philosophy of Flux of Heraclitus, the Pythagorean Number theory, the Atomism of Democritus including the Eleatic school of philosophy.
M.502	CONTEMPORARY INDIAN PHILOSOPHY-I	The paper aims to acquaint the learners of various philosophical thoughts of different contemporary Indian Philosophers i.e, Vivekananda's Practical Vedanta,Aurobindo's Evolution, Tagore's concept of Humanism and Radhakrishnan's views on Intellect and Intuition.
M.503	CONTEMPORARY WESTERN PHILOSOPHY-I	In this paper the main focus is to acquaint the learners with the nature of analytic philosophy. In addition to, it also aims to acquaint with the philosophical thoughts of different Contemporary Western Philosophers i.e Russell, Moore, Wittgenstein and Ryle etc.
M.504	ETHICS-I	This course seeks to acquaint students with the nature of Ethics and its scope. It also intends to acquaint students with the Fact and Value, Concepts of Normative Ethics, Meta-Ethics, Practical Ethics and Teleological theories such as Hedonism and Utilitarianism.
M. 505	PHILOSOPHY OF RELIGION-I	This course helps the students to understand the different religious traditions and their implications, the nature and scope of Philosophy of Religion. Its outcome is to understand the Freud's Theory of Origin of Religion, Animism, Totemism, Mana, Fetishism, Magic, and various foundations of religious beliefs
M. 506	SOCIAL PHILOSOPHY	This course covers the primary concept of social philosophy, like society and individual. The students become familiar with the theories of terrorism, the concept of Globalization, feminism and various aspects of Marx's philosophy.
M.601	GREEK PHILOSOPHY-II	This paper intends to comprise the philosophical theories of Socrates, Plato and Aristotle. Students are able to understand the concept of Virtue, Plato's theory of knowledge and Aristotle's metaphysical concept.
M. 602	CONTEMPORARY INDIAN PHILOSOPHY-II	This paper is specially designed for

		students to give various concept of Gandhi's political, economic philosophy including his views on religion.
M.603	CONTEMPORARY WESTERN PHILOSOPHY-II	The chief aim of this paper is to disseminate the knowledge of existentialism. This paper helps students to gather knowledge of different doctrines put forward by Existentialist Philosophers such as Kierkegaard, Nietzsche, Husserl and Sartre.
M. 604	ETHICS-II	This paper concentrates with Deontological Ethics of Kant, the ethical theories of Moore, A.J.Ayer etc. It also interpretes some Indian ethical concept such as the law of Karma.
M. 605	PHILOSOPHY OF RELIGION-II	The course helps the students to learn some key concept of Philosophy of religion. Arguments for the existence of God, the peculiarity of religious language are some of the topics in this paper. It also aims to give knowledge of Sankaradeva'sVaishnavism and his entire philosophy.
M. 606	PROJECT/DISSERTATION	The Project paper is in the form of a brief dissertation of the length between 10,000-12,000 words. It may be either on a particular philosopher or on a particular topic relevant to the course carried out under the guidance of a teacher. This research based paper intends to inculcate research attitudes of student community.

SUBJECT: HISTORY

SEMESTER	COURSE CODE	COURSE NAME	COURSE OUTCOME
1	HC-1016	History of india-	After the completion of this paper , the students will be able to explore and effectively use historical tools in reconstructing the remote past of ancient India pre and proto history. The course will also train the students to analyse the various stages of evolution of human cultures and belief system in proto – history period.
	HC-1026	Social formation and cultural patterns of the	After the completion of this paper, the students will be able to explain the processes

		ancient world	and stages of evolution of the variety of cultural pattern throughout antiquarian periods in history. They will be able to relate the connections between the various Bronze Age civilizations in ancient world as well as development of slave and polis societies in ancient Greece.
2	HC-2016	HISTORY OF INDIA -II	On successful completion of this course the students will be able to explain the economic and socio- cultural connections , transitions and stratifications during the ruling houses , empires and the politico- administrative nuances of early Indian History from 300BCE to 300 CE.
	HC -2026	Social formations and cultural patterns of the medieval world	.After the completion of this course , the students will be able to analyse and explain the historical socio- political , administrative and economic patternsof the medieval world. They will be able to describe the emergence , growth and decline of various politico-administrative and economic patterns and resultant changes therein.
3	305	INDIA UNDER THE TURKO- AFGHANS	After completion of this course students will be able to explain the political and administrative history of India under the turkey - Afghans. They will also be able to analyse the sources of history, regional variations, social, cultural and economic set up of the period.
	306	HISTORY OF ASSAM(5TH CENTURY A.D. TO 1228)	This paper will give a general outline of the history of Assam from the5TH century A.D. to the advent of the Ahoms in the 13th century. Upon completion, students will be acquainted with major stages of developments in the political, social and cultural history of Assam during the early times.
4	407	INDIA UNDER THE MUGHALS	At the completion of this course, the students will be able to analyse the circumstances and historical shifts and foundations of a variety of administrative and political setup in India under the Mughals.
	408	HISTORY OF EUROPE(1453-1789)	On completion of this course, the students will be able to explain the major trends and developments in Europe from 1453-1789)They will be able to explore and analyse the significant historical shifts and events and the Resultant effects on the civilizations of Europe in the period.
5	509	INDIA UNDER THE EAST INDIA COMPANY	After the completion of this course, the students will be able to relate the circumstances leading to the consolidation of colonial rule over India and their consequences. They will also be able to explain the orientation of the indigenous population and the masses towards resistance to the colonial exploitation. The course will also enable the students to analyse popular uprisings among the tribal, peasant and common people against the British policies.
	510	HISTORY OF ASSAM	On completion of this paper, students will be

		(1228-1826)	able to identify major stages of developments in the political, social and cultural history of Assam during the medieval times. This paper will enable the student to explain the history of Assam from the 13thcentury to the occupation of Assam by the English East India Company in the first quarter of the 19th century.
	511	HISTORY OF EUROPE (1789-1870)	After the completion of this course the students will be able to evaluate the historical evolution and political developments that occurred in Europe in the period between 1789-1870. They will also be also to analyse the political development in Italy and Germany and nationalist sentiment in Europe..
	512	HISTORY OF SCIENCE AND TECHNOLOGY IN PRE- COLONIAL INDIA	After the completion of this course the students will be able to understand about the development of indigenous science and technology of India before the advent of East India Company.
	513	HISTORY OF GREAT BRITAIN (1485-1820)	After the completion of this course the students will be able to analyse political, constitutional and economic developments that occurred in great Britain in the period between 1485-1820.
	514	HISTORY OF CHINA (1839-1949)	After the completion of this course the students will be able to understand about the political changes in China from its opening to outside world to the foundation of the republic.
6	615	INDIA UNDER THE CROWN	At the completion of this course, the learners will be able to analyse the course of British colonial exploitation, the social mobilizations during the period betweenc.1857 to 1950 and also the techniques of Indian resistance to British policies.
	616	HISTORY OF ASSAM (1826-1947)	Upon completion of this course, students will be able to describe the period of British rule in Assam after its annexation by the imperialist forces. They will also be able to situate the development of nationalism in Assam and its role in India's freedom struggle. The course would enable the students to analyse the main currents of the political and socio-economic developments in Assam during the colonial period.
	617	HISTORY OF EUROPE (1871-1945)	After the completion of this course, the students will be able to analyse the historical developments in Europe between1871-1945 . Students will also be able to understand about the internal developments in France, Germany ,Italy and Russia.
	618	WORLD SINCE 1945	Upon completion of this course, students will be able to understand about the cold war and its consequences, problem of third world countries, foundation and role of UNO
	619	HISTORY OF JAPAN (1853-1941)	After the completion of this course, the students will be able to analyse about the political development in Japan between the

			period1853-1941.,They will also be able to acquired knowledge about the circumstances which helped Japan to emerged as world power.
	620	PROJECT	To aware the students about research activities with some local and regional problems. Through this projects the students got acquainted with the problems of carrying our research with the available data and material.

DEPARTMENT OF POLITICAL SCIENCE

Programme Outcomes, Programme Specific Outcomes and Course Outcomes

Programmes

- At the conclusion of the Bachelors degree programme, students acquire significant knowledge of the classical as well as contemporary political theories.
- About International relations, global politics and debates regarding globalization.
- About comparative politics and constitutions of different countries.
- Public administration, human rights, Indian foreign policy and contemporary political issues.
- History, Politics and movements in Northeast India.

Programme Specific Outcomes

- It enables students to carry out further research on the Indian constitution.
- It enables students to pursue courses and a career in law and legal affairs.
- Many students develop interest in International relations and have chosen a career in international agencies such as the United Nations, the World Trade Organisation etc.
- It enables the students to appear in Civil service examinations (Centre and State levels).
- Many have succeeded in joining International and National Non Governmental Organisations.

Course Outcomes

The following were the courses offered by the Goreswar College (as per the Gauhati University, CBCS and Non CBCS programmes)

COURSE OUTCOMES

SEMESTER	SERIAL No.	COURSE NAME	COURSE OUTCOME
1	1.1	Understanding Political Theory	The course enables students to gain knowledge about traditional political theories, the concept of power and its relationship with authority and legitimacy,

			concept of ideologies and concept of state.
1	1.2	Constitutional Government and Democracy in India	The course helps students to gain an understanding of colonial legacies, Indian freedom movement and Indian constitutional history. It also makes the students to understand the Indian Constitution and its basic features such as fundamental rights, relationship between executive and legislature and Judiciary.
1		Introduction to Political Theory (DSC+ Generic)	The course enables students to gain knowledge of basic concepts of political theory such as democracy, liberty, equality, justice, rights, citizenship and civil society.
2	2.1	Political Theory: Concepts and Debates	The course enables students to gain knowledge about the basic concepts of political theories such as freedom, equality, justice and rights. It also deals with the debates concerning negative and positive freedom, various kinds of justice.
2	2.2	Political Process in India	The course enables students to gain knowledge of Centre-State relations, the party system in India (National as well as regional), the Election system and Challenges to national integration.
2		Indian Government and Politics (DSC+Generic)	The course enables students to gain knowledge of Indian freedom movement, Indian constitutional history, the role of executive, legislature and judiciary in Indian political system, the various provisions of the constitution.
3	3.1	International Relations I	The Course enables students to understand the evolution, nature and scope of International relations. It also discusses theories and concepts such as balance of power, collective security and national interest. The course also ensures that students learn about the Causes and consequences of both the world wars and also cold war
3	3.2	Public Administration I	The course enables students to understand the concept, scope and importance of public administration. It also makes them knowledgeable about administrative theories, principles of organization and structure of organization.
3.		Politics in India I (General)	The course will enable the students to know about Indian freedom struggle and colonial legacies. It also deals with constitutional development and basic features of the Indian constitution.
4	4.1	International Relations II	The course enables students to understand the various concepts of International relation such as Foreign policy and diplomacy,

			Conflict resolution, Non-alignment. It also makes them knowledgeable about the history and role of United Nations, concept of security and disarmament.
4.	4.2	Public Administration II	The course enables students to acquire knowledge about Recruitment, Training and Promotion of Administrative Officers, Financial and Development Administration, Concept of Accountability and redressal of public grievances.
4.		Politics in India II (General)	The course enables students to know about the parliamentary forms of government, the judicial system of India, political parties and the role of pressure groups in Indian democracy.
5.	5.1	Western Political Thinkers	This course enables students to gain knowledge of Greek political thinkers such as Plato and Aristotle, Medieval and Early Modern Thinkers, The Contractualists and Marxian Political Thought.
5.	5.2	Select Constitution I	The course teaches students about the meaning and classification of constitutions. The course enables students to do a comparative analysis of the Constitution of United Kingdom and United States of America.
5.	5.3	Politics in Northeast India I	The course ensures students to develop an understanding of politics of Northeast India. It discusses the geo-strategic location and socio-cultural diversity, colonial policy of annexation and administration. It also teaches them about peoples' resistance against colonial rule and migration during British period.
5	5.4	Contemporary Political Issues	The course enables students to understand contemporary political issues such as Environmental degradation, Terrorism, Human Development and Security and Gender issues.
5.	5.5	Rural Local Governance	The course makes students aware of rural local governance in India during the ancient, colonial and contemporary period. It also teaches them about Zilla, Anchalik and Gaon Panchayat.
5.	5.6	Human Rights	The course makes students knowledgeable about the concept, growth, evolution and classification of human rights. It also makes them aware of different approaches and perspectives of human rights, about role of UN in protecting human rights and also that of NGOs.
5		Public Administration I (5.1) (General)	The course enables students to know about the evolution and importance of public administration. It deals with Scientific

			management theory, bureaucratic theory, principles and structures of organization
5		Select Constitution I (5.2) General	The course will enable the students to gain knowledge of the significance of constitution. It does am comparative study of the constitution of United Kingdom and United States of America.
6.	6.1	Indian Political Thinkers	The course enables students to gain knowledge of Indian political thinkers such as Manu, Kautilya, Raja Ram Mohan Roy and Jyotitbarao Phule. It also makes them knowledgeable about M.N. Roy, Mahatma Gandhi, Jawaharlal Nehru, B.R. Ambedkar and J.P. Narayan.
6.	6.2	Select Constitution II	The course enables students to do a comparative analysis of the history and working of the constitutions of Peoples' Republic of China and Switzerland.
6.	6.3	Politics in Northeast India II	The course enables students to gain knowledge about the post colonial developments in Northeast India. It makes them knowledgeable about Language politics, insurgency and changing nature of State politics in Assam.
6.	6.4	Contemporary Political Ideologies	The course makes the students knowledgeable about contemporary political ideologies such as Neo-liberalism, Feminism, Religious Fundamentalism and Multi-culturalism.
6.	6.5	Urban Local Governance	The course provides knowledge to the students regarding urban governance, constitutional structure of urban local bodies such as Nagar panchayat and Municipal council, various committees and finance, control and personnel administration.
6.	6.6	Human Rights in India	The course enables students to gain knowledge of human rights in ancient, medieval and colonial periods. It provides them knowledge about institutions such as NHRC, NCW and National Commission for SC and ST. It also makes them knowledgeable about rights of women, children, minority and indigenous groups.
6		Public Administration II (6.1) (General)	The course enables students to gain knowledge of personnel, financial and development administration. It also deals with the concept of accountability and redressal of public grievances.
6		Select Constitution II 6.2 (General)	The course will enable students to gain knowledge of the constitutions of the Peoples Republic of China and Switzerland. It will also carry out a comparative perspective of both the constitutions.

COURSE OUTCOME

UG ENGLISH (HONOURS)

DEPARTMENT OF ENGLISH

SEMESTER	COURSE CODE	COURSE NAME	COURSE OUTCOME
I	Paper 1: ENG-HC-1016	Indian Classical Literature	This paper introduces students to a selection of Classical Literatures of India in English translation. Given that Indian Classical Literature offers a rich and diverse canvas that spans across genres like drama, poetry, the epic narrative as well as short fictional fables, to name a few. This paper will encourage students to think literally about literatures of the world, and the possibility of cultural exchange.
	Paper 2: ENG-HC-1026	European Classical Literature	This paper introduces students to a selection of Classical Literatures of Europe in English translation. The European Classical Literature offers a rich and diverse canvas that spans across genres like drama, poetry, the epic narrative as well as short fictional fables, to name a few. While the Aristotelian focus on the examination of the essentials of poetry extended to incorporate discussions on epic and drama, subsequent writers such as Horace drew attention to the purposefulness of the creative exercise. In the theatre the widely divergent compositions by Sophocles and Plautus respectively show the consolidation of a rich cultural discourse. It is this enriching literary tradition that this paper will familiarize with through the study of representative texts belonging to the Classical Period.
II	Paper 3: ENG-HC-2016	Indian Writing in English	This paper develops familiarity with the issues of politics of language and gender, nationalism and modernity pertaining to pre and post-Independence India that have

			been responsible for the emergence of Indian English literature. It helps to understand the place of English Writing in India in the larger field of English Literature. It enables to learn to discuss critically the use of literary forms of the novel, poetry and drama by Indian English writers in distinctive ways against Indian historical and cultural contexts.
	Paper 4: ENG-HC-2026	British Poetry and Drama	This paper will familiarize the students with the two major forms in British literature from the 14th to the 17th centuries – poetry and drama, apart from acquainting them with the contexts that generated such literatures. It will also enable the students to understand the larger contexts of the Renaissance, the nature of the Elizabethan Age and its predilections for certain kinds of literary activities, and the implications of the emergence of new trends. It will also help the students to understand the seminal issues and preoccupations of the writers and their ages as reflected in these texts.
III	Paper-5	The Social and Literary Context: The Victorian World.	In this paper students will encounter with the Victorian Literary tradition along with the social condition of Victorian Age. During the reign of Queen Victoria, Britain was transformed from rural agricultural society into an urban and industrial one. Students will know about the rapid changes of society through Reform Act of 1832, the conflict between science and religion, educational and Literary significances through Oxford Movement through this paper.
	Paper-6	Victorian Poetry and Fiction	Through this paper, the students will encounter the characteristics of Victorian Poetry. They will be acquainted with forms like dramatic monologue, love-poem, Pre-Raphaelite experiments and the beginning of modern poetic experience in Hopkins. The students will come across the social concerns of the Age through fiction s written by Dickens and Hardy
IV	Paper-7	The social and Literary Context-Modernism and After	This paper will familiarize the students about the circumstances that shaped the processes of literary production from the 20th century to the present
	Paper-8	English poetry and Fiction: Modernism and After	This paper will familiarize the students with English poetry and Fiction of the modem and postmodern period through which they will learn about some important trends, critical shifts and even experimentation. The paper includes example from the British, the American and the Latin American literary cultures.

V	Paper-9	Modem Drama I	This paper is concerned to the 20th century English and European drama. Students will be acquainted with the European historical and cultural situations of the period 20th century by the prescribed essays and dramas by the authors like George Bernard Shaw, Anton Chekhov, Bertolt Brecht and Antonin Artaud.
	Paper-10	Drama: Theory and Practice-II	This paper, the epoch of modern drama will mark the proliferation of avant-garde theory with the theatre making it self-conscious and experimental. The students will be impact of contemporary philosophy, ideas and art movements like existentialism, expressionism, impressionism, Marxism and the Absurd reverberate s in modern drama.
	Paper-11	The Essay in English: Addison to Dickens	In this paper, the students will come to learn about some representative texts from the 18th and 19th centuries. They acquaint themselves with the development of 'Essay' as a literary genre from the time of Bacon and the emergence of periodical essay in the hands of Addison and Steele. Students have to study these essays in relation to social, political and cultural context. Moreover, students will also acquaint with various styles of personal writing.
	Paper-12	The Essay in English: The Twentieth Century	This paper introduces students to the developments in the genre of the essay in the 20th century. Students will note how the genre has adapted in order to address a variety of contemporary issues and become the vehicle for representing personal experiences, moved into literary, social, and cultural criticism and engaged in polemic and persuasion. The selected essays enable the students to read the intellectual and socio-cultural background of the Age, the shift away from the elevated, literary, and classical style of earlier times to a general tendency towards factual and referential writing and a style more direct, immediate, and colloquial.
	Paper-13	Life Writing: Biographies, Memoirs and Letters	This paper will enable the students to study the elements of 'story' and the material conditions under which these great works are written. The students will know about the truths of the lives of prominent people. The paper will try to have that sense of narrativity, in various forms of life-writing such as Biographies, memoirs and letters.
	Paper-14	Women’s Writing	This paper on writing by women introduces students to a body of literature that has emerged with growing feminist awareness of women’s lives and their representation. It enables the students to recognize the importance of gender specificity in

			literature and link the status of woman to social discrimination and social change. It also enables the students to understand the complexity of social and biological constructions of manhood and womanhood.
VI	Paper-15	Literary Criticism	Students will be acquainted with some of the key ideas of Western literary criticism from Graeco Roman antiquity to the modern period. Through this paper the students expect to examine the ideas like mimesis, imagination, classicism, romanticism and modernism etc.
	Paper-16	Twentieth Century Criticism and Theory	This paper encounters the students with the intellectual shifts in the reading of culture, language and literature in the 20th century and the emergence of theory.
	Paper-17	Nature	This paper seeks to explore the process through which language and literature as manifestation of culture are produced by the interconnections between both nature and culture. It enables the students to study the relationship between literature and the physical environment and examining literary texts through “an earth-centred approach “. It enables the students in understanding key ideas in eco-critical thinking.
	Paper-18	Western Mythology: Introducing Classical and Judeo-Christian Myth	This paper introduces the students to the study of Classical and Judeo-Christian Myth and their importance in social, historical, cultural and literary perspective. Students will come to know about the mythical ideas and images in western art and literary cultures. In the Section I, emphasis is given on obtaining knowledge of specific myths and related characters. In Section II, students come across the presentation of myths in various literary contexts.
	Paper-19	**Option A:** Indian English Literature: Intellectual Context	The paper acquaints the students to the distinctive literature produced in India in the wake of English education. The selected essays in the course connect students with a lengthy period of time from pre historic to the present. Students are made familiar with intellectuals' perception of India and Indians; Gandhi from before Independence to AmartyaSen in the twenty first century. Offering the illuminate traditions, people and society, they seek to establish a continuity of those faith, belief, customs and traditions that could form the basis of what an Indian perceives as his identity.

	Paper-20	Indian Poetry, Fiction and Drama	This paper connects students to the major authors of Indian English Literature. All the selected texts are read in the light of the historical, cultural and political circumstances of their production. Students are made familiar with illuminating Indian imagery, Indian sentiment, culture, tradition and institution, and the ancient Indian story of Emperors and Heroes and Heroines. Issues discussed in these readings are expected to give students a foundation in ideas that will help in the readings of literary texts in these papers.

B.A. 1st SEMESTER (REGULAR)

SEMESTER	COURSE CODE	COURSE NAME	COURSE OUTCOME
I	ENG-CC-1016	English-1	This paper seeks to acquaint students with the major genres of English literature through texts which are landmarks of each genre. It provides the student an opportunity to read and respond to representations of issues in contemporary life and culture in the English language. The selection of texts (Prose, Poetry & Drama) is aimed to present themes and topics that are stimulating, insightful and informative. The grammar section in the paper will help students to learn effectively the structure of English language.
II	ENG-CC-2016	English-II	This paper is designed to offer a representative sampling of the major literary traditions of British life and culture through a study of texts in different genres. The select number of poetry is aimed to present themes and topics that are stimulating, insightful and informative. The grammar section in the paper will help

			students to learn effectively the structure of English language.

B.A. 1st SEMESTER (HONOURS/REGULAR)

SEMESTER	COURSE CODE	COURSE NAME	COURSE OUTCOME
I	ENG-104R-AECC	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. Itfocuses on various dimensions of communication skills such as: 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, notetaking etc. It is hoped that after studying this course, students will find a difference in their personal and professional interactions.

SUBJECT : ECONOMICS

OUTCOME OF COURSES UNDER B.A AND B.SC MAJOR PROGRAM IN

ECO-HC-1016: INTRODUCTORY MICROECONOMICS

Course Description: This course is designed to expose the students to the basic principles of microeconomic theory. The emphasis will be on thinking like an economist and the course will illustrate how microeconomic concepts can be applied to analyze real-life situations.

ECO-HC-1026: MATHEMATICAL METHODS IN ECONOMICS–I

Course Description: This is the first of a compulsory two-course sequence. 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. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The level of sophistication at which the material is to be taught is indicated by the contents of the prescribed textbook.

ECO-HC-2016: INTRODUCTORY MACROECONOMICS

Course Description: This course aims to introduce the students to the basic concepts of Macroeconomics. Macroeconomics deals with the aggregate economy. This course discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments.

ECO-HC-2026: MATHEMATICAL METHODS IN ECONOMICS - II

Course Description: This course is the second part of a compulsory two-course sequence. This part is to be taught in Semester II following the first part in Semester 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. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The level of sophistication at which the material is to be taught is indicated by the contents of the prescribed textbook.

……

3RD AND 4 TH SEM NON-CBCS (GU) SYLLABUS

OUTCOME OF COURSES UNDER B.A AND B.SC MAJOR PROGRAM IN ECONOMICS

PAPER 404: MATHEMATICAL APPLICATIONS IN ECONOMICS:

It imparts basic concepts. It discusses about the matrix and determinants. In the third unit it also includes differential calculus. In the last unit, it discusses intefral calculus.

PAPER 305: THE MONEYTARY SYSTEM

It enables the students to know the basic concepts of money, functions of commercial banking and central banking. It also discusses about the performance of financial system and markets.

PAPER 404: MATHEMATICAL APPLICATIONS IN ECONOMICS:

It imparts knowledge of mathematical tools used in economic analysis. It discusses about the calculus in economic applications, maxima and minima variables, elements of linear programming and game theory.

PAPER 405: INTRODUCTION TO DEVELOPMENT ECONOMICS

It enables the students to know the basic concepts of development. It also discusses about the economic growth and different development theories of various economists.

…….

5TH AND 6 TH SEM NON-CBCS (GU) SYLLABUS

OUTCOME OF COURSES UNDER B.A AND B.SC MAJOR PROGRAM IN ECONOMICS

PAPER 501 ELEMENTS OF PUBLIC FINANCE:

It imparts the role of the govt. in an economy. This course explains the different concepts of public revenue, public expenditure and public debt. It will be able to interpret the effects of public expenditure, public debt on the economy.

PAPER 502: BASIC STATISTICS FOR ECONOMICS:

(For Arts) It imparts statistical tools necessary 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.

PAPER 503: ENVIRONMENTAL ECONOMICS:

It looks at how economic activity and policy affect the environment in which we live. This course focuses on economic causes of environmental problems. Economic implications of environmental policy are also addressed as well as valuation of environmental quality, market failure, externality, Global environment issues and environmental impact assessments.

PAPER 504 INTERNATIONAL ECONOMICS:

It helps in assessing economic and political effects and the implication to the international trade for goods and services, finance and foreign investment.

PAPER 505 HISTORY OF ECONOMIC THOUGHT:

It helps us to understand the origin of economics and to avoid the mistakes committed by earlier economic thinkers. It discusses about early and classical period followed by socialist thoughts.

PAPER 506: DEVELOPMENT POLICY AND INDIAN ECONOMY:

It imparts the policy of Indian govt. It helps students to understand the trends and composition of National Income and per capita Income, discusses about the role of agriculture in economics

development and the role of Industries in the Development process.

PAPER 601: PUBLIC ECONOMICS

It will look into the efficiency and equity aspects of taxation, Government budget of the centre, states and the local governments and the issues of fiscal and fiscal federalism and

decentralization in India. The course will be useful for students aiming towards careers in the government sector, policy analysis, business and journalism.

PAPER 602: APPLIED STATISTICS (For Arts)

It explains the concepts and uses of Index number followed by time series analysis and vital statistics.

PAPER 603: ECONOMICS OF NATURAL RESOURCES AND SUSTAINABLE DEVELOPMENT

This course focuses on economic causes of environmental problems. In particular, economic principles are applied to environmental questions and their management through various economic institutions, economic incentives and other instruments and policies. It has also explains the renewable and non renewable resources, sustainable development.

PAPER 604: INTERNATIONAL ECONOMICS

This course develops a systematic exposition of models that try to explain the composition, direction and consequences of Balance of payments, foreign exchange market and exchange rates. It concludes with an analytical account of the causes and consequences of Economic Integration and International Institutions.

PAPER 605 HISTORY OF ECONOMIC THOUGHT II

This course aims to introduce the students to the famous schools of thought, Keynesian economics and Indian economic thought.

PAPER 606 PLANNING FOR DEVELOPMENT: INDIA AND THE NORTHEAST

This is the second module of the economic development sequence. It begins with basic planning concepts and their evolution during the process of development. The course explains the reflections on the role of globalization and increased international dependence on the process of development. The course ends with the economic problems and comparative development experience of North-east India vis-à-vis all India average.

.....

SUBJECT: BODO

PROGRAME OUTCOME

1st Semester, Bodo Major

I	BOD-HC-1016	History of Bodo Literature (Early Period)	Unit:I: Missionary contribution in Bodo literature Unit:II:Bodo Literature (post Missionary to pre-Bibar) Unit:III: Writings in Bibar magazine Unit:IV:Writings in Hathorkhi-Hala and Olongbar.
	BOD-HC-1026	Literary Criticism (Western)	Unit:I: Theory and concept of literary criticism Unit:II: Poetry and Drama Unit:III: Novel and short story Unit:IV New-literary theory (with special reference to modernism, postmodernism, feminism and ecofeminism)
II	BOD-HC-2016	History of Bodo Literature (Modern Period, 1952 to 2015)	Unit:I: An introductory note on historical development of modern Bodo literature Unit:II:Bodo Poetry Unit:III: Bodo Novel and short story Unit:IV:Bodo Drama
	BOD-HC-2026	Literary Criticism (Eastern)	Unit:I History and development of eastern literary criticism Unit:II: Rasa Unit:IIIChanda Unit:IVAlankara
III	Major 3.1	Bodo Poetry (Up to 1951)	In this course students can learn about "Trend of Bodo poetry (Up to 1951)" in unit –I. In the other unit early bodo poetry (Up to 1951) are teach them. These are as given follow- Unit-II: a. AngniKhwina-Rupnath Brahma b) KhathiGasa-KhitishBhusan Brahma c) DaniBoroPhisa-Madaram Brahma d) Mwdwi-IshanMoshahary Unit-III: a) Thwinay-Pramod Chandra Brahma b) BaidiMwzangKhwurang-Kali Kumar Lahary c) Habilas-Nileswar Brahma d) BathuBarayaMakhuKhurzidung- Prasanna Kumar BoroKhakhluary Unit-IV: a) Eroino Din Thanga-Ratiram Brahma b) Sikhangdo-Surendranath Brahma c) Zakhangdo-Jaladhar Brahma d) AngniSimang-ManiramSongphramnary

	Major 3.2	Modern Bodo Poetry (From 1952 to 2005)	In this course students can learn and teach them about “Modern Bodo Poetry” from 1952 to 2005. Unit-I: Trends of Modern Bodo poetry (From 1952 to 2005) Unit-II: a) MahabuddhaniTapashya: Samar Brahma Chaudhury b) ZibraltarniOnthai: Prasenjit Brahma c) Abwi: Brajendra Kr. Brahma Unit-III: a) GuphurDauthuaDabwGabw: Anjoo b) ZiuSwinay: SurathNarzary c) SanggremaZiu: BishnujyotiKachar Unit-IV:a) Amen: Bikram b) SaseBadari:MwnthamSaogari: AurabindaUzir c) BishnuRabhanw: Anil Baro

4th Semester, Bodo Major

IV	4.1	Introduction to Language and Linguistics	In this paper students are can to know about the "Language: Definition of language, Characteristics of language, Why study language?" in first unit. In other units Linguistics: Definition, Linguistics as a science, Branches of linguistics, Scope of linguistics, Levels of linguistic analysis , Introduction to Phonetics, Phonology and Morphology and Introduction to Syntax, Semantics and Vocabulary teaches them.
	4.2	Structure of Bodo Language	Phonological analysis (Phoneme and its description, distribution of phonemes, Uses of Tone and syllable) is the main course in first unit. Morphological analysis (With special reference to system of number, gender, numeral classifiers, use of personal pronouns, case and case-markers, structure of verbs, application of tense and tense-markers), Syntactic analysis (Types of sentences, IC analysis of Bodo sentences, Word order), use of Bodo phrase and idioms, Vocabulary (Introduction to Bodo vocabulary and the mutual impact of lexis between the Bodo and other languages, basic feature of Bodo words) are also include in this paper.
V	5.1	Introduction to Culture	Specially in this paper teaches are tought the students about the Definition of culture, characteristics of culture, society and culture, culture and civilization, language and culture. Folklore and folk-society, Folklore and its sub-genres, Folk-religion, folk-beliefs and superstition (analysis may be done from the folkloristic point of view) and Process of cultural diffusion, acculturation and assimilation are also teach the students.
	5.2	Cultural history of the Bodos	In 5.2 paper, student can know about the "Origin and development of old Bodo drama" in first unit. In other unit "DwrswnJwhwlao: Satish Ch. Basumatary," "ObongniPhao: BhabenPhwrwnggiri," and "Dukhashri: UpendraNarzary" are tought them. Specially in this paper the old drama of bodo language are given.
	5.3	Textual analysis on Bodo drama of the Early Period	In this paper "The Bodo society and traits of Bodo folk-culture, its traditionalism and prospect of continuity" is tought in first unit. In the other unit "Orality of Bodo folk-literature, sub-divisions of the folk-literature", "Material culture of the Bodos and in the last unit "Social folk-customs and fairs and festivals of the Bodos" are teach the students.

	5.4	Textual analysis on Bodo drama of the Modern period	In this course "Growth of modern Bodo drama","MimangniSimang" -Kamal Kumar Brahma, "SigunRaja" –JatindraNathBaro and "MwnabiliniHangma" -JanakJangkarNarzary are taught the students. In this paper students are know about the Texual analysis on modern Bodo drama of the Modern period written by some modern bodo writer.	
	5.5	BodoNon-fictional prose	In the first unit students are taught about "Background of Bodo prose literature" of early period bodo literature. In the 2nd unit three prose are given from "HathirkhiHala" magazine. These are- BoroniRao- Ananda Ram Mushahary, HariyariMethai- Ishan Ch. Brahma, Bwisagu- Pramod Ch. Brahma. In the unit three "SubungMahariaoKhanaPhwthainay- Brajendra Kr. Brahma," "BoroniJwhwlaoJwhwlaojwphwr"- Pramod Ch. Brahma", "MongolianniGwgwThwiBoroPhisa"- ManoranjanLaharyare given in syllabus. In the last unit "BagurumbaMwsanay: MwnseBijirthi" -Dr. Liladhar Brahma, "BoroHarimu"- Anil Boro, "HabraghatBoroSanmilani" - PrabanBargayary are given.	
	5.6	Fiction	In this course "Unit-I: Background of Bodo Fiction Unit-II: Alaishree-ManoranjanLahary Unit-III: KhwmsiniphraiSwrangthing-KatindraSwargiary Unit-IV: a) Silingkhar: Nilkamal Brahma b) HazwniSikhiriHayenniBibar: Janil Kr. Brahma c) GwlwndaDahwna: NandeswarDaimary	
	6.1	Indian Literature	Unit-I: EmuthiKabita- NirmalPravaBordoloi (Assamese poem) MorDesh- Hiren Bhattacharya (Assamese poem) Jeevan Bandana: KaziNazrul Islam (Bangla Poem) Unit-II: AjirManuh (Assamese Novel): Hitesh Deka Unit-III: Zagori (Hindi Novel): SatinathBhaduri Unit-IV: a) KartarBhut (Origin:Bangla): R.N.Tagore b) GwjanniAlasi (Origin: Bangla): Annada Shankar Rai c) KhamnayGamiyaoGibiBwisagw (Origin: Assamese): Syed Abdul Malik. In this paper students are tought about above mention Indian Literature.	

VI	6.2	Western Literature	In Unit-1: Old Poetry of bodo literature are taught the students. These are- a) Providing Mourning-John Donne b) Sonnet (Number-65)-William Shakespeare c) The Fairie Queen Canto-7 (The Cave of Mammon)-Edmund Spenser Unit-II Modern Poetry- a) Love Song of J Alfred Prufrock-T S Elliot b) Sailing to Byzantium-W B Yeats c) Stopping By Woods on A Snowy Evening-Robert Frost Drama Unit-III Drama a) Hamlet-William Shakespeare Unit-IV: Drama a) Riders to the Sea-James Sinjs
	6.3	Western Literature	In the first and second unit two western Novel "The Old Man and the Sea" by- Hemingway, "Crime and Punishment" by- Dostoevsky are taught the students. In the unit-III four short story "Modern Life" -EuseviyoVisky, "The Thief" -AssiacVusewi So Singer, "Tiger"- HorrachioKiroga , "Swithan" (translated into Bodo) –Khalil Zibran are given in the syllabus.
	6.4	Bodo Language	The term Bodo, origin and development of the Bodo language, demographic composition and concentration of the Bodos, Characteristics and Present Status of the Bodo Language, Linguistic impact of other languages on Bodo in case of phonology, morphology, syntax and vocabulary, Language Variation (In this unit the topics like idiolect, dialect, difference between dialect and idiolect, standard language, process of standardization are to be included) are taught the students in this paper.

	6.5	Cognate Languages of the Bodo	In this paper given these course- Bodo Group of Languages, common characteristics and concentration of this group of peoples, Comparative Phonology of Bodo, Garo, Dimasa, Rabha, Kokborok and Tiwa with special reference to Vowels, Consonants and use of Syllable and Tone (Glottal stop, where tone is not available), (In this unit students are suggested to compare the phonology of any two languages with the phonology of the Bodo language, Comparative Morphology of Bodo, Garo, Dimasa, Rabha, Kokborok and Tiwa with special reference to Structure of Noun, Pronoun, Number, Gender, Verb and tense and Adjective (In this unit students are suggested to compare the morphology of any two languages with the morphology of the Bodo language), Comparative Vocabulary of Bodo, Garo, Dimasa, Rabha, Kokborok and Tiwa Language with introduction to the structure of basic vocabulary and the loan words available in these languages (In this unit students are suggested to compare the vocabulary of any two languages with the vocabulary of the Bodo language)
	6.6	Dissertation Preparation	In this paper, students are suggested to prepare by teachers a dissertation at least of 50 pages on the topic given by the departmental teachers using research methodology. After given the topic when students are submit the dissertation paper examiners are examine.

SUBJECT: BOTANY

Program Outcomes and Course Outcomes(Honours/Major course)

Under Graduate program In B.Sc. Botany

Session:2019-2020

Gauhati University

Programme Outcome:

Bachelor programme in botany bring students more closure to nature along with the understanding of the scientific issues for day to day application. The programme aware the students about the issues regarding the environment and ecology. The contributory role of plants for the breath of earth is can be understood with topics such as anatomy, physiology, morphology, cytology etc.

Semester I: (CBCS)

Courses:

Papers:BOT-HC-1016: Phycology and Microbiology

BOT-HC-1026: Biomolecules and Cell Biology

Outcomes:

- Basic knowledge on viruses and bacteria, and their importance in agriculture and medicine.
- Basic knowledge on Algal classification, Economic and ecological importance of Algae.
- Practical knowledge on structure and life cycle of Bacteriophage microscopy of bacteria and algae
- Basicknowledge on structure, classification and physicochemical properties of biomolecules and enzymes.
- Basic knowledge on structure, properties and functions of cell and its components
- Practical knowledge on properties of cell, microscopy of plant cell and qualitative tests of bio-molecules

Semester II: (CBCS)

Courses:

Papers- BOT-HC-2016: Mycology and Phytopathology
BOT-HC-2026: Archegoniate

.**Outcomes:**

- Basic knowledge on morphology, anatomy, classification and properties of bryophytes, pteridophytes and gymnosperms.
- Basic knowledge on reproduction and economic importance and ecological significance of bryophytes, pteridophytes and gymnosperms.
- Practical knowledge on morphology and reproductive structures of bryophytes, pteridophytes and gymnosperms

Semester III(NON-CBCS)

Courses:

Papers- Paper-M301(Theory) : Ecology, Plant Geography, Evolution
M 302 (Theory) : Instrumentation and Laboratory Techniques
M 303 (Practical)

Outcomes:

- The course content gives idea about ecological types and influence of environment on plants and plant type ecology.
- The other theory paper gives idea about different plant study techniques involved in advance study of plants

Semester IV(NON-CBCS)

Courses:

Papers-M 401(Theory) : Morphology, Palynology, Embryology of Angiosperms
M 402 (Theory) : Plant Taxonomy
M 403 (Practical)

Outcomes:

- The course outcome is of detail taxonomic developments of plants
- The course outcome is of detailmorphological developments of plants

Semester V(NON-CBCS)

Courses:

Paper-M 501(Theory) : Microbiology and Immunology
M 502 (Theory) : Plant Pathology and Lichen

M 503 (Theory) :Cytogenetics, Plant Breeding and Biometrics
M 504 (Theory) : Applied Botany (algae, fungi, bacteria, breeding, climate & horticulture)
M 505 (Practical) Microbiology, Plant Pathology and Lichen
M 506 (Practical) Cytogenetics, Plant Breeding, Biometrics and Applied Botany

Outcomes:

- Students get idea about microorganisms, their benefits, physiology, metabolism, growth and role in environment.
- The paper two deals with plant diseases and their control and also about symbiotic organisms.
- The paper three deals with cell genetic materials, their importance in genetic modifications, breeding techniques and their importance.
- Students also get skill of statistical analysis necessary for plant studies.
- The fourth theory paper is about economic importance of algae, fungi and bacteria and different techniques of plant breeding and horticulture.
- The practical papers are supportive in developing skill of thought in theory papers

Semester VI(NON-CBCS)

Courses:

Paper-M 601(Theory) : Molecular Biology and Plant Biochemistry
M 602 (Theory) : Bioinformatics, Computer Application and Biotechnology
M 603 (Theory) : Plant Physiology
M 604 (Theory) : Applied Botany (Plant Resource Utilization)
M 605 (Practical) Molecular Biology, Biotechnology, Bioinformatics and Computer Application
M 606 (Practical) Plant Physiology and Plant Resource utilization

Outcomes:

- This semester makes students skilled in latest plant studies and advance techniques involved therewith.
- On completion of course of 6th semester the students become well informed about molecular aspects of cell internal physiology, the biochemical aspects of different physiological and metabolical functions taking place inside a plant cell.
- Also different physiological activities and their importance for higher studies of plant. This semester also deals with advance study of plants and its genomics with the help of computer databases in bioinformatics.
- Advance utilization of different plant groups are also thought in this semester.
- The practicals involve all advance techniques like chromatography, colorimetry, spectrometry, tissue culture etc.

B.SC :: CHEMISTRY

Program Outcomes and Course Outcomes

Program Outcomes	•To understand the basic facts and concepts in Chemistry •To understand the importance of Chemistry in daily life •To develop a better understanding and reasoning of facts •To skill-up for basic analytical tools •To skill-up for various laboratory techniques used in pharmaceutical laboratories and chemical industries. •To make efficient for various spectrometric analyses
Course Outcomes	
SEM-I	**Paper RC/HG-1016:CHEMISTRY1** After completion of this course the students will learn the atomic structure through the basic concepts of quantum mechanics. They will understand the chemical bonding through VB and MO approaches. In organic part, they will learn basic ideas used in organic chemistry, stereochemistry, functional groups, alkanes, alkenes, alkynes etc. **Lab: Practical Chemistry** After completion of this course students will be able to analyze volumetric estimation, detection of extra elements in organic compound and separation of mixtures by chromatography.
SEM –II	**Paper RC/HG-2016:CHEMISTRY2** After completion of this course the students will learn periodic properties in main group elements, transition metals (3d series). They will also learn the crystal field theory in coordination chemistry unit. In physical chemistry part the students are expected to learn kinetic theory of gases, ideal gases, surface tension,

	viscosity, basic solid state chemistry and chemical kinetics. **Lab: Practical Chemistry2** After completion of this course students will be able to semi-micro qualitative analysis using H_2S mixture, Estimation, determination of surface tension, Viscosity, Chemical kinetics etc.
SEM –III	**Paper RC/HG-3016:CHEMISTRY3** After completion of this course the students will able to understand the chemical system from thermodynamic points of view. They will also learn two very important topics in chemistry- chemical equilibrium and ionic equilibrium. In organic chemistry part, the students are expected to learn various classes of organic molecules- alkyl halides, aryl halides, alcohols, phenols, ethers, aldehydes and ketones. **Lab: Practical Chemistry3** After completion of this course students will be able to analyze the the various experiments of thermochemistry, measurements of pH, Purification of organic compounds, preparation of organic compounds etc. **Paper: SE-3042:IT SKILLS FOR CHEMISTS** After completion of this course students are able to use the computer for basic purpose of preparing his/her personal/business letters, viewing information on Internet (the web), sending mails, using internet banking services etc. After opting this course the students are expected to accumulate the skills in writing activities and handling numerical data. **Paper: SE-3034: BASIC ANALYTICAL CEMISTRY** Upon completion of this course, students shall be able to explain the basic principles of chemical analysis, design/implement microscale and semimicro experiments, record, interpret and analyze data following scientific methodology.
SEM –IV	**Paper RC/HG-4016:CHEMISTRY4** After completion of this course the students learn solutions, phase rule and its application in specific cases,

	basics of conductance and electrochemistry. Students will also learn some important topics of organic and biochemistry, carboxylic acids, amines, amino acids, peptides, proteins and carbohydrates. **Lab: Practical Chemistry4** After completion of this course students will be able to analyze cell constant, equivalent conductance, construction of phase diagram, determination of critical solution temperature, qualitative analysis of organic compounds, paperchromatography etc. **Paper: SE-4014: ANALYTICAL CLINICAL BIOCHEMISTRY** After completion of this course students will be able to identify various molecules relevant to a particular pathological condition and their estimation protocols. **Paper: SE-4024: GREEN METHODS IN CHEMISTRY** Students shall be able to describe and evaluate chemical products and processes from environmental perspective, define and propose sustainable solutions and critically assess the methods for waste reduction and recycling. **Paper: SE-4034: PHARMACEUTICAL CHEMISTRY** After completion of this, course students will be able to appreciate the drugs development process, identify various small molecules used for treatments different ailments and other physiological processes.
SEM –V	**Paper- RE-5016: APPLICATION OF COMPUTERS IN CHEMISTRY** After the completion of this course it will help the students to interpret laboratory data, curve fitting of experimental work, and also perform quantum mechanical calculations for various molecular models. At the same time through the experiments, after completion of this course students will be able to interpret computer programs based on numerical methods for roots of equation, numerical differentiation, numerical integration, matrix operations, simple exercise using molecular visualization software etc. **Paper- RE-5026: ANALYTICAL METHODS IN CHEMISTRY**

	After completion of this course students will have theoretical understanding about choice of various analytical techniques used for qualitative and quantitative characterization of samples. At the same time through the experiments students will gain hands on experience of the discussed techniques. This will enable students to take judicious decision while analyzing different samples. **Paper-RE-5036: MOLECULAR MODELLING & DRUG DESIGN** After completion of this course students will be able to identify basic components of computer and programming as applied to computer assisted design and modelling of molecules. At the same time through the experiments after completion of this course students are able to analyse the conformation of butane, comparison of shapes of different molecules, hydration of ethylene, comparison of different optimised bond angles etc. **Paper: RE-5046: NOVAL INORGANIC SOLIDS** After the completion of this course it will be possible for the students to opt for studying an interdisciplinary master's programme with an emphasis on the synthesis and application of various materials or take up a job in the materials production and or processing industry. At the same time though the experiments students are able to learn how to determine the cation are exchange, synthesis of ceramic oxides, synthesis of Ag and Au metal nano-particles etc. **Paper: RE-5056: POLYMER CHEMISTRY** After completion of this course the students will learn the definition and classification of polymers, kinetics of polymerization, molecular weight of polymers, glass transition temperature, and polymer solution etc. They also learn the brief introduction of preparation, structure, and properties of some industrially important technologically promising polymers through experiments. **Paper: RE-5066: INSTRUMENTAL METHODS OF CHEMICAL ANALYSIS**

	After completion of this course students shall be able to explain the theoretical basis of different analytical techniques, identify the experimental requirements and compare or analyze data or results thereof. **Paper: SE-5014: CHEMICAL TECHNOLOGY & SOCIETY** Students shall be familiarized with processes and terminologies in chemical industry, like mass balance, energy balance etc. Learners will be able to use chemical and scientific literacy as a means to better understand the topics related to the society. **Paper: SE-5024: CHEMOINFORMATICS** After completion of this course, the students shall be able to explain, interpret and critically examine the utility of computers and software tools to solving chemistry related problems. Recognize, apply, compare and predict chemical structures, properties and reactivity and solve chemistry related problems. Employ critical thinking and scientific reasoning to design and safely implement laboratory experiments and keep the records of the same. Compile, interpret and analyze the qualitative/ quantitative data and communicate the same in a scientific literature. **Paper: SE-5034: BUSINESS SKILLS FOR CHEMISTS** After completion of this course, students shall be able to explain and or analyze the important steps of business operations, finance and intellectual property as applied to chemical industry. **Paper: SE-5044: INTELLECTUAL PROPERTY RIGHT** After completing this course, students will have in depth understanding about the importance and types of IPR. This course will also provide the clarity on the legal and economic aspects of the IP system.
	Paper RE-6016: GREEN CHEMISTRY After completion of this course students are able to know about green chemistry, which will make them

SEM –VI	conversant with applications of green chemistry to organic synthesis. Students will be prepared for taking up entry level jobs in the chemical industry. They will also have the option of studying further in the area. At the same time through experiments students are able to learn to extract biodiesel from vegetable oil, Principles of atom economy (avoiding waste), use of enzyme as catalyst, Diels-Alder reaction in water, alternative sources of energy etc. **Paper: RE-6026: INDUSTRIAL CHEMICALS AND ENVIRONMENT** After successful completion of this course, students would have learnt about the manufacture, application and safe ways of storage and handling gaseous and inorganic industrial chemicals. Students will get to know about industrial metallurgy and the energy generation industry. Students will also learn about environmental pollution by various gaseous, liquid waste and nuclear waste management, their safe disposal and the importance of environment friendly "green chemistry" in chemical industry. At the same time through experiments students are able to learn to analyse dissolved oxygen in water, COD, BOD, % of Chlorine in bleaching powder, estimation of SPM in air sample, preparation of borax/ boric acid etc. **Paper: RE-6036: INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE** This course will establish the basic foundation of industrial inorganic chemistry among the students. This will be helpful for pursuing further studies of industrial chemistry in future. Experiments will help the students to gather the experience of qualitative and quantitative chemical analysis. Students will be capable of doing analysis of the inorganic materials which are used in our daily life. They will have insight of the industrial processes. **Paper: RE-6046: RESEARCH METHODOLOGY FOR CHEMISTRY** After completion of this course students should be able to construct a rational research proposal to generate fruitful output in terms of publications and patents in the field of chemical science.

	Paper: SE-6014: CHEMISTRY OF COSMETICS & PERFUMES After completion of this course, students will learn about the preparation and chemistry involved with the production of different cosmetics. This may encourage students to take up entry level jobs at cosmetics industry or venture into commercial production of cosmetics as an entrepreneur. **Paper: SE-6024: PESTICIDES CHEMISTRY** After completion of this course, students will be able to explain or describe and critically examine different types of pesticides, their activity/toxicity and their applications and the need for the search of an alternative based on natural products. **Paper: SE-6034: FUEL CHEMISTRY** At the end of this course students will learn about the classes of renewable and non-renewable energy sources. Students will learn about the composition of coal and crude petroleum, their classification, isolation of coal and petroleum products and their usage in various industries. They will also learn to determine industrially significant physical parameters for fuels and lubricants.

Program Outcomes and Course Outcomes

Under Graduate program In B.Sc. Chemistry (HC)

Program Outcomes	•To understand the basic facts and concepts in Chemistry •To understand the importance of Chemistry in daily life •To develop a better understanding and reasoning of facts •To skill-up for basic analytical tools •To skill-up for various laboratory techniques used in pharmaceutical laboratories and chemical industries. • To make efficient for various spectrometric analyses
Course Outcome	
	Paper CHE-HC-1016: INORGANIC CHEMISTRY-I On successful completion, students would have

SEM-I	clear understanding of the concepts related to atomic and molecular structure, chemical bonding, periodic properties and redox behaviour of chemical species. Students will also have hands on experience of standard solution preparation in different concentration units and learn volumetric estimation through acid-base and redox reactions. **LAB: PRACTICAL** After completion of this course, students will be able to learn titrimetric analysis, Acid base titration, oxidation- reduction titration etc. .**Paper CHE-HC-1026: PHYSICAL CHEMISTRY I** In gaseous state unit the students will learn the kinetic theory of gases, ideal gas and real gases. In liquid state unit, the students are expected to learn the qualitative treatment of the structure of liquid along with the physical properties of liquid, viz, vapour pressure, surface tension and viscosity. In the molecular and crystal symmetry unit they will be introduced to the elementary idea of symmetry which will be useful to understand solid state chemistry and group theory in some higher courses. In solid state unit the students will learn the basic solid state chemistry application of x-ray crystallography for the determination of some very simple crystal structures. The students will also learn another important topic "ionic equilibria" in this course. **LAB: PRACTICAL** This course provides advance physical laboratory experiments like determination of viscosity, surface tension of a liquid, pH etc. Student will be able to correlate the importance the theory with the practical experiments.
SEM –II	**Paper CHE-HC-2016: ORGANIC CHEMISTRY I** Students will be able to identify different classes of organic compounds, describe their reactivity and explain/analyze their chemical and stereo chemical aspects. **Paper CHE-HC-2026: PHYSICAL CHEMISTRY II** In this course the students are expected to learn laws of thermodynamics, thermochemistry, thermodynamic functions, relations between thermodynamic properties, Gibbs Helmholtz equation, Maxwell relations etc. Moreover the students are expected to learn partial molar quantities, chemical equilibrium, solutions and colligative properties. After

	completion of this course, the students will be able to understand the chemical systems from thermodynamic point of view. **LAB: PRACTICAL** After completion of this course students will be able to analyze the organic sample qualitatively. This will help students to work in some laboratory and find the chemical composition of an unknown organic compound. Students will be able to describe and classify organic compounds in terms of their functional groups and reactivity. Also they are able to analyze heat capacity, calculation of enthalpy, solubility etc.
SEM –III	**Paper CHE-HC-3016: INORGANIC CHEMISTRY-II** On successful completion of this course students would be able to apply theoretical principles of redox chemistry in the understanding of metallurgical processes. Students will be able to identify the variety of s and p block compounds and comprehend their preparation, structure, bonding, properties and uses. Experiments in this course will boost heir quantitative estimation skills and introduce the students to preparative methods in inorganic chemistry. **Paper CHE-HC-3026: ORGANIC CHEMISTRY-II** Students will be able to describe and classify organic compounds in terms of their functional groups and reactivity. **Paper CHE-HC-3036: PHYSICAL CHEMISTRY-III** The students are expected to learn phase rule and its application in some specific systems. They will also learn rate laws of chemical transformation, experimental methods of rate law determination, steady state approximation etc. in chemical kinetics unit. After attending this course the students will be able to understand different types of surface adsorption processes and basics of catalysis including enzyme catalysis, acid base catalysis and particle size effect on catalysis. **LAB: PRACTICAL** After completion of this course, students will be able to learn iodometric titration, Inorganic compound preparation, Organic compound preparation, determination of CST, construction of phase diagram, Kinetics of reactions etc.

SEM –IV	**Paper CHE-HC-4016: INORGANIC CHEMISTRY-III** On successful completion, students will be able name coordination compounds according to IUPAC, explain bonding in this class of compounds, understand their various properties in terms of CFSE and predict reactivity. Students will be able to appreciate the general trends in the properties of transition elements in the periodic table and identify differences among the rows. Through the experiments students not only will be able to prepare, estimate or separate metal complexes/compounds but also will be able to design experiments independently which they should be able to apply if and when required. **Paper CHE-HC-4026: ORGANIC CHEMISTRY-III** Students shall demonstrate the ability to identify and classify different types of N-based derivatives, alkaloids and heterocyclic compounds/explain their structure mechanism and reactivity/critically examine their synthesis and reactions mechanism. **Paper CHE-HC-4036: PHYSICAL CHEMISTRY-IV** In this course the students will learn theories of conductance and electrochemistry. Students will also understand some very important topics such as solubility and solubility products, ionic products of water, conductometric titrations etc. The students are also expected to understand the various parts of electrochemical cells along with Faraday's Laws of electrolysis. The students will also gain basic theoretical idea of electrical & magnetic properties of atoms and molecules. **LAB: PRACTICAL** After completion of this course students will be able to learn gravimetric analysis, Inorganic preparation, Chromatography, detection of N,S, X & other functional groups, determination of cell constant, equivalent conductance, Potentiometry etc.
	Paper CHE-HC-5016: ORGANIC CHEMISTRY-IV Students will be able to explain/describe the important features of nucleic acids, amino acids and enzymes and develop their ability to examine their properties and applications.

SEM –V	**Paper: CHE-HC-5026: PHYSICAL CHEMISTRY V** After completion of this course the students are expected to understand the application of quantum mechanics in some simple chemical systems such as hydrogen atom or hydrogen like ions. The students will also learn chemical bonding in some simple molecular systems. They will able to understand the basics of various kinds of spectroscopic techniques and photochemistry. **Paper: CHE-HE-5016: APPLICATIONS OF COMPUTERS IN CHEMISTRY** After the completion of this course it will help the student to interpret laboratory data, curve fitting of experimental work, also performs quantum mechanical calculations for various molecular models. **Paper: CHE-HE-5026: ANALYTICAL METHODS IN CHEMISTRY** On successful completion students will be have theoretical understanding about choice of various analytical techniques used for qualitative and quantitative characterization of samples. At the same time through the experiments students will gain hands on experience of the discussed techniques. This will enable students to take judicious decisions while analyzing different samples. **Paper CHE-HE-5036: MOLECULAR MODELLING & DRUG DESIGN** Students will be able to identify basic components of computer and programming as applied to computer assisted design and modelling of molecules. **Paper: CHE-HE-5046: NOVEL INORGANIC SOLIDS** After the completion of this course it will also be possible for the students to opt for studying an interdisciplinary master's programme with an emphasis on the synthesis and applications of various materials or take up a job in the materials production and/or processing industry. **Paper: CHE-HE-5056: POLYMER CHEMISTRY** After completion of this course the students will learn the definition and classifications of polymers, kinetics of polymerization, molecular weight of polymers, glass transition temperature, and polymer solutions etc. They also learn the brief introduction of preparation, structure and properties of some industrially important and technologically promising polymers.

	Paper:CHE-HE-5066:INSTRUMENTAL METHODS OF CHEMICAL ANALYSIS Students shall be able to explain the theoretical basis of different analytical techniques, identify the experimental requirements and compare/analyze the data/results thereof.
SEM –VI	**Paper CHE-HC-6016: INORGANIC CHEMISTRY-IV** By studying this course the students will be expected to learn about how ligand substitution and redox reactions take place in coordination complexes. Students will also learn about organometallic compounds, comprehend their bonding, stability, reactivity and uses. They will be familiar with the variety of catalysts based on transition metals and their application in industry. On successful completion, students in general will be able to appreciate the use of concepts like solubility product, common ion effect, pH etc. in analysis of ions and how a clever design of reactions, it is possible to identify the components in a mixture. With the experiments related to coordination compound synthesis, calculation of 10Dq, controlling factors etc. will make the students appreciate the concepts of theory in experiments. **Paper CHE-HC-6026: ORGANIC CHEMISTRY-V** Students will be able to explain/describe basic principles of different spectroscopic techniques and their importance in chemical/organic analysis. Students shall be able to classify/identify/critically examine carbohydrates, polymers and dye materials. **Paper CHE-HE-6016 : GREEN CHEMISTRY** Apart from introducing learners to the principles of green chemistry, this course will make them conversant with applications of green chemistry to organic synthesis. Students will be prepared for taking up entry level jobs in the chemical industry. They also will have the option of studying further in the area. **Paper CHE-HE-6026: INDUSTRIAL CHEMICALS AND ENVIRONMENT** After successful completion of the course, students would have learnt about the manufacture, applications and safe ways of storage and handling gaseous and inorganic industrial chemicals. Students will get to know about industrial metallurgy and the energy generation industry. Students will also learn about environmental pollution by various gaseous, liquid

	wastes and nuclear wastes and their effects on living beings. Finally, the students will learn about industrial waste management, their safe disposal and the importance of environment friendly "green chemistry" in chemical industry. **Paper CHE-HE-6036: INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE** This course will establish the basic foundation of industrial inorganic chemistry among the students. This will be helpful for pursuing further studies of industrial chemistry in future. Experiments will help the Students to gather the experience of qualitative and quantitative chemical analysis. Students will be capable of doing analysis of the inorganic materials which are used in our daily life. They will have insight of the industrial processes. **Paper: CHE-HE-6046: RESEARCH METHODOLOGY FOR CHEMISTRY** After completing this course, students should be able to construct a rational research proposal to generate fruitful output in terms of publications and patents in the field of chemical sciences. **Paper CHE-HE-6056: DISSERTATION** This course is introduced to make familiar with the research methodology. Student will be able to do project work on known problems after completion of this course. They will learn how to write a project report. They will be skilled in writing the proposal, literature review, objective, methodology, results, discussion, conclusion and references. This is very important to carry forward their career in research and development.

B.SC :: PHYSICS

Bachelor programme in Physics	
Programme outcome	After completion of the programme in Physics, Students are intended to develop the ability to think critically, logically and analytically and hence use the physical reasoning in everyday life and a conceptual

	understanding of physics principles. They will be able to demonstrate concepts in Newtonian Mechanics, Electromagnetism, Thermodynamics and Quantum mechanics. They will be able to translate a physical description to a mathematical equation and conversely explain the physical meaning of the mathematics, represent key aspects of physics through graphs and diagrams and use geometric arguments in problem-solving.
Programme specific outcome	The completion of the Bachelor programme in physics shall enable a student to i) communicate Physics effectively by theoretical, experimental and graphic means. ii) familiarize with hands-on training in the furnished and equipped laboratory for practical verification of the physical theories that they learn during class lectures. It makes the students eligible for the further post-graduate studies, in physics, electronics, instrumentation, computer applications etc. iii) learn the basic mathematical tools, needed to understand different branches of Physics. They are trained to apply these techniques through numerical exercises. iv) identify applications of physics in other disciplines and in the real world, leading to enhancement of career prospects in a plethora of fields. v) appreciate the requirement of lifelong learning through continued education and research. vi) utilize physics to solve theoretical and applied problems by critical understanding, analysis and synthesis.
CBCS	

Course Outcome	The course in physics includes different properties of natural objects, like mechanical, thermal, electrical, magnetic properties, quantum mechanics, astrophysics etc. Mathematical Physics After successful completion of the course students will be able to understand vector, and its application in Various field, differential equation , solving method of power series, different co-ordinate system, concepts of probability and error, properties of matrix, fourier series, Laplace transformation, tensor and its application. Mechanics On successful completion of the course students should be able understand types of frame of reference, Newtonian motion, Galilien transformation, projectile motion, work and energy, collision, central force, oscillation, special theory of relativity. Electricity & Magnetism After successful completion of this course, students will be able to understand electric and magnetic fields in matter, dielectric and magnetic properties of matter, electromagnetic induction, applications of Kirchhofff's law in different circuits, applications of network theorem in circuits. Waves and Optics After successful completion of this course, students will be able to understand superposition of harmonic wave and oscillations, different types of wave motions, interference and interferometer, diffraction, holography. Thermal Physics and Statistical mechanics Upon successful completion, students will have the knowledge and skills to identify and describe the statistical nature of concepts and laws in thermodynamics, in particular: entropy, temperature,

	thermodynamics potentials, freeenergies, fundamentals of the kinetic theory of gases, Maxwell-Boltzman distribution law, equipartition of energies, mean free path of molecular collisions, viscosity, thermal conductivity, diffusion and Brownian motion, black body radiations, Stefan- Boltzmann's law, Rayleigh-Jean's law and Planck's law and their significances, quantum statistical distributions, viz., the Bose- Einstein statistics and the Fermi-Dirac statistics. In the laboratory course, the students will be able to measure of Planck's constant using black body radiation, determine Stefan's Constant, coefficient of thermal conductivity of a bad conductor and a good conductor, determine the temperature coefficient of resistance, study variation of thermo emf across two junctions of a thermocouple with temperature etc. Digital and Analog systems and applications After successful completion of the course students will be able to understand the working principle of CRO, develop a digital logic and apply it to solve real life problems, analyze, design and implement combinational logic circuits, class, analyze digital system design using PLD, simulate and implement combinational and sequential circuits. Students will be able to understand about the physics of semiconductor p-n junction and devices such as rectifier diodes, zener diode, photodiode etc. and bipolar junction transistors, transistor biasing and stabilization circuits, the concept of feedback in amplifiers and the oscillator circuits, operational amplifiers and their applications. Elements of modern physics On completion of the course students will be ableto understand modern development in Physics,starting from Planck's law, it development of theidea of probability interpretation and theformulation of Schrodinger equation. Studentswill also get preliminary idea of structure ofnucleus, radioactivity Fission and Fusion and Laser.

	Quantum Mechanics & application, On successful completion of the course students will be able to understand the principles inquantum mechanics, such as the Schrödinger equation, the wave function, the uncertainty principle, stationary andnon-stationary states, time evolution of solutions, as well as the relation between quantum mechanics and linearalgebra. Students will be able to solve the Schrödinger equation for hydrogen atom. Students will have the concepts ofangular momentum and spin, as well as the rules for quantization and addition of these, spin-orbit coupling andZeeman Effect. Solid State Physics On successful completion of the course students should be able to explain the main features ofcrystal lattices and phonons, understand the elementary lattice dynamics and its influence on the properties ofmaterials, describe the main features of the physics of electrons in solids; explain the dielectric ferroelectric andmagnetic properties of solids and understand the basic concept in superconductivity. Electromagnetic theory On successful completion of the course students will acquire the concepts of Maxwell's equations,propagation of electromagnetic (EM) waves in different homogeneous-isotropic as well as anisotropic unbounded andbounded media, production and detection of different types of polarized EM waves, general information aswaveguides and fibre optics. Nuclear and particle physics Upon completion of this course, students will have the understanding of the sub atomic particlesand their properties. They will gain knowledge about the different nuclear techniques and their applications indifferent branches of Physics and societal application. The course will develop problem based skills and theacquire

	knowledge can be applied in the areas of nuclear, medical, archeology, geology and other interdisciplinaryfields of Physics and Chemistry. Classical Dynamics The emphasis of the course is on applications in solving problems of interest to physicists. Students are to beexamined on the basis of problems, seen and unseen.Upon completion of this course, students will have the overview of Newton's Laws of Motion,Special Theory of Relativity by 4-vectoer approach and fluids. Students will also have the understanding of theLagrangian and Hamiltonian of a system. By the end of this course, students will be able to solve the seen orunseen problems/numericals in classical mechanics. Astronomy & Astrophysics Upon completion of this course, students will be able to understanding the origin and evolution ofthe Universe. The course will give a comprehensive introduction on the measurement of basic astronomicalparameters such as astronomical scales, luminosity and astronomical quantities. It will give an overview onkey developments in observational astrophysics. Students will have the idea of the instruments implemented forastronomical observation, the formation of planetary system and its evolution with time, the physical propertiesof Sun and the components of the solar system; and stellar and interstellar components of our Milky Waygalaxy. Students will have the understanding of the origin and evolution of galaxies, presence of dark matterlarge scale structures of the Universe. Physics Workshop Skills The aim of this course is to enable the students to familiar and experience with various mechanical and electrical tools through hands-on mode. COMPUTATIONAL PHYSICS

	The aim of this course is not just to teach computer programming and numericalanalysis but to emphasize its role in solving problems in Physics. Highlights the use of computational methods to solve physical problems. Use of computer language as a tool in solving physics problems (applications). Course will consist of hands on training on the Problem solving on Computers. Experimental Technique After completion of the course students will be able to know about error in measurements, signals and systems, shielding and grounding, transducers and industrial instrumentation, digital multimeter, impedence bridges and Q-meter, vacuum systems and use in different areas of our day to day life.
Non-CBCS	
Course Outcome	Paper CO1 (a) Mathematical Methods – I (b) Mechanics Students should be able to understand vector analysis and the applications of gradient, divergence and curl in various physical phenomena, Inertial and non-inertial reference frames, Newtonian motion, Coriolis Force, Work- energy theorem, Centre of Mass, Angular Momentum and Gravitation. Paper CO2 (a) Waves and Oscillations (b) Ray Optics Students will be able to understand superposition of harmonic oscillations, Wave Motion, Sound Wavesand Fourier Analysis, Fermat's Principles, Matrix Method, Lens Systems and Defects of Image. Paper CO3 (a) Test of Laboratory Skill (b) Practical

	Upon successful completion of the course, the student will be exposed to important skills in electronicssuch as the identification of active and passive components in an electronic circuit, usage of a multi-meterand cathode-ray oscilloscope, soldering of electronic circuits, usage of measuring instruments such as travelling microscope, polarimeter and spectrometer, experiments such as the Melde's experiment, Searle'sapparatus, torsional oscillation, Jaeger's method and so on. Paper CO4 (a) Mathematical Methods – II (b) Properties of Matter Successful students should be able to understand integration of vector and Curvilinear Coordinate systems,Gamma and Dirac Delta Functions, Elasticity, Surface Tension and Viscosity Paper CO5 Heat and Thermodynamics Upon successful completion of the course, the student will be able to understand the kinetic theory of gases,equation of an ideal gas and the Van der Waals' equation of state, the three laws of thermodynamics,Enthalpy, Entropy, Stefan- Boltzmann Law, Wein's Displacement Law. Paper CO6 Practical Upon successful completion of the course, the student will be exposed to experimental methods such as the determination of focal length of a given convex mirror, Joule's calorimeter, conversion of a galvanometerto a voltmeter, usage of a potentiometer, determination of the thermal conductivity ofa given material and so on. Paper CO7 (a) Mathematical Methods – III (b) Electrostatics Upon successful completion of the course, the

	studentwill be able to understand Linear Algebra,Coordinate Transformations, Gauss' Law, Laplace and Poisson's Equation, Method of Electrical Imageand Dielectrics Paper CO8 (a) Current Electricity (b) Magnetostatics Upon successful completion of the course, the student will be able to understand the Kirchoff's Law ofElectrical Network problems, Electromagnetic Induction, Ballistic Galvanometer, AlternatingCurrent and RLC Circuit, Physics of a Transformer, Lorentz Force, Biot-Savart's Law, Divergence andCurl of a Magnetic Field and the Ampere's Circuital Law. Paper CO9 Practical Upon successful completion of the course, the student will be exposed to the usage of instruments such asthe deflection and vibration magnetometer, tangent galvanometer and copper voltmeter, and determination of electrical constants using potentiometer and meter bridge. Paper CO10 (a) Mathematical Methods – IV (b) Introduction to Computer and Computer Programming Upon successful completion of the course, the student will be able to understand the Frobenius method forthe series solution of ordinary differential equations and the special functions – Legendre, Hermite and Laguerre Polynomials, Spherical Harmonics, Probability theory and Probability Distribution Functionsand Fortran Programming. Paper CO11 (a) Wave Optics (b) Special Theory of Relativity

	Upon successful completion of the course, the student will be able to understand and appreciate thephysics of Interference, Diffraction and Polarisation. In addition to this, the student will also be able tounderstand Galilean and Lorentz Transformation and Relativistic Momentum and Energy and Space-time. Paper CO12 Practical Upon successful completion of the course, the student will be exposed to experimental methods andinstruments such as the Schuster's method, Newton's ring arrangement, Kater's pendulum, variation ofoptical rotation, resolving power of a plane transmission grating, spectrophotometer, magnifying power of a telescope and so on. Paper CO13 (a) Mathematical Methods - V (b) Classical Mechanics Upon successful completion of the course, the student will be able to understand the mathematicalprinciples of complex numbers, analyticity of a complex function, singularities, Laurent and Taylor Series, Residue Integration, Central Force Motion, D-Alembert's Principle and the Lagrange's equation of motion, application of Lagrangian formalism in simple mechanical systems and Poisson'sBrackets. Paper CO14 Atomic Physics Upon successful completion of the course, the student will be able to understand the Rutherford's Model,Alpha-Scattering Experiment, Atomic Spectra, Vector Atom Model, X-Rays and Scattering of Light. Paper CO15 (a) Quantum Mechanics (b) Astrophysics Upon successful completion of the course, the student

	will be able to understand the reason for the failureof classical mechanics and the need for quantum mechanics in studying microscopic systems, Wave-Particle Duality, physical interpretation of Wave-function, Normalization, Group and Phase Velocity,Heisenberg's Uncertainty Principle, Dirac's operator formalism of quantum mechanics, the SchrodingerEquation, Celestial Coordinate Systems, Concept of Time, Stellar Magnitude and Stellar Classificationsystem. Paper CO16 Electronics Upon successful completion of the course, the student will be able to understand the working of a PNjunction diode, Bipolar Junction Transistor, Operational Amplifier, Multivibrators, Modulation– Frequency and Amplitude Modulation and Digital Electronics. Paper CO17 Practical Upon successful completion of the course, the student will be exposed to the study and analysis of thehydrogen spectrum, characteristic curve of a photo cell, determination of the Planck's and Stefan'sconstant, Platinum Resistance Thermometer and Thermocouple. Paper CO18 Practical Upon successful completion of the course, the student will be exposed to the assembly and frequencyresponse of an operational amplifier, RC coupled common emitter amplifier, multivibrator, forward biascharacteristics of a semiconductor diode, reverse bias characteristics of a Zener diode, verification of theDe Morgan's theorem using IC 7400 and 7402, assembly of the digital logic gates and the usage ofMicrosoft Excel for graphical analysis Paper CO19 Nuclear Physics

	Upon successful completion of the course, the student will be able to understand the nuclear forces andstability of an atomic nucleus, the three processes of nuclear decay – Alpha, Beta and Gamma Decay,Nuclear models, Nuclear Reactions, Accelerators, Detectors and Cosmic Rays. Paper CO20 (a) Mathematical Methods (b) Solid State Physics Upon successful completion of the course, the student will be able to under the physics of tensor analysisand the mathematical principles, crystallography, crystal bonding, Free electron theory of metals,Superconductivity and Magnetic properties of Solids. Paper CO21 (a) Modern Optics (b) Electromagnetic Theory Upon successful completion of the course, the student will be able to understand and appreciate themodern optical technologies such as crystals, lasers, holography, optical fibers, spectrography, Maxwell'sEquations of Electromagnetic Theory, Fresnel's equations and Snell's law. Paper CO22 (a) Statistical Mechanics (b) Computer Application Upon successful completion of the course, the student will be able to understand the physics of statisticalmechanics and important statistical distributions Maxwell-Boltzmann, Fermi-Dirac, and Bose-Einstein Statistics and their applications in explaining the numerous observed experimental phenomena in quantum systems. In addition to this, the students shall also be exposed the programming of numerical procedures in FORTRAN/C and should be able to solve problems such

	as the roots of a nonlinear equation, least-squarefitting, numerical solution of differential equations using the 4th order Runge-Kutta method andintegration of functions using the Simpson's rule. Paper CO23 Practical Upon successful completion of the course, the student will be exposed to the analysis of the variation inpotential drop across the components in an LCR circuit, determination of the Q-factor of an LCR circuit,Callender and Bern's Method, Anderson's Bridge, Half-wave and Full-wave rectifier, detection of cosmicrays using a Geiger-Muller Counter and the usage of a CRO in electronics. Paper CO24 (a) Project (b) Computer Programming Upon successful completion of the course, the student will be exposed to the computer programming ofmeasurement of the mean, standard deviation and standard error of given experimental data, solution of linear simultaneous and quadratic equations, least square fitting of data, generation of Fibonacci sequenceand statistical analysis of given data using Microsoft Excel. Furthermore, the project work pertaining to anexperiment with the syllabus of Physics would provide the students with performing, analysis andsubsequent reporting of experiments under the supervision of a professor.

B.SC :: MATHEMATICS

Bachelor programme in Mathematics	
Program Outcome	After completion of graduation Students will acquaint the basic concepts

	fundamental principles and theories of science related to various phenomenon and their relevance in the day-to-day life. To enable the students to analyzethe scientific data critically and systematically and to think creatively to propose new ideas
Program Specific outcomes	Students will able to demonstrate basic manipulative skills in algebra, geometry,trigonometry, calculus, astronomy, etc. Also they able to demonstrate proficiency in establishing validity of mathematical theories. Students are able to learn about the use of computer programming in solving mathematical problems.
Course	Outcomes
M104- Algebra and Trigonometry	Familiarize the student with the basic concepts f algebraic structure such as relation ,functions, symmetry , equivalent relation, group and Trigonometry i.e triangle properties.
M105- Calculus	To acquaint knowledge on the ability to find the effects of changing conditions on a system. To inculcate knowledge on the ability to sketch curves in a plane using its mathematical properties in different coordinate systems.
M – 204 Coordinate Geometry	To acquaint knowledge on the transformation of Coordinate axes. Gives the learners idea of two dimensional and three dimensional coordinate geometry. Gives the knowledge about different conics and their properties.
M205- Differential Equations	To inculcate knowledge on the Origin of ordinary differential equations, degree and order of ordinary differential Equations. Gives the learners idea of transformation of the equation by changing the dependent variable, independent Variable, method of variation of parameters.
M304-Abstract Algebra	To inculcate knowledge on the homomorphism of groups,rings. Also gives the idea of Sylow's theorems and its applications.
M305-Linear Algebra and Vector	Gives the learners idea of matrices, vectors operations on matrices and vectors. To inculcate knowledge on the matrix representation of linear transformation, compute the characteristic polynomial, eigenvalues, eigenvectors,andeigenspace.

M404-Real Analysis	To inculcate knowledge on the real number systems R as a complete Archimedean ordered field. Gives the learners idea about derivability of the functions such as Taylor's theorem, Maclaurin's infinite series.
M405-Mechanics	To inculcate knowledge on the parallel forces, couples, reduction and center of gravity on solid and plane, etc. Gives the learners idea about stable and unstable equilibrium.
M501-Real and Complex Analysis	To inculcate knowledge on the study of real number system. To inculcate knowledge on complex numbers and their properties, to introduce the basic ideas of analysis for complex functions with visualization through relevant practical.
M502- Topology	To inculcate knowledge on understanding the notation of distance functions, topological structure and their properties with mathematical proofs.
M503-Spherical Trigonometry and Astronomy	To inculcate knowledge on moments and products of inertia, theorem of six constants , motion of a body in two dimension and Lagrange's equation.
M505-Probability	To inculcate knowledge on the basic statistical concepts and tools which are needed to study situations involving uncertainty or randomness , to render the students to several examples and exercises that blend their everyday experiences with their scientific interests.
M506-Optimization Theory	The course will enable the students to learn about the graphical solution of linear programming problems with two variables and learn about the relation between basic feasible solution and extreme points.
M601-Hydrostatics	To inculcate knowledge on the physical properties of a fluid. Gives the learners idea of calculating the pressure distribution for in compressible fluids. Also gives the idea of calculating the hydrostatic pressure and force on plane and curved surface.

M602-Numerical Analysis	To inculcate knowledge on algebraic Equations solved by numerical methods, this will enable the students to learn some numerical methods to find the zeros of nonlinear functions on a single variable and solution of a system of linear Equations to know about methods to solve systems linear equation, interpolation techniques to compute the values for tabulated functions at points not in the table, applications of numerical differentiation and integration to convert differential Equations into difference equation for numerical solutions.
M603 Computer Programming in C	Able to handle nonlinear Equations as those can't be handled analytically. This course has equipped the students to carry out long and tedious computational works particularly when they go for research in some application oriented field and after knowing programming in c, the students can easily shift over to any other programming which are used in different fields.
M604-Discrete Mathematics	Gives the learners idea of fundamental ideas of number theory, congruence and basic properties of congruence's, linear congruence and their solutions, diophantine Equation, linear diophantine equation. To inculcate knowledge on prepositional Calculus and boolean Algebra.
M605-Graph and Combinatorics	Enables the learners in understanding the concepts of graph theory and combinatorics. To inculcate knowledge on counting principles, permutations, pigeonhole principle, understand the basics of graph theory and learn about social networks.
M606-Project	Make research proposal . Construct tool of data collection . Understand the process of data analysis .writing research report.

BACHELOR PROGRAMME IN ZOOLOGY

PROGRAM OUTCOME

Students gain knowledge and skill in the fundamentals of the animal sciences ,understands the complex interactions among various living organisms. Apply the knowledge of internal structure of cell, its functions incontrol of various metabolic functions of organism.

Imparting basic knowledge of various disciplines of Zoology and General biology meant for a graduate and for higher studies and inculcating interest in nature and its living creatures and in future they can diversify their interest in the field of photography as a career as NE India being the HUB of Biodiversity. Understands the various concept. Understands about various concepts of genetics and its importance in human health. Gains knowledge of Agro based Small Scale industries like sericulture, fish farming, butterfly farming and vermicompost preparation. Develops empathy and love towards the animals

PROGRAM SPECIFIC OUTCOMES

Understand the nature and basic concepts of cell biology , genetics,taxonomy,physiology, ecology and applied zoology. Helps in obtaining knowledge in wildlife and can choose Wildlife Tourism as a career. Understand the applications of biological sciences in Apiculture, Aquaculture, Agriculture and Medicine. Perform procedures.Perform procedures as per laboratory standards in the areas of Taxonomy , Physiology, Ecology, Cell biology, Genetics, Applied zoology, Clinical science, tools and techniques of zoology,Toxicology, Entomology,Nematology Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology.Gains knowledge about research methodologies, effective communication and skills problem solving methods.

COURSE OUTCOME

1st semester: Animal Diversity:I	Familiar with the non-chordate world that surrounds us. Able to appreciate the process of evolution (unicellular cells to complex, multicellular organisms) Able to identify the invertebrates and classify them

	up to the class level with the basis of systematic Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.
Ecology	Distribution of fauna in different realms interaction. Understand Animal behaviour and response of animals to different instincts. Interaction of biota abiota .Various kinds of Animal adaptations .
2nd semester Animal Diversity II	Describe the diversity in form, structure and habits of vertebrates Explain general characteristics and classification of different classes of vertebrates
Cell Biology	Structural and functional aspects of basic unit of life i.e. cell concepts . Develop deeper understanding of what life is and how it functions at cellular level. Describe cellular membrane structure and function, fine structure and function of cell organelles. Perform a variety of molecular and cellular biology techniques
3rd Semester: Comparative anatomy and Histology	Comparative animal physiology is a comprehensive subject that gives in depth knowledge of various physiological processes in the animal kingdom . students gain knowledge about the comparative physiological concepts of nutrition digestion respiration excretion metabolism and osmoregulation. Course provides students comprehensive understanding about neurobiology, neurophysiology, molecular neurobiology . Understanding of cognitive/behavior neurobiology, thus allowing then to correlate the human behaviour under given situation.It gives comprehensive understanding regarding inborn disorders and deranged metabolisms. Students feel confident in teaching physiology as well as executing research projects .

	With the study of this paper students gain knowledge in the areas of responses to environment with study of receptors CNS integration of behavior . Understanding of the functions of effectors in all aspects as well as the circulatory physiology and reproduction and adaptations by animals to environment .The students will be well equipped to become very competent in research. The course provides employability in teaching fields.
4th Semester: Cell biology	Develop deeper understanding of what life is and how it functions at cellular level. Describe cellular membrane structure and function, fine structure and function of cell organelles. Perform a variety of molecular and cellular biology techniques
Developmental Biology	Familiar with various stages involved in the developing embryo Apply the knowledge to collect various Biological data Understand the initial development al procedures involved in *Amphioxus*, frog and chick .Familiar with types of placenta Ability to explain various Prenatal Diagnosis Familiarise with the principle of developmental biology Familiarise with various Techniques and tools of Embryology
Genetics	Mendelian and non mendielian inheritance .Concept behind genetic disorder, gene mutations- various causes associated with inborn errors of metabolism .
5th Semester: Animal Physiology	Students are taught the detailed concepts of digestion respiration excretion the functioning of nerves and muscles . Students gain fundamental knowledge of animal physiology . Students will gain skill to execute the roles of a biology teacher or

	medical lab technicians with training as they have basic fundamentals .
Biochemistry and Bioenergetics	Seeks to understand the mechanisms that work to keep the human body alive and functioning. Physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed .Interactions and interdependence of physiological and biochemical processes .
Endocrinology and Immunology	Imparts in depth knowledge of tissues, cells and molecules involved in host defense mechanisms. Understanding of types of immunity.Interactions of antigens, antibodies, complements and other immune components .Understanding of immune mechanisms in disease control, vaccination, process of immune interactions.
Biological Techniques and Biostatistics	Students gain knowledge about various tools & techniques used in biological systems and givesthem insight about their usein research. Biostatistics teaches them to use the best data analysis methods in their research projects . Students gains knowledge about statistical methods like measures of central tendencies, Probability .Learns about hypothesis testing and inferential statistics. Learns the problem-solving methods .
6th Semester: Animal Behaviour	Understand Animal behaviour and response of animals to different instincts. Interaction of biota abiota .Various kinds of Animal adaptations .
Evolution and Adaptation	Imparts knowledge regarding the various theories of evolution, evolutionary process such as variation, speciation, natural selection, origin of primates and man .Understanding of origin and salient features of Ostracoderms to Actinopterygii, adaptive radiation of Amphibians, Reptiles, birds and Mammals. Gains knowledge of functional anatomy of vertebrates from fishes to mammals .Understanding of evolutionary significance of internal fertilization, neoteny and paedogenesis .Identifies the

	significance of amniotic egg its structure and evolutionary significance of skeletal system.
Economic Zoology	Imparts knowledge of beneficial and non-beneficial insects .Knowledge of how they interact with their environment, other species and humans . Classification of Insects .Role of insects in spread of diseases Understands concepts of fisheries, fishing tools and site selection .Aqua culture systems, induced breeding techniques, post harvesting tecniques. Understands about composition of blood, blood born diseases, autopsy and biopsy .Types of immunity, antigens-antibodies and their properties.
Biotechnology and Bioinformatics and computer application	Imparts the Knowledge to culture animal cells in artificial media. Knowledge of animal cells in culture, growth of cell lines. Use in recombinant DNA technology, genetic manipulations and in a variety of industrial processes. Familiar with Digital knowledge Apply the knowledge to collect various Biological data Understand the importance of Bio molecules Familiar with various Applications of Bioinformatics Get awareness about nature of the emerging digital knowledge society