



## ***INTERNAL QUALITY ASSURANCE CELL***

***J.N. College, Boko, Kamrup, Assam***

### **Program outcomes, program specific outcomes & course outcomes for all programs**

The College is permanently affiliated to Gauhati University and it follows the programme wise curriculum designed by the university. The learning outcomes of the programmes and courses are stated clearly by the university. The same is published in the official website of the university which can be downloaded by the affiliated colleges.

The College has its own mechanism to communicate the learning outcomes of the curriculum to the teachers and the students. The following measures are adopted-

- Hard copy of syllabi and learning outcomes are available in all the departments for ready reference to the teachers and students.
- A web link to the Gauhati University Curriculum and learning outcomes of Programmes and Courses (both UG & PG) is also provided in the college website for reference.
- The departments also arrange Orientation Programmes/Tutorial Meetings to make the students aware of the curriculum and the learning outcomes.

**Course outcomes:**

**DEPARTMENT OF ANTHROPOLOGY**

<b>PAPER</b>	<b>COURSE</b>	<b>OUTCOME</b>
<b>ANT-HC-1016</b>	<b>General Anthropology</b>	<p>The learning outcomes of this paper are:</p> <p>1. The students will learn about various theories related to human evolution and variation. 2. They will learn about history of Physical Anthropology and how it is related to other disciplines.3. They will also learn about the relationship between non-human and human primates.4. From the practical component they will learn about how to measure and study various parts of the human body.</p>
<b>ANT-HC-1026</b>	<b>Introduction to Socio-Cultural Anthropology</b>	<p>The learning outcomes of this paper are:</p> <p>1. The students will learn about the scope and relevance of Social-Cultural Anthropology and its relationship with other branches of anthropology. 2. They will learn about concepts of society, culture, social stratification, etc. 3. They will also learn about important institutions like family, marriage and kinship.4. From the practical component they will learn how to</p>

		follow up some of the commonly used techniques of data collection in Social-Cultural Anthropology.
<b>ANT-HC-2016</b>	<b>Archeological Anthropology</b>	<p>The learning outcomes of this paper are:</p> <ol style="list-style-type: none"> <li>1. The students will learn about archaeological anthropology and its relationship with other sciences.</li> <li>2. They will learn about how the past is reconstructed.</li> <li>3. They will also learn about the method of understanding the prehistoric culture on the basis of archaeological findings.</li> <li>4. From the practical component, they will learn about identification and interpretation of prehistoric tools.</li> </ol>
<b>ANT HC202</b>	<b>Fundamentals of Human Origin &amp; Evolution</b>	<p>The learning outcomes of this paper are:</p> <ol style="list-style-type: none"> <li>1. The students will learn about the origin of hominoid group in the primates.</li> <li>2. They will learn about the origin, distribution and characteristics of extinct hominids and the process of hominization.</li> <li>3. The components of the Practical paper will help students to understand how craniometric measurements and derived indices are useful in studying evolutionary changes in modern humans.</li> </ol>
<b>ANT HC301</b>	<b>Tribes and Peasants in India Theory</b>	<p>The learning outcomes of this paper are:</p> <ol style="list-style-type: none"> <li>1. The students will learn about the concepts of tribes, their classification and distribution.</li> <li>2. They will learn about how tribes are linked with the wider world.</li> <li>3. They will also learn about peasantry and how it is related to tribes.</li> <li>4. From the practical component they will learn to read original ethnographies and extract relevant information from the same.</li> </ol>
<b>ANT-HC-3026</b>	<b>Human Ecology: Biological &amp; Cultural dimensions</b>	<p>The learning outcomes of this paper are:</p> <ol style="list-style-type: none"> <li>1. The students will learn about biological aspects of ecology and adaptation.</li> <li>2. They will learn about cultural aspects of ecology and adaptation.</li> <li>3. They will also learn about the relationship between ecology and state</li> </ol>

		formation. 4. From the practical component they will learn about measurement of various parts of the human body and about preparing a research design on study of any environmental problem.
<b>ANT-HC-3036</b>	<b>Biological Diversity in Human Populations</b>	<p>The learning outcomes of this paper are:</p> <ol style="list-style-type: none"> <li>1. The students will learn about the use of various markers of biological variation.</li> <li>2. They will learn about the mechanisms of human adaptability.</li> <li>3. They will also learn about the contribution of some anthropologists towards understanding the population diversity in India.</li> <li>4. From the practical component they will learn about the use of blood group antigens and dermatoglyphic traits in measuring biological diversity.</li> </ol>
<b>Paper M 501</b>  <b>Paper M 502</b>  <b>Paper M 503</b>  <b>Paper M 504</b>	<b>Physical Anthropology (Human Evolution)</b>  <b>Prehistoric Anthropology</b>  <b>Social Anthropology (Indian Anthropology and Anthropology of Religion)</b>  <b>Social Anthropology ( Field Methodology, Tribes of North East India)</b>	<p>Learning outcomes are-</p> <ol style="list-style-type: none"> <li>1. Student can understand the secret behind human evolution from primate to modern man through different stages of early humans</li> <li>2. Knows about the human adaptation to different environment.</li> <li>3. Gets knowledge about environmental background that favored evolution of man's culture.</li> <li>4. Can date the antiques by applying different scientific methods</li> <li>5. Understand the Palaeo ecology</li> <li>6. Get the knowledge on the importance of studying religion, different religious thoughts, beliefs, myths, concept of disease in the societies, ethnomedicinal practices that are found in the different societies.</li> <li>7. Acquire the knowledge on Indian social system, tribe, caste, castism, Characteristics of tribes in Indian Context, Concept of Scheduled tribes and Scheduled castes in India.</li> <li>8. Students get benefited by learning the methods of field investigation. They are trained to write report or dissertation on collected data.</li> </ol>

		<p>9. Students become skilled on the museum objects, their preservation and conservation.</p> <p>10. Student are trained not only to identify the fossil man but also to take blood pressure, pulse rate of individuals. They are also trained to take finger prints and palm prints.</p>
<p><b>Paper M 601</b></p> <p><b>Paper M 602</b></p> <p><b>Paper M 603</b></p> <p><b>Paper M 604</b></p> <p><b>Paper M605</b> (Practical)</p> <p><b>Paper M606</b> (Practical)</p>	<p><b>Physical Anthropology</b>  (Human Genetics)</p> <p><b>Prehistoric Anthropology</b></p> <p><b>Social Anthropology</b> (Indian Anthropology)</p> <p><b>Applied Anthropology</b></p> <p><b>Physical Anthropology</b></p> <p><b>Social Anthropology</b> (Technology and Field work)</p>	<p>Learning outcomes are-</p> <ol style="list-style-type: none"> <li>1. Students are benefited by learnig about human genetics, Mendelian Principles of heredity, Population genetics, influence of heredity and environment on human physical and hereditary characters.</li> <li>2. Get detailed knowledge on field archaeology, ethno- archaeology, new archaeology, details of prehistoric cultural development in India, living prehistoric tradition of N.E. India.</li> <li>3. Acquire knowledge on Indian society, tribe, caste, unity in diversity, pioneers of Indian Anthropology.</li> <li>4. Learn to apply the anthropological knowledge for the benefits of human being and society as well. For e.g. application of eugenics, etc.</li> <li>5. Skilled in taking anthropometric measurements and dermatoglyphics patterns which are necessary for forensic studies also.</li> <li>6. Skilled in identify, collection and preservation of material cultures of different ethnic groups. Students are able to write a dissertation or research papers on the basis of their field data.</li> </ol>

### **DEPARTMENT OF ASSAMESE**

Students will get a very sound knowledge on Assamese literature, language and culture. They will be well introduced with the north eastern states from its linguistic and cultural point of view. They will get a clear knowledge on development of writing and speaking languages. The study of literature as well as language is the study of our intellectual history and civilisation. It will develop the aesthetic senses and socialistic approaches of the students. In addition to these, the students will be able to develop their concept on some noble field viz. grammar, philosophy, history, anthropology etc. Students will be able to know not only about the Indian literature but also the world literature. They will be well introduced with the varied form of literature e.g. short story, novel, song, poetry etc. By the skill enhancement course, the students will be able to start their profession as proof reader or creative writer or script writer. Through project work they will learn to do work in group and they have scope for their innovation.

<b>COURSE</b>	<b>OUTCOME</b>
Core course	Aims to make students acquainted with the history of Assamese literature and language. Many famous and historically important writers and writings are introduced to the students. It intends to give the knowledge of the culture of Assam, north east and India. Give thorough knowledge of General Linguistic, different form of language, language families etc. It intends to give an idea of the development of Assamese scripts. It also makes a student expert in grammar. It exposes the students to the different form of Assamese literature in particular and Indian literature in general e.g. poetry, short story, novel etc. It also gives knowledge of literary criticism.
AECC	This course will develop the speech delivering capacity, social adaptability and acceptability of a student through speech.
SEC	Students can do Assamese typing, proof reading and also can start career as creative writer.
DSE	Give knowledge of folk literature, Romantic poetry, Sankardev, Assamese science fiction etc. It will help to improve the student's creativity through project work.
GE	This course teaches the students about recitation, stage performance and musical aspects.
1. History of Assamese language, Oral literature to modern lit. Development of script –Specially Brahmi lipi	Students will gain knowledge about the development of Assamese language, literature and script.
2. Relationship with other modern Indian language, literature	Basic knowledge on Indian literature and language.

3. Language Families of the world	Acquire knowledge on the language varieties and their characteristics
4. Indo European Language families	Gain knowledge on language families of the world.
5. Culture-theory and exercises Specially of north east India	Apart from gaining knowledge, students could understand our cultural roots and heritage, unity among diversity etc
6. Poetry-theory, Brajabulu, old Assamese poetry, Modern Assamese poetry And Criticism	Student can develop their knowledge, understanding skill, feel the essence of creative writing, develop their own writing.
7. Drama-theory Ankiya Naat (old Assamese Drama) Modern Assamese Drama	To gain knowledge about old as well as modern Assamese dramas and their significance in literary arena.
8 Novel-theory, some important novels	To acquire in-depth understanding and critical analysis of various epic novels.
9. Comparative Literature- Indian and foreign	Understand the world community through their study
10. Assamese prose	Students can develop their expression through writing as well as talking and learn how to write prose and analytical skill of prose writing.
11. Translation	Students can take translation as profession, feeling attachment with the whole world
12. New trends of study literature and language	Up-to- date knowledge of the philosophy, changing norms of analysis through this content.
13. Criticism	Develop thinking capacity, by completing the course, apart from various government services students could take option in mass communication sector i.e. print, audio-visual and other social media. They can work as editor and translator. Students can also be self-engaged in tourism sector as local guide. They can work as language teacher by establishing own institutes.

## DEPARTMENT OF BOTANY

### **Programme Outcome:**

Developing intellectual, personal and professional skills of students in plant sciences and making them ready for advance studies in plant sciences

### **Programme Specific Outcome:**

- ❖ On successful completion of the Programme, the students will be well aware of different plant groups and different branches of Plant Sciences
- ❖ They will learn the techniques of studying plants- basic techniques as well as advance techniques.
- ❖ The students will also become aware of physiology and metabolism of different plant groups and their uses for human welfare.
- ❖ They become skilled in modern advance branches of biochemistry, cytogenetics, molecular biology etc. and at the same time they develop the skill of traditional branches of botany like taxonomy, ecology, genetics, physiology, palynology, anatomy etc.
- ❖ The basic techniques of plant research like biostatistics, spectrometry, chromatography, microscopy, bioinformatics are also learned in the course.
- ❖ Students also learn to write project reports by writing reports on field visits.
- ❖ The course also helps in making a student responsible citizen well aware of need of environment conservation and ways to do so. As throughout the course, they are thought the importance of plants in human life and importance of plant resources and their conservation *in situ* (conservation ecology) as well as *in vivo* (tissue culture and gardens ).

Paper	Course	Outcome
<b>Semester- I</b> Paper- BOT-HC-1016 BOT-HC-1016 BOT-HC-1026 BOT-HC-1026	Phycology and Microbiology  Practical  Biomolecules and Cell Biology  Practical	In the theory and practical syllabus of first paper of this semester, students get to know about the different groups of plants. Details idea of algae as a whole is given in the first paper. In the second paper detail idea of cell and its organelles and the different major biomolecules involved in cell activities are studied and students get fundamental knowledge about the cell structure and functioning.
<b>Semester- II</b> Paper-BOT-HC-2016 BOT-HC-2016  BOT-HC-2026	Mycology and Phytopathology  Practical	Details idea of Fungi, including the structure, reproduction, special characters and utility to human and environment is given in the paper Bot-HC-2016. This paper also includes role of fungi in disease development and method of their control.  In the paper Archegoniate details of bryophyte



BOT-HC-2026	Archegoniate Practical	and pteridophytes are given. In total of first and second semester theory and practical papers students get overall idea of all the lower plant groups which is very much necessary to have clear basics of plant sciences
<b>Semester- III</b> Paper-M301(Theory)	Ecology, Plant	The course content gives idea about ecological types and influence of environment on plants and plant type
M 302 M 303	Geography, Evolution  Instrumentation and Laboratory Techniques  Practical	ecology.  The other theory paper gives idea about different plant study techniques involved in advance study of plants
<b>Semester- IV</b> Paper-M 401  M 402 M 403	Morphology, Palynology, Embryology of Angiosperms  Plant Taxonomy  Practical	The course outcome is of detail taxonomic and morphological developments of plants
<b>Semester- V</b> Paper-M 501  M 502  M 503  M 504	Microbiology and Immunology  Plant Pathology and Lichen  Cytogenetics, Plant Breeding and Biometrics  Applied Botany (algae, fungi, bacteria, breeding, climate & horticulture)  Practical:	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.

M 505	Microbiology, Plant Pathology and Lichen	
M 506	Practical: Cytogenetics, Plant Breeding, Biometrics and Applied Botany	
<b>Semester- VI</b>		This semester makes students skilled in latest plant studies and advance techniques
Paper-M 601	Molecular Biology and Plant Biochemistry	<p>involved therewith. On completion of course of 6<sup>th</sup> semester the students become well informed about molecular aspects of cell internal physiology, the biochemical aspects of different physiological and metabolic 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.</p> <p>The practicals involve all advance techniques like chromatography, colorimetry, spectrometry, tissue culture etc.</p>
M 602	Bioinformatics, Computer Application and Biotechnology	
M 603	Plant Physiology	
M 604	Applied Botany (Plant Resource Utilization)	
M 605	Practical: Molecular Biology, Biotechnology, Bioinformatics and Computer Application	
M 606	Practical: Plant Physiology and Plant Resource utilization	

## DEPARTMENT OF CHEMISTRY

PAPER	COURSE	OUTCOME
CHE-HC-1016	Inorganic Chemistry-I	<p>This paper is divided into four units and imparts to the students the basic tenets of atomic and molecular structure, chemical bonding, periodicity of elements and redox behaviour of chemical species.</p> <p>The first unit of this paper provides the fundamental concept of the atomic and molecular structure in terms of classical mechanics as well as quantum mechanics.</p> <p>The second unit of this paper provides basic concept on the periodic properties of the elements, especially <i>s</i> and <i>p</i> block with emphasis on atomic/covalent radii, ionization energy, electron affinity, and electronegativity.</p>
		<p>This third unit of this paper is instrumental in imparting core ideas on chemical bonding. This includes discussion on ionic bonding, covalent bonding, metallic bonding and weak chemical forces. Special emphasis is provided to concepts such as lattice energy and solvation energy in ionic compounds, Lewis dot theory, valence bond theory, hybridization of orbitals, molecular orbital theory of simple homonuclear molecules/ polyatomicmolecules, valence shell electron pair repulsion theory describing the shape of molecules, polarizability in covalent compounds, band theory of metals, chemical interactions like van der Waalsforces, ion-dipole forces, dipole-dipole interactions, induced dipole interactions, repulsive forces, hydrogen bonding, etc.</p> <p>The fourth and final unit encompasses redox properties of chemical species, the concept of standard electrode potential and its application to inorganic reactions.</p>

<b>CHE-HC-1026</b>	<b>Physical Chemistry-I</b>	<p>This paper is divided into five units and imparts the fundamental ideas of solid, liquid and gaseous states of matter, the elementary idea of symmetry, solid state chemistry of crystalline structures and ionic behaviour in solution phase, to the students.</p> <p>The first unit covers the kinetic theory of gases, ideal gas and real gas.</p> <p>The second unit provides qualitative treatment of the structure of liquid along with the physical properties of liquid, viz, vapour pressure, surface tension and viscosity.</p> <p>The third unit encompasses general discussion on molecular and crystal symmetry with qualitative idea of point groups/space groups and types of crystal systems.</p> <p>The fourth unit lays the groundwork for understanding the basic solid state chemistry application of x-ray crystallography for the determination of some very simple crystal</p>
		<p>structures.</p> <p>The fifth and final unit provides the concept of ionic equilibrium for electrolytes in solution and various related parameters like degree of ionization, dissociation constants, salt hydrolysis, buffer solutions, etc. Also included are discussion on solubility parameters and theory of acid–base titrations.</p>
	<b>Laboratory Practical</b>	<p>This paper aims to equip the students with practical knowledge on titrimetric analysis like use and calibration of common laboratory apparatus, preparation of solutions in terms of molarity and normality of titrants; acid-base titrations; oxidation- reduction titrimetry; pH-metric titrations involving strong and weak electrolytes, physical phenomena like surface tension and viscosity, and indexing of a given powder diffraction pattern of a cubic crystalline system</p>

CHE-HC-2016	Organic Chemistry I	<p>This paper is divided into four units and educates the students on the basic concepts of organic chemistry including different classes of organic compounds, description of their reactivity and explanation on their chemical and stereochemical aspects.</p> <p>The first unit provides the rudimentary idea on organic compounds, their stereoelectronic effects, types of reactions occurring in organic compounds and their mechanisms.</p> <p>The second unit covers the basic tenets of stereochemistry of organic compounds. Special emphasis is given to understanding Fischer/Sawhorse/Newmann projections, geometrical isomerism, optical isomerism, concepts of chirality, relative and absolute configuration: D/L and R/S designations, etc.</p> <p>The third unit covers the entire chemistry of aliphatic hydrocarbons, namely alkanes, alkenes and alkynes, in terms of their structure, bonding,</p>
		<p>properties, preparative methods and reactivities.</p> <p>The fourth and final unit covers the entire chemistry of aromatic hydrocarbons in terms of structure, bonding, properties, preparative methods, and reactivities.</p>
CHE-HC-2026:  PHYSICAL CHEMISTRY II	Physical Chemistry II	<p>This paper is divided into four units and educates the students on the basic idea of chemical thermodynamics, chemical reaction kinetics and colligative properties of solutions.</p> <p>The first unit covers the important postulates of thermodynamics – zeroth, first, second and third law and their corresponding parameters like enthalpy, entropy, free energy etc.</p> <p>The second unit covers the system of variable compositions and their representation in thermodynamic terms like partial molar volume, chemical potential, etc.</p> <p>The third unit covers the concepts of chemical equilibrium in real and ideal gases, their equilibrium constants and their relative parameters.</p> <p>The third and final unit covers the colligative properties of solutions and their derivation from thermodynamic interpretations.</p>

	<b>Laboratory Practical</b>	This paper aims to equip the students with practical knowledge on purification and identification of organic compounds based on their physical properties like solubility, melting point, boiling point, etc.; chromatographic separation of organic compound mixture; determination of thermochemical parameters like heat capacity, and enthalpy of various chemical compounds
<b>CHE-HC-3016:</b>	<b>Inorganic Chemistry-II</b>	This paper is divided into four units and imparts to the students the basic principles of metallurgy, acid-base concepts, chemistry of <i>s</i> and <i>p</i> block elements, chemistry of noble gases and general idea of inorganic polymers.
<b>CHE-HC-3026:</b>	<b>Organic Chemistry-II</b>	This paper is divided into five units and encompasses the chemistry of halogenated hydrocarbons like alkyl and aryl halides; organic compounds like alcohols, phenols, ethers and epoxides; carbonyl compounds; carboxylic acids; sulphur containing organic compounds.
<b>CHE-HC-3036:</b>	<b>Physical Chemistry-III</b>	This paper is divided into four units and educates the students on the basic ideas of phase equilibrium; chemical kinetic concepts; catalysis and chemistry of surfaces.
	<b>LABORATORY PRACTICAL</b>	This paper aims to equip the students with practical knowledge on iodi/iodometric titrations; inorganic preparations of metals salts and double salts; functional group detection in organic compounds; organic preparation of compounds involving reactions like acetylation, benzylation, oxidation, reduction, hydrolysis, condensation; critical temperature detection of eutectic systems like phenol-water; kinetic study of various reactions and adsorption studies of solid-liquid systems like acetic acid on activated charcoal.
<b>CHE-HC-4016:</b>	<b>Inorganic Chemistry-III</b>	This paper is divided into four units and imparts to the students the fundamental concepts in chemistry of coordination compounds; chemistry of transition elements (mostly d and f block elements); chemistry of lanthanides and actinide elements and chemistry of bioinorganic compounds with emphasis on biological systems.

<b>CHE-HC-4026:</b>	<b>Organic Chemistry-III</b>	This paper is divided into four units and educates the students on chemistry of organic compounds containing nitrogenous functional groups; the chemistry of polynuclear aromatic hydrocarbons; chemistry of heterocyclic compounds; and chemistry of natural products like alkaloids, terpenoids, etc.
<b>CHE-HC-4036:</b>	<b>Physical Chemistry-IV</b>	This paper is divided into four units and educates the students on the basic ideas of conductance of ions in solution; concept of electrochemistry; and ultimately a general discussion on electrical and magnetic property study of atoms and molecules.
	<b>Laboratory Practical</b>	This paper aims to equip the students with practical knowledge on gravimetric analysis of metal complexes; inorganic preparations of metal coordination complexes; chromatographic separations of metal ions; functional group detection of organic compounds containing nitrogen, sulphur and halogens; conductometric experiments on acid-base solutions; potentiometric experiments on acid-base solutions
<b>501</b>		<p>The first part of this paper is giving the concept of quantum chemistry and atomic structure. This chapter gives the ideas of black body radiation, photo electric effect, Compton effect, Schrodinger equation, wave function, operators, Hamiltonian, model systems-1D, 3D, particle in a ring, harmonic oscillator, rigid rotator, etc.</p> <p>Second unit covers the ideas of term symbols, spin-orbit coupling, Pauli's exclusion principle, quantum number, calculation of radial probability functions, etc.</p> <p>Third unit covers the concept of Born- Oppenheimer approximation, LCAO-MO theory, MO energy level diagram of homonuclear and heteronuclear diatomic molecules, Heitler-London theory, resonance, etc.</p>
<b>502</b>		<p>In the first unit of this paper is molecular reaction dynamics. It gives the ideas of collision theory, activated complex theory, theory of uni- molecular reactions, potential energy surfaces, reactions in solution, kinetic salt effect, etc.</p> <p>Second unit is photochemistry. It covers the concept of laws of photochemical equivalence, quantum yield, dimerisation, luminescence phenomenon, Jablonski diagram, quenching, air pollution, etc.</p> <p>Third unit is phase equilibrium. From this unit a student may gain the knowledge of definition of phase, meaning of components, degree of freedom, phase diagram, chemical potential,</p>

		<p>thermodynamics of mixing, Gibbs Duhem equation, fugacity, dependence of chemical potential on temperature and pressure, etc.</p> <p>Forth unit is surface chemistry. It gives the concepts of physisorption, chemisorptions, adsorption isotherms, determination of surface area, catalytic activity at surface, concept of surface excess, Gibbs equation, surface pressure, etc.</p>
503		<p>First part of this paper is organic reaction mechanisms. Here covers the concept of molecular rearrangement, oxidation-reduction with common oxidizing and reducing agents and pericyclic reactions.</p> <p>Second unit provides the concepts of polynuclear aromatic, nitro and amino compounds, organo S and organo P compounds, active methylene compounds and heterocyclic compounds.</p>
504		<p>First unit of this paper is related to bonding in coordination compounds. It provides the concepts of symmetry operation, point group classification, crystal field theory, crystal field stabilization energy, complexes with different spin states, adjusted crystal field theory, molecular orbital theory of octahedral complexes, and metal-metal bonding, etc.</p> <p>Second unit is related to organometallic compounds. From this unit a student may gain the knowledge of synthesis, structure and bonding of complexes with olefins, acetylene, allyl, EAN, IUPAC nomenclature, homogeneous catalysis by transition metal complexes, synthesis and structure of organometallic compounds of Sn, Pb, Zn, Cd, etc.</p> <p>Third unit is bioinorganic chemistry. This unit provides the concept of essential and trace elements, and their biological role, uptake and storage of iron, synthetic dioxygen carriers, dioxygen toxicity, etc.</p>
505		<p>This is an inorganic quantitative analysis paper. It covers the ideas of estimation of inorganic ions by volumetric, complexometric, gravimetric, redox and precipitation methods, chromatographic separation of cations by paper/TLC.</p>



<b>506</b>		This paper gives the ideas of preparation of different organic compounds such as benzanilide from aniline, dinitrobenzene from acetanilide, benzyl from benzoin, etc. It also give the ideas of determination of saponification equivalent f an ester, amount of glucose by titration with Fehling solution, estimation of urea by hypobromite method, etc.
<b>601</b>		This paper gives the ideas to spectroscopy. It includes the ideas of rotational, vibrational and Raman spectroscopy, electronic spectroscopy, spin resonance spectroscopy and mass spectroscopy.
<b>602</b>		The first unit of this paper is solid state. This unit includes the concept of Bragg's law, packing in solid, dislocation in solids, piezo and ferro electricity etc. This paper also covers the concepts of macromolecules and colloids, Statistical thermodynamics and data analysis.
<b>603</b>		This paper includes the concepts of organic photochemistry, polymers and fibers. Here a student may gain the knowledge of theory of photochemistry, typical photoreactions, addition and condensation polymers, preparation of different polymers namely nylon, terylene, urea formaldehyde resin, etc. This paper also also covers the basic concepts of biochemistry, natural products and medicinal chemistry. In biochemistry part student have to taught the structure of cell, DNA, RNA, coenzymes, vitamins, etc. In natural products and medicinal chemistry part a student may gain the concept of terpenes, alkaloids, carbohydrates, sulpha drugs, cisplatin, etc.
<b>604</b>		First unit of this paper is spectra of coordination compounds. It covers the concepts of Orgel diagram, Laporte selection rule, vibronic coupling, color of the complexes, etc.  In the bioinorganic chemistry part student have to taught metalloproteins and their role in photosynthesis, respiration, nitrogen fixation, etc. Also they have to learn toxicity due to metal ions and importance of metal salts in diet, diagnosis,

		chemotherapy, etc.  In the third part of this paper a student may gain the knowledge of nuclear chemistry, lanthanides and actinides. This part covers physical properties of the proton, neutron, mass defect, binding energy, nuclear reactors and its uses, etc.
605		This is a physical experimental paper. This paper includes different physical experiments such as determination surface tension of a liquid by stalagmometer, mutual solubility curve of phenol and water, validity of Beer-Lambert's law using colorimeter, etc.
606		This is a project paper. Here student have to teach the modern techniques of analysis to investigate their prepared or synthesised product which they are prepared during their work.

### **DEPARTMENT OF ECONOMICS**

#### **Programme Outcome:**

The programme will provide a well-structured relevant curricula for the students which will prepare the graduates for employment and higher studies. The programme will also provide the students a well-founded education in Economics. The teaching of various courses in Economics will help the students to acquire in-depth knowledge and understanding of the functioning and performance of the Indian and other global economies. Students will be able to develop their understanding of core economic terms, concepts and theories. They will be encouraged to understand the basic economic principles and will also learn about their applications to a wide range of real-world issues. Students will learn how economic activities like production, consumption, distribution etc. are organized by the markets. They will also acquire knowledge about national income, employment, inflation, deflation, business cycle, monetary and fiscal policy and the banking system. Students will acquire analytical and reasoning skill and will be able to predict about possible economic outcomes based on economic theories. Students will be equipped with quantitative analytical skills with the help of which they will be able to collect, tabulate, present and analyze data to support economic decision making.

#### **POGRAMME SPECIFIC OUTCOME (CBCS):**

As the undergraduate CBCS programme is at par in all over the country, students will be immensely benefitted to gather knowledge about the subject equally with the students of other parts of India. This will help them to be prepared for National competitive examinations and students will be able to get equal job opportunities along with job seekers around the country. The programme is such that students can choose any of the subject of their choice, may it be from any stream which is of utmost importance to unlock the potential of students for they will find interest in the subject of their choice

that will help them to build the future career. CBCS programme will definitely be beneficial for the ongoing education system to build a strong and self-sufficient future citizen of India if the programme is properly implemented all over the country with sufficient teaching force and improved infrastructure with advanced technology.

#### COURSE OUTCOME:

The course outcome can be analyzed with both advantages and disadvantages as given below:

#### ADVANTAGES:

1. As the course is very detailed and covers a number of topics. Students will gather a good basic knowledge about the subject.
2. As the course is all most same all over the country, it will help the students to go for higher studies in any of the universities and other institutes of higher education as they will be able to compete equally with the students of other parts of India with knowledge at par.
3. The course will help students to get success in competitive examinations like, UPSC, IRS, IES, NET, JRF and other competitive examinations for services in the institutions of repute.
4. The course provides in-depth knowledge of Economics along with the mathematical treatment and statistical applications of Economic Theories which will make the students to internalize the importance of Economics in day to day life, in each and every branch of higher education and policy prescription for national growth and development.
5. Inclusion of ICT in analyzing Economic problems is another important and needed feature of the course which will help the students to analyze the problem practically and find various Economic and other parameters and statistics relating to Economic development.
6. The course will enhance the ability of students to be acquainted with current national and Global Economic scenario and International trade relations among the countries of the world.
7. If students are properly guided and learned, students can develop themselves to good Economics analyst and policy makers throughvaluable research work they want to contribute to the society and also help other students to follow their path as a facilitator of Economic studies.

#### DISADVANTAGES:

1. Students without prior knowledge of mathematics find the course very tough – inclusion of too much mathematics and statistics may work as a backstabber for the subject itself that may be a major cause in the reduction of number of students in Economics in future.
2. Teachers are able to devote their full time, energy and concentration on the Honours students as they have to devote their time equally for Higher Secondary level classes.
3. The course will not be that beneficial without sufficient technological tools and infrastructure facilities within the campus.

#### SKILL ENHANCEMENT COURSE:

This course is like blessings for the students of Economics as the course helps them to gather practical knowledge of Applied Economics. The course will help the students to enhance their skill in real sense of the term. The course will help the students greatly to undertake Research Projects and proper analysis of the Economic variable that will help the country alot to prescribe and implement policies and programme for faster growth and inclusive development in the real sense.

#### COURSE OUTCOME (NON-CBCS):

Paper No.	Courses	Outcomes
M 501	Elements of Public Finance	Students will learn in this paper about thenature and scope of Public Finance. They will learn about the important elements of public finance viz. Public Revenue, Public Expenditure and Public Debt.
M 502	Basic Statistics (for BA) Introduction to Econometrics (for BSc)	Students from the Arts stream learn Basic statistics. They will learn about the measures of Central tendency, Dispersion, Correlation, Regression and Probability. On the contrary, students from the Science stream will learn about theoretical frequency distribution and application of binomial, Poisson and normal distribution. They will also learn about Statistical inference and linear regression models.
M 503	Introduction to Environmental Economics	On successful completion of this course students will have an in-depth understanding of the discipline of environmental economics and its key principles. They will be able to understand and analyze the various environmental problems and will also be able to assess the different environmental policies. They will also be introduced to the different global environmental issues.
M 504	International Trade and Policy	The purpose of this course is to provide students with a thorough knowledge of the theories of international trade as well as terms of trade, gains from trade and international trade policy.
M 505	History of Economic Thought I	This course helps students to learn how the economic thought has evolved over time. It helps students to learn about the economic thought of the early period, the classical period and the socialist thought.
M 506	Development Policy and the Indian Economy	Students will develop ideas of the basic characteristics of the Indian economy. They will understand about poverty, inequality and unemployment. They will also learn about

		the role of agriculture in economic development and the role of industries in the development process.
M 601	Public Economics	This course will help students to learn about taxation, government budget, fiscal policy and federal finance. The students will also learn about the Finance Commission of India.
M 602	Applies Statistics (for BA) Econometric Methods (for BSc)	Students from the Arts stream will demonstrate their ability to apply statistics in Economics. They will learn to apply index numbers, time series analysis, vital statistics and sample survey in Economics. Students from the science stream learn about the problems in OLS estimations- Heteroscedasticity, Auto correlation and Multicollinearity. They will also learn about Lag Models, Dummy variables and Time Series Analysis.
M 603	Economics of Natural Resources and Sustainable Development	The students will learn about natural resources, economics of renewable and non- renewable resources and also about development-environment trade off. The course also deals with the policies necessary for the sustainable management of natural resources.
M 604	International Economics	The students will learn about the nature and scope of international economics. They will also learn about the determinants of exchangerates and the balance of payments. The course also deals with economic integration and international institutions.
M 605	History of Economic Thought II	.This courses teaches the students about famous schools of thought- Marginalist school, Austrian school. The students will also learn about neo-classical economics, welfare economics, Keynesian economics and Indian Economic Thought.
M 606	Planning for Development: India and the Northeast	The students will learn about different aspects of planning . They will also learn about India in the Global Economy. This course will also help the students to understand the economic problems of North-East India.

## **DEPARTMENT OF EDUCATION**

### **Programme Outcome:**

The Under Graduate programme in Education Major helps the students to understand the meaning, aims, function and role of Education. They are able to employ critical thinking and efficiency in problems solving ability in Education. The course explains the Indian and Western schools of Philosophy and their impact on Education. It discusses the contribution of great educators. The students after completing course at Graduation level in Education will develop an understanding of major concepts, theoretical principles in Education. The course also involves understanding the meaning and different perspectives of psychology and different theories of intelligence. The recommendations of the different Education Commissions are also included in the syllabus. By analyzing the various problems faced by the mentally and physically challenged children, an awareness program can be designed to encounter the problems of challenged children. Micro-teaching, preparing lesson- plans, practice teaching in schools which are integral parts of the syllabus will train the students in teaching skills. Students will also gain a reasonable knowledge in psychology. On successful completion of the course the students become efficient for teaching activities and guiding others to become good citizens in the society by usage of value education.

Course	Paper	Outcome
<b>NON-CBCS COURSE</b>	<b>Semester-V</b>	The students will be able to know the relationship between philosophy and education, acquire knowledge about the three major philosophies of education — Idealism, Naturalism and Pragmatism, understand the philosophy of life of different educational thinkers and their contribution to present day educational thought. concept, aims, scope and development of
		teacher education in India, various methods and devices of teaching, teaching effectiveness and classroom management, concept of experimental psychology and the methods of conducting various psychological experiments and tests.
<b>CBCS Course</b>	<b>Semester-I</b> Principles Of Education	➤ The students will be able to know about the sound principles of education, the important 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.

	Psychological foundation of Education	<ul style="list-style-type: none"> <li>➤ Understand the concept of memory, forgetting, attention and interest.</li> <li>➤ Understand intelligence, its theories, measurement, and concept of emotional intelligence.</li> <li>➤ Acquaint with different types of personality and the adjustment mechanism</li> </ul>
	<b>Semester-II</b> Philosophical and Sociological Foundations of Education Development Of Education In India-I	After completion of this course the students will be able to -- <ul style="list-style-type: none"> <li>➤ Know the concept of philosophy and its relationship with education.</li> <li>➤ Understand the educational implications of different Western schools of philosophy.</li> <li>➤ Develop understanding about the concept of educational sociology, social groups and socialization.</li> <li>➤ The learner will be able to develop the knowledge of the concept of Ancient Indian education system particularly Vedic Education and analyze the education system during British Period</li> </ul>
	<b>Semester-III</b> Development Of Education In India-Ii  Educational Technology And Teaching Methods  Value And Peace Education	<ul style="list-style-type: none"> <li>➤ Enable the students to know about the recommendations and educational importance of different Education Commission and Committees in post Independent India and analyze the National Policy on Education in different times &amp; Accustom with the recent Educational Development in India.</li> <li>➤ Acquaint the students with innovations in the field of education through technology &amp; various methods and devices of teaching</li> <li>➤ Acquaint students with levels, effectiveness of teaching and classroom management</li> <li>➤ Make the students understand the strategies of effective teaching as a profession</li> </ul> The learner will be able to-- <ul style="list-style-type: none"> <li>➤ Become aware about the role of educational institutions in building a value based society.</li> <li>➤ Understand the meaning and concept of peace and its importance in human life.</li> <li>➤ Understand the meaning and importance of peace education and its relevance at national and international level.</li> <li>➤ Identify the strategies and skills in promoting peace education at institutional level.</li> </ul>

	Public Speaking Skill	<ul style="list-style-type: none"> <li>➤ After completing this course, students will be able to acquire the capacities of public speaking skill.</li> </ul>
	<b>Semester-IV</b>  Great Educational Thinkers  Educational Statistics and Practical  Emerging	<ul style="list-style-type: none"> <li>➤ After completion of this course the learner will be able to enable the students to learn the Philosophy of life of different Educational Thinkers and their works&amp; enable the students to learn about relevance of some of their thoughts at present day context.</li> <li>➤ The students will be able to develop the basic concepts of Statistics and develop the ability to represent educational data through graphs.</li> <li>➤ Familiarize the students about the Normal Probability Curve and its applications in Education.</li> <li>➤ Make the students acquaint with major emerging issues</li> </ul>
	Issues In Education	national, state, and local <ul style="list-style-type: none"> <li>➤ Acquaint the students with the various issues in education that are emerging in the recent years in the higher education system</li> </ul>



	<p><b>Semester-V</b></p> <p>Measurement And Evaluation In Education &amp; Practical</p> <p>Guidance And Counselling</p> <p>Developmental Psychology</p>	<ul style="list-style-type: none"> <li>➤ Enable the students to understand the concept of measurement and evaluation in education.</li> <li>➤ Acquaint the students with the general procedure of test construction and characteristics of a good test.</li> <li>➤ Acquaint the students about personality test, and aptitude tests.</li> <li>➤ Help the students to understand the concept, need and importance of Guidance and Counselling</li> <li>➤ Acquaint the students with the organization of guidance service and school guidance clinic</li> <li>➤ Enable the learners to understand the challenges faced by the teacher as guidance worker.</li> <li>➤ Acquaint the students about heredity and environmental factors affecting pre-natal development</li> <li>➤ Enable the students to understand the development aspects during infancy and childhood</li> <li>➤ Enable the students to understand the development aspects of adolescence, importance of adolescence period and problems associated with this stage.</li> </ul>
	<p><b>Semester-VI</b></p> <p>Education and Development</p> <p>Project</p> <p>Special Education</p>	<ul style="list-style-type: none"> <li>➤ After completion of this course the learner will be able to know the relation between education and development &amp; Educational development in the post globalization era.</li> <li>➤ After completion of this course the learner will be able to explain the process of conducting a Project &amp; Prepare a Project Report.</li> <li>➤ Familiarize the students with the different types of special children with their characteristics</li> <li>➤ Enable the students to know about different issues, educational provisions and support services of special education</li> </ul>

## **DEPARTMENT OF ENGLISH**

### **Mechanism of Communication:**

The Department of English adopts outcome-based learning rather than input-oriented learning. In keeping with the institutional strategies, the following mechanism is adopted to communicate the learning outcomes to the teachers and students:

- Graduate attributes are described to the first year students at the commencement of the programme.
- The teachers spend the stipulated hours recommended by UGC for introducing the subject to the students.
- Learning Outcomes of the Programmes and Courses are strictly observed and assessed periodically.
- The importance of the learning outcomes is communicated to the teachers in every IQAC Meeting and Staff Council Meeting.
- The students are also communicated about the Programme and Course outcomes through regular tutorial classes.

### **Programme Outcomes**

- Apply the knowledge of the subject logically in required fields keeping in consideration of the various social, cultural, political and environmental issues.
- Adopt adequate teaching strategies and measures to meet the diverse needs of the heterogeneous background of the learners thereby enabling them solve complex

problems and exhibit comprehension and understanding of the programmes and apply them in a multidisciplinary environment

- Use innovation-based knowledge and creative methods including design of assignments, seminar papers for analytical skill and synthesis of the information leading to valid conclusions.
- An attempt is made to create, select, and apply appropriate techniques, resources, and modern IT tools for better learning outcomes. The focus is on training and skill to engage in self-regulating and life-long learning in the digitally changing times.
- Generate awareness of the societal and environmental issues for ensuring the practice of sustainable development.
- Acquaint the learners with ethical principles, moral values, professional ethics and responsibilities.
- Inculcate leadership qualities, team-spirit as well as a sense of individuality in the learners.

### Course Outcomes

Course	Outcome
Honours Course	<p><b><u>Semester I/II</u></b></p> <ul style="list-style-type: none"> <li>• To help the students of English Literature gain an extensive understanding of the English language and the texts.</li> <li>• The aim is to provide students with the opportunity to study major classic as well as popular writings from the British, American and global Anglophone traditions</li> <li>• The aim is to help acquaint the learners to explore the entire vista of varied human experience as expressed in Fiction, Poetry, Non-Fiction, Prose and Drama</li> <li>• The Programme seeks to provide imagination and critical insights into the wide spectrum of human emotions- nature and culture, identity and sexuality, love and peace, history and justice.</li> <li>• Literature encourages the learners to develop reading as a source of life-long commitment to learning and growth.</li> <li>• It aims to help the learners to develop the habit of active reading and the ability to comprehend the complex, nuanced literary texts, appreciate the literal and figurative uses of language.</li> <li>• To encourage learners students to develop analytical and interpretive skills thereby instilling research-oriented outlook</li> <li>• The students are encouraged to practice critical writing and creative expression to enhance their thinking and communicative ability.</li> <li>• Students are trained to explore the diverse genres of literary</li> </ul>

	<p>writing to enhance their intellectual growth and instil the habit of intellectual inquiry.</p> <ul style="list-style-type: none"> <li>• To sensitize the students to become effective thinkers and communicators</li> <li>• Increase confidence in public speaking and articulating clear ideas in class discussion by listening thoughtfully and respectfully to other ideas.</li> <li>• Enhance ability to organize and deliver informed and interesting oral/written presentations make the learners well equipped for various professions in future.</li> </ul> <p><b><u>Semester III/IV</u></b></p> <ul style="list-style-type: none"> <li>• To help the students of English Literature gain an extensive understanding of the English language and the texts.</li> <li>• The aim is to provide students with the opportunity to study major classic as well as popular writings from the British, American and global Anglophone traditions</li> <li>• The aim is to help acquaint the learners to explore the entire vista of varied human experience as expressed in Fiction, Poetry, Non-Fiction, Prose and Drama</li> <li>• The Programme seeks to provide imagination and critical insights into the wide spectrum of human emotions an experiences- nature and culture, identity and sexuality, love and peace, history and justice.</li> <li>• Literature encourages the learners to develop reading as a source of life-long commitment to learning and growth</li> <li>• It aims to help the learners to develop the habit of active reading and the ability to comprehend the complex, nuanced literary texts, appreciate the literal and figurative uses of language.</li> <li>• To encourage learners students to develop analytical and interpretive skills thereby instilling research-oriented outlook</li> <li>• The students are encouraged to practice critical writing and creative expression to enhance their thinking and communicative ability.</li> <li>• Students are trained to explore the diverse genres of literary writing to enhance their intellectual growth and instil the habit of intellectual inquiry.</li> <li>• To sensitize the students to become effective thinkers and communicators</li> <li>• Increase confidence in public speaking and articulating clear ideas in class discussion by listening thoughtfully and respectfully to other ideas.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Enhance ability to organize and deliver informed and interesting oral/written presentations make the learners well equipped for various professions in future.</li> </ul> <p><b><u>Semester V/VI</u></b></p> <ul style="list-style-type: none"> <li>• To help the students of English Literature gain an extensive understanding of the English language and the texts.</li> <li>• The aim is to provide students with the opportunity to study major classic as well as popular writings from the British, American and global Anglophone traditions.</li> <li>• The aim is to help acquaint the learners to explore the entire vista of varied human experience as expressed in Fiction, Poetry, Non-Fiction, Prose and Drama</li> <li>• The Programme seeks to provide imagination and critical insights into the wide spectrum of human emotions an experiences- nature and culture, identity and sexuality, love and peace, history and justice.</li> <li>• Literature encourages the learners to develop reading as a source of life-long commitment to learning and growth</li> <li>• It aims to help the learners to develop the habit of active reading and the ability to comprehend the complex, nuanced literary texts, appreciate the literal and figurative uses of language.</li> <li>• To encourage learners students to develop analytical and interpretive skills thereby instilling research-oriented outlook.</li> <li>• The students are encouraged to practice critical writing and creative expression to enhance their thinking and communicative ability.</li> <li>• Students are trained to explore the diverse genres of literary writing to enhance their intellectual growth and instil the habit of intellectual inquiry.</li> <li>• To sensitize the students to become effective thinkers and communicators.</li> <li>• Increase confidence in public speaking and articulating clear ideas in class discussion by listening thoughtfully and respectfully to other ideas.</li> <li>• Enhance ability to organize and deliver informed and interesting oral/written presentations make the learners well equipped for various professions in future.</li> </ul>
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<p><b>General Course - BA</b></p>	<p><b>Semester I/II</b></p> <ul style="list-style-type: none"> <li>• Increase confidence in public speaking and articulating clear ideas in class discussion by listening thoughtfully and respectfully to other ideas. <ul style="list-style-type: none"> <li>• Enhance the ability to organize and deliver informed and interesting oral/written presentations make the learners well equipped for various professions in future.</li> <li>• The students are encouraged to practice critical writing and creative expression to enhance their thinking and communicative ability.</li> </ul> </li> </ul> <p><b>Semester III/IV</b></p> <ul style="list-style-type: none"> <li>• Increase confidence in public speaking and articulating clear ideas in class discussion by listening thoughtfully and respectfully to other ideas. <ul style="list-style-type: none"> <li>• Enhance the ability to organize and deliver informed and interesting oral/written presentations make the learners well equipped for various professions in future.</li> <li>• The students are encouraged to practice critical writing and creative expression to enhance their thinking and communicative ability.</li> </ul> </li> </ul>
<p><b>General Course - BSc</b></p>	<p><b>Semester I</b></p> <ul style="list-style-type: none"> <li>• Increase confidence in public speaking and articulating clear ideas in class discussion by listening thoughtfully and respectfully to other ideas. <ul style="list-style-type: none"> <li>• Enhance the ability to organize and deliver informed and interesting oral/written presentations make the learners well equipped for various professions in future.</li> <li>• The students are encouraged to practice critical writing and creative expression to enhance their thinking and communicative ability.</li> </ul> </li> </ul>

### **DEPARTMENT OF GEOGRAPHY**

Geography is considered to be the mother of all subjects. It is the study of the relationship between human and the environment. Hence, geography students are exposed not only to the study of the various aspects of the physical world, but also to the study of the various aspects of the society as well. Geography students are thus trained about the science of the physical world as well as the arts of the human world. With knowledge about geomorphology, climatology, oceanography, ecology, environmental geography and cartography, geography students are trained to be well versed physical geographers. On the other hand, imparting knowledge on the philosophical aspects of the subject through the study of geographic thought, students are also trained in the philosophical understanding of the subject as well. Furthermore, through papers like human geography, social geography, political geography, economic geography, etc. students thus emerge as geographers with in depth understanding of the dynamics of the society as well.

Paper	Course	Outcome
GGY-HC-1016	Geomorphology – Part A (Theory)	This paper aims to provide an in depth knowledge about the physical characteristics of the earth. Through this paper students will gain in depth knowledge about the various aspects of the earth, especially the lithosphere. Focus is also given on the creation, evolution and also destruction of various landforms of the earth.
(Practical)	Geomorphology - Part B	Practical on geomorphology aims to train the students with the ability to read and construct maps explaining the physical characteristics of the topography of the
		earth.

GGY - HC – 1026  Cartographic Techniques - Part A (Theory)	Cartographic Techniques - Part A (Theory)	This paper aims to provide the students with the theoretical understanding of the science of map making. Various concepts related to various types of map making are taught in this paper.
- Part B (Practical)	Cartographic Techniques	Practical on cartographic techniques aims to equip the students with ability to construct various types of maps. Based on different projections various maps are taught to be constructed. In addition to this, various surveying techniques using both manual and digital tools as well as methods are taught so that the students are capable of using such techniques in the practical field.
GENERIC ELECTIVE  Paper Code: GGY-HG-1016	Physical Geography	Physical Geography paper attempts to provide the knowledge of the physical world. It not only includes the understanding of the subject of physical geography as a whole, but also specifically focuses on the study of the atmosphere, lithosphere and also hydrosphere.
GGY-RC-1016	Physical Geography  Part A (Theory)	This paper attempts to provide a general idea about the topographic and surficial characteristics of



		<p>the</p> <p>Earth's surface to the students.</p> <p>In addition to this, it also aims to make the students aware of the dynamic geomorphic processes responsible for the development of landforms of varied types and nature.</p>
Part B (Practical)		<p>This paper aims to give the students the practical knowledge about the preparation of various profile drawings to better explain the geomorphic processes of the earth.</p>
GGY HC – 2016	Human Geography	<p>This paper provides the students with the knowledge about the human aspects of geography which forms the other aspect of the subject. Through this paper students are made well versed with the relationship between human beings and the natural world, i.e. the physical environment. The various philosophical contents of the paper attempts to provide the students about the philosophical background of the subject.</p>
Human Geography - Part B (Practical)		<p>Practical on human geography paper intends to give the students the knowledge about the</p>

		various quantitative techniques to depict, interpret and represent the human geographic data
GGY-HC-3016	Economic Geography	This paper intends to provide the students with the knowledge of how various economic activities are related with geography. The workings of the various economic sectors like primary, secondary and tertiary are specifically focused upon so that a better understanding of the relationship between geography and economics can be provided
Part B (Practical)		Practical on Economic Geography aims to equip the students with the ability to use various quantitative techniques in the interpretation and representation of various economic data.
GGY-HC-3026	Geography of India with special reference to N.E. India - Part A (Theory)	This paper intends to provide the students with the knowledge about the diversity of India giving special focus on the geographical diversity of North-East India.
Part B (Practical)		Practical paper on India attempts to enable the students with the ability to use various data and interpret them using various quantitative techniques

GGY-HC-3036	Quantitative Methods in Geography	This paper aims to equip the students with an in depth theoretical knowledge about the quantitative methods that are often used in the study of geography.
Part B (Practical)	Quantitative Methods in Geography -	Practical on quantitative methods aims to give the student hands on training on the usage of various quantitative methods so that they are capable of using them in the correct interpretation and representation of various geographic data.
SKILL ENHANCEMENT COURSE FOR HONOURS  GGY – SE-3054	Thematic Cartography- PartA (Theory)	This paper intends to give theoretical knowledge about the art and science of thematic map making. Through this paper students can construct maps of various regions depicting various themes.
Part B (Practical)		This paper attempts to provide the students with practical knowledge about the construction of thematic mapping based on various geographical data.
:  GGY-RC–3016	Economic Geography- PartA (Theory)	This paper intends in developing the understanding of the students on how geographical factors organize economic space, and to acquire knowledge about spatial patterns of various economic activities on the earth.

Part B (Practical)		<p>This paper aims to make the students understand the basic principles of economic geography and associated patterns and processes of major economic activities in the world. It also attempts to develop insights among the students about the relevance of studying economic geography and understanding contemporary economic problems from geographical perspective.</p>
<p><b>SKILL ENHANCEMENT COURSE</b></p> <p>Course Name: Thematic cartography- Part A (Theory)</p> <p>Paper Code: GGY – SE-3034</p>		<p>Through this paper students can learn about the importance of various techniques of preparation of maps in geographical study. They will also gain a general understanding of preparation of different types of plans and maps. Further they are also trained with different cartographic techniques for representation of various facets of earth's surface.</p>
Part B (Practical)		<p>Practical paper on thematic cartography attempts to</p>

		provide hands on training to the students to enable them to prepare various maps using cartographic techniques and principles.
PAPER 401: FORMS AND PROCESSES IN GEOMORPHOLOGY		Through the first unit, it is intended to teach the students about the various geomorphic processes that shape the topography of the earth. Focus is given to enable the students to understand the concepts of the development of various landforms. The second unit aims to train the students about the various hydrological aspects of the earth so that the students can understand the drainage processes of the earth along with the creation of various landforms that are produced as a result of the hydrological processes of the earth. The final unit intends to impart the knowledge of various geomorphic hazards and the subsequent creation of various landforms.
PAPER 402: HUMAN		The first unit aims to impart

GEOGRAPHY		<p>the knowledge of the important concepts and the definition of human geography to the students so that they can understand the meaning of the subject. The second unit aims to give the students the philosophical understanding as well as the approaches to the study of the subject of geography. The third unit aims to impart an in depth knowledge about the human and environment relationship to the students so that they can better analyze and interpret the relation between man and the natural environment. The fourth unit specifically aims to teach the students the response of the human beings to the various environmental conditions prevalent in different parts of the world. Further, the last unit aims to teach the students about the major human races of the world so that they can get a better understanding about the diversity of human life</p>
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		around the globe.
PAPER 403:	PRACTICAL ON GEOMORPHIC PROCESSES	This paper aims to provide the students about the knowledge of representing various landforms produced through geomorphic process through the study of topographic maps. It also aims to equip the students with the ability to use various theories practically in the delineation of flood plains and also various other topographies.
PAPER 501:	REGIONAL DEVELOPMENT PLANNING AND GEOGRAPHY OF DEVELOPMENT OF USA AND JAPAN	This paper intends to provide the students with the knowledge of the concept of region which become the core concept in the understanding of not only the different countries of the world, but also defining the world into various regions. Further, development of some of the developed countries like USA and Japan are taught in this paper based on the resources and industrial development of these countries.

502	REGIONAL GEOGRAPHY OF INDIA AND SAARC NATIONS	<p>In this paper, students are taught about the country of India as a region. Hence, students can learn about the physical environment, location, population, agriculture, industry, transport, etc about the country of India.</p> <p>Further, this paper also intends to impart knowledge about the regional geography of all the SAARC nations of the world which includes the location, diversity, unity, conflict, economic co-operation etc.</p>
503:	CARTOGRAPHIC AND QUANTITATIVE METHODS	<p>Through this paper, the art and science of map making are taught to the students so that the students can learn about the cartographic techniques both theoretically and practically. Specific focus is given to the teaching of</p>



		<p>various surveying techniques using tools and equipments like Plane Table, Prismatic Compass, Dumpy Level and Theodolite.</p> <p>Different projection techniques to enable the students in the making of manual maps are also taught so that the students can gain expertise in the making of various types of maps. In addition to this, various quantitative methods are also taught to the students so that they are well versed in the important quantitative methods to conduct future researches and also so that the students can better calculate and interpret the different geographical data.</p>
504:	<p><b>POPULATION AND SETTLEMENT GEOGRAPHY</b></p> <p>Section A: Population Geography</p>	<p>This paper aims to impart the students with the knowledge of population and human settlements. Since human geography is another branch of geography, students can learn about the various</p>

		<p>aspects of human life. In addition to this, important theories regarding population growth and distribution are also taught to the students. Students therefore can learn about the various factors that influence the distribution and growth of population and settlement around the world.</p>
505:	<p><b>PRACTICAL ON CARTOGRAPHIC METHODS (SURVEYING &amp; MAP WORKS)</b></p>	<p>This paper attempts to impart practical training to the students in making maps as well as surveying using different tools and equipments. Hence students are able to depict, represent and analyse various socio-economic data.</p>
506:	<p><b>PRACTICAL ON CARTOGRAPHIC AND QUANTITATIVE METHODS</b></p>	<p>Through this paper, students can learn about the use of different quantitative methods in the calculation and analysis of various geographic data. Further they can also learn how these data can be represented in the maps. In addition to this, through this paper, students can also</p>

		learn to read different maps and also give meaning full interpretations of such maps.
601:	ENVIRONMENT AND DEVELOPMENT	This paper focuses on the study of the environment and development. It intends to impart the students with the knowledge about the concept of environment as well as the various environmental issues. Students therefore, can get deeper understanding about the different aspects of environment and development. Through this paper, students can learn about the concept of sustainable development. This paper thus aims to make the students responsible citizens by practicing sustainable development in their everyday life.
PAPER 603	REGIONAL GEOGRAPHY OF NORTH EAST INDIA WITH SPECIAL FOCUS ON ASSAM	This paper attempts to make the students learn about the North-Eastern part of India as a region with special focus on the state of Assam. As such, students gain in

		<p>depth knowledge about the various aspects of this region like, physiography, drainage, climate, soil, natural vegetation, population, society, economy, resources, infrastructure, biodiversity, etc. in addition to this, students also become aware about the various socio-economic problems of the region and Assam specifically.</p>
PAPER 604:	<p>PRINCIPLES AND APPLICATIONS OF REMOTE SENSING, GIS AND GPS</p>	<p>Through this paper the modern technological applications in geography are taught to the students. Students can gain in depth theoretical knowledge about the use of remote sensing, GIS and GPS, in the study of geography and in the conduct of geographic researches.</p>
PAPER 605:	<p>PRACTICAL ON ADVANCED TECHNIQUES IN GEOGRAPHY</p>	<p>Practical on advanced techniques in geography include the practical implications of the modern technologies in geography. Through the study of remote sensing and satellite</p>

		<p>imagery, students learn to identify and collect distant geographic data. In addition to this, they also learn to allocate ground control points. Further, they also learn to prepare digital maps using GIS softwares. Hence they gain expertise in the preparation of digital maps.</p>
606:	PROJECT WORK	<p>This paper focuses in imparting on field practical knowledge to the students in conducting researches. Attention is given to give different training in the various research methodologies so that students can gain practical lessons in conducting a research successfully.</p> <p>Students learn to collect their primary data using questionnaires and also to collect secondary data from various offices and authorities. They also learn how design their sample and practically learn to interpret the collected data.</p> <p>They also learn to represent</p>

		the data using both traditional and digital techniques. Thus through this paper, students get hands on expertise in conducting field research enquiring various research questions.
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### **DEPARTMENT OF HISTORY**

<b>PAPER</b>	<b>COURSE</b>	<b>OUTCOME</b>
<b>HIS-HC-1016</b>	<b>History of India-1</b>	The Course will be completed with 5 lectures and 1 tutorial per week. After completion of this paper, the students will be able to explore and effectively use historical tools in reconstructing the remote past of ancient Indian pre and proto history. The course will also train the students to analyse various stages of evolution of human cultures and the belief systems in the proto-history period.
<b>HIS-HC-1026</b>	<b>Social Formations and Cultural Patterns of the Ancient World</b>	The course needs to be completed with 5 lectures and 1 tutorial per week. After the completion of this paper, the students will be able to explain the processes and stages of the 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 the ancient world as well as development of slave and polis societies in Ancient Greece.
<b>HIS-HG-1016</b>	<b>History of India( From the Earliest times upto c1206)</b>	The course will be completed with 5 lectures and 1 tutorial per week. Upon the completion of this course, students will be able to explain the emergence of state system in North India, development of imperial state structure and state formation in South India in the early period. They will be able to understand the changes and transformations in polity, economy and society in early India and the linkages developed through contacts with the outside world
<b>HIS-HC-3016</b>	<b>History of India III (c750-1206)</b>	The paper will be completed with 5 lectures and 1 tutorial per week. The completion of this paper will enable the students to relate and explain the developments in India in its political time period between c700 to 1206. They will also be able to analyse India's interaction with another wave of foreign influence and the changes brought in its wake in the period.

<b>HIS-HC-3026</b>	<b>Rise of the Modern West-1</b>	The course will be completed through 5 lectures and 1 tutorial per week. On completion of this course, the students will be able to explain the major trends and developments in the Western world between the 14 <sup>th</sup> to the 16 <sup>th</sup> century CE. They will be able to explore and analyse the significant historical shifts and events and the resultant effects on the civilization of Europe in the period.
<b>HIS-HC-3036</b>	<b>History of India IV(c.1206-1550)</b>	The course will be completed through 5 Lectures and 1 tutorial per week. After the completion of this course, students will be able to explain the political and administrative history of medieval period of India from 1206 to 1550 AD. They will also be able to analyse the sources of history, regional variations, social, cultural and economic setup of the period.
<b>HIS-HG-3016</b>	<b>History of India (c1757-1947)</b>	The course will be completed through 5 lectures and 1 tutorial per week. Upon completion of this course, students will be able to understand the major factors that led to the establishment and consolidation of British rule in India. They will also be able to identify the process of growth of resistance against British colonial rule and the eventual growth of Indian nation
<b>HIS-SE-3014</b>	<b>Historical Tourism in North-East India</b>	This course will be completed through 3 Lecture and 1 Tutorial class per week. After completing this course, students will be able to explain Tourism in North-East India with special reference to the historical monuments, cultural and ecological elements and places of the north- east India as tourist and heritage site of the nation. They will be able to relate to the growing vocation of tourism as an industry and the applicability of historical knowledge for its growth.

509	<b>India under the East India Company</b>	This paper will basically focus on the advent of the European powers into India and intends to explore the factors of the establishment of British rule ultimately. The Paper will make the students aware of the various conquests of the British and the policies they implemented which had a long term impact upon the native states. They would also drive into factors that led to upsurge of political consciousness of the native powers
510	<b>History of Assam (1228-1826)</b>	This paper will focus on Medieval Assam with special reference to the Ahoms and with peripheral reference to the Kamrup-Kamata and Koch kingdom. A special mention will also be made of the Mughal invasions during that period. The Student will also be made aware of the Moamaria rebellion and Burmese invasion.
511	<b>History of Europe (1789-1870)</b>	The paper equips students understand and appreciate the events that unfolded in Europe during the period and how these events were not only results of previous political, historical, as well as economic and social events, but also shaped the future of European as well as World History. The paper analyses the French Revolution, the fall of Monarchy, the end of Feudalism, the growth of Capitalism and the Industrial Revolution and its relation to Colonialism.
512	<b>History of Science and Technology in Pre-Colonial India</b>	The paper identifies the stone tool technology and the importance of metal like Bronze and Iron in human history. The students are made aware of the ancient Indian contributions towards Science. The paper also speaks of the technological innovation in Medieval India.
513	<b>History of Great Britain (1485-1820)</b>	The paper focuses on the historical events of Great Britain during the period mentioned. Beginning with the Tudor dynasty and moving on to the Stuarts, the paper analyses the political history of Great Britain and concludes with the Industrialisation process of Great Britain and its social impact. Students are introduced to



		Great Britain and they get an opportunity to understand the gradual process through which constitutional government grew in Great Britain. The Industrial Revolution as well as the related colonial growth of Great Britain is also well emphasised.
<b>514</b>	<b>History of China (1839-1949)</b>	The Paper will provide to the students a learning of the different phases of Colonialism in China. It will be an understanding of the secret societies and its attempt to overcome Colonialism and feudalism in China. Students will also learn of the formation of Nationalist and Communist Parties in China and their role in China's independence.
<b>Paper- 5.5</b>	<b>History of India (1757-1857)</b>	This Paper speaks of the Colonial rule in India and its establishment through the different processes and the intrusion into the different spheres. The different diplomatic alliances besides the conquest have been thoroughly dealt with in the paper. The beginning of political consciousness were also articulately handled through the Revolt of 1857
<b>Paper-5.6</b>	<b>History of Europe (1815-1939)</b>	The Paper makes the student aware of the different facets of European history with a understanding of the Concert of Europe and the Revolution of 1830 and 1848. Emphasis has also been made of the Italian and German unification as well as the First World War and ideologies like Nazism and Fascism.

### DEPARTMENT OF MATHEMATICS (UG AND PG)

<p style="text-align: center;">Programme Outcome</p>	<ol style="list-style-type: none"> <li>1. After completion of graduation and post graduation students apply their broad knowledge of science across a range of fields, with in-depth knowledge in at least one area of study, while demonstrating an understanding of the local and global contexts in which science is practiced.</li> <li>2. Articulate the methods of science and explain why current scientific knowledge is both contestable and testable by further inquiry. Apply appropriate methods of research, investigation and design, to solve problems in science.</li> </ol>
<p style="text-align: center;">Programme Specific Outcome</p>	<p>Mathematics graduate(major) and post-graduate students will be able to apply critical thinking skills to solve problems that can be modelled mathematically, to critically interpret numerical and graphical data, to read and construct mathematical arguments and proofs, to use computer technology appropriately to solve problems and to promote understanding, to apply mathematical knowledge to a career related to mathematical sciences.</p>
Course	Outcomes
<p>Classical Algebra</p>	<p>Learn how to solve the cubic and biquadratic equations, also learn about symmetric functions of the roots for cubic and biquadratic equations, recognize consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix.</p>
<p>Linear Algebra</p>	<p>The course will enable the students to learn about the concept of linear independence of vectors over a field, and the dimension of a vector space basic concepts of linear transformations, dimension theorem, matrix representation of a linear transformation, compute the characteristic polynomial, eigenvalues, eigenvectors, and eigenspaces, as well as the geometric and the algebraic multiplicities of an eigenvalue and apply the basic diagonalization result compute inner products and determine orthogonality on vector spaces, including Gram–Schmidt orthogonalization to obtain orthonormal basis find the adjoint, normal, unitary and orthogonal operators.</p>

Calculus	To inculcate knowledge on the ability to find the effects of changing conditions on a system, sketch curves in a plane using its mathematical properties in different coordinate systems and apply the knowledge in problems in business, economics and life sciences.
Analytical Geometry	To inculcate knowledge on solve problems in analytic geometry and able to find appropriate solutions for given problems. Have a rigorous understanding of the concept of three dimensional coordinate systems, understand geometrical properties of dot product, cross product of vectors
Programming in C	Able to handle nonlinear equations as those can not 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.
Trigonometry, Vector Calculus	To inculcate knowledge on triangle properties and basic concepts of vector calculus.
Statics and dynamics	To inculcate knowledge on fixed and moving particle properties and proofs.
Operations Research	To inculcate knowledge on maximize the profit and minimize the cost in every place.
Functional Analysis	To inculcate knowledge on n-dimensional norm linear spaces and their properties & proofs.
Topology	To inculcate knowledge on understand the notation of distance function, topological structure and their properties with mathematical proofs.
Astronomy	To inculcate knowledge on solving of spherical properties of triangle and basic concept of celestial spheres.
Ordinary Differential Equation & Mathematical Methods	Able to learn basics of differential equations and mathematical modeling, formulate differential equations for various mathematical models, solve non-linear and linear differential equations of higher order using various techniques and apply these techniques to solve and analyze various mathematical models.
Partial Differential Equations	The course will enable the students to formulate, classify and transform first order PDEs into canonical form, learn about method of characteristics and separation of variables to solve first order PDE's, classify and solve second order linear PDEs, learn about Cauchy problem for second order PDE and homogeneous as well as non homogeneous wave equations, apply the method of separation of variables for solving second order PDEs
Real Analysis	To inculcate knowledge on real numbers and their properties and able to understand the concept of sequence of real numbers, infinite series and their related results.
Modern Algebra	To inculcate knowledge on various algebraic structures and their properties.

Discrete Mathematics	To inculcate knowledge on understand the notation of mathematical thinking, mathematical proofs, and graphical thinking and able to apply then in problem solving, become familiar with Boolean algebra, Boolean homomorphism, Karnaugh diagrams, switching circuits and their applications
Complex Analysis	To inculcate knowledge on complex numbers and their properties, to introduce the basic ideas of analysis for complex functions with visualization through relevant practicals.
Numerical Methods	To inculcate knowledge on algebraic equations solved by Numerical Methods. This will enable the students to learn some numerical methods to find the zeroes of nonlinear functions of a single variable and solution of a system of linear equations, to know about methods to solve system of linear equations, interpolation techniques to compute the values for a tabulated function at points not in the table, applications of numerical differentiation and integration to convert differential equations into difference equations for numerical solutions.
Dynamical System and Fractal Geometry	To inculcate knowledge on algebraic equations solved using differential equation.
Computer Algebra Systems and Related Software	This course will enable the students to use of softwares; Mathematica/MATLAB/Maxima/Maple etc. as a calculator, for plotting functions and animations, use of CAS for various applications of matrices such as solving system of equations and finding eigenvalues and eigenvectors, understand the use of the statistical software R as calculator and learn to read and get data into R.
Combinatorics and Graph Theory	Able to learn about the counting principles, permutations and combinations, Pigeonhole principle, understand the basics of graph theory and learn about social networks.
Linear Programming	This course will enable the students to learn about the graphical solution of linear programming problem with two variables, learn about the relation between basic feasible solutions and extreme points, to understand the theory of the simplex method used to solve linear programming problems, learn about two-phase and big-M methods to deal with problems involving artificial variables, to learn about the relationships between the primal and dual problems, to solve transportation and assignment problems apply linear programming method to solve two-person zero-sum game problems.
R Programming	Able to become familiar with R syntax and to use R as a calculator, understand the concepts of objects, vectors and data types, know about summary commands and summary table in R, visualize distribution of data in R and learn about normality test, plot various graphs and charts using R.
LaTeX and HTML	The students will be able to create and typeset a LaTeX

	document, Typeset a mathematical document using LaTeX, learn about pictures and graphics in LaTeX, create beamer presentations, create web page using HTML
Number Theory	This course will enable the students to learn about some fascinating discoveries related to the properties of prime numbers, and some of the open problems in number theory, viz., know about number theoretic functions and modular arithmetic, solve linear, quadratic and system of linear congruence equations.
Probability and Statistics	This course will enable the students to make the students familiar with 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.
Spherical Trigonometry and Astronomy	It will enable the students to learn about the properties of spherical and polar triangles, to know about fundamental formulae of spherical triangles, learn about the celestial sphere, circumpolar star, learn about Kepler's law of planetary motion, Cassini's hypothesis, differential equation for fraction
Rigid Dynamics	Able to learn to introduce moments and products of inertia, theorem of six constants, D'Alembert's principle, Motion of a body in two dimension and Lagrange's equations.

### **DEPARTMENT OF PHYSICS**

PAPER	COURSE	OUTCOME
HC-1016 (Theory)	Mathematical methods - 1	The students will gain knowledge about vector algebra and about the solution of differential equations and its application in the physical world. Also they shall learn about the different co-ordinate frames together with the concept of probability and various sources of error and how to calculate them.

HC – 1026 (Theory)	Mechanics	At the end of the prescribed syllabus, the students will acquire basic knowledge of mechanics, gravitation and will understand how to apply the conservation of rotational motion in different parts of physics. They shall also gain knowledge of special theory of relativity.
HC-2016 (Theory)	Electrical and Magnetism	Students will be able to understand electric and magnetic fields in matter, dielectric properties of matter, magnetic properties of matter, electromagnetic induction, and applications of Kirchoff's law in different circuits, applications of network theorem in circuits.
HC – 2026 (Theory)	Waves and Optics	After successful completion of this course, students will be able to understand superposition of harmonic oscillations, different types of wave motions, superposition of harmonic waves, interference and interferometer, diffraction, holography.
301 (Theory) (Non – CBCS)	Mathematical methods - III	To motivate the students to apply matrices for solving problems in spectroscopy, nuclear physics.
	Electrostatics	Will gain knowledge about the electric field, electrostatic energy and dielectrics.
302 (Theory) (Non – CBCS)	Current Electricity	Students will get the knowledge about directcurrent and alternating current and its application in electrical circuits.

	Magnetostatics	Acquire basic knowledge of magnetic properties.
401 (Theory) (Non – CBCS)	Mathematical methods - IV	Will gain knowledge about solution of second order differential equation and also about probability and also practical application
	Introducion To Computer And Computer Programming	Will gain basic knowledge about flow chart and algorithm.
402 (Theory) (Non – CBCS)	Wave Optics	To provide a knowledge of the behaviour of light
	Special Theory of relativity	Will gain negation of ether concept and also about the geometry of space-time and space- time interval.
501(Theory) (Non – CBCS)	Mathematical methods - V	Will acquire the concept of complex algebra
	Classical Mechanics	The concept of central force system and application of variational principle to solve different problems in mechanics will be learnt.
502(Theory) (Non – CBCS)	Atomic Physics	To provide a detailed study of atom and also to learn the impact of magnetic fields in spectra.
503(Theory) (Non – CBCS)	Quantum Mechanics	To motivate the students to apply schrodinger equation or solving problems in Wave mechanics, Nuclear physics etc.,
	Astro Physics	Will have the concept of stellar co-ordinate system, distance measurement and stellar classification.
504(Theory) (Non – CBCS)	Electronics	To motivate the students to apply the principles of electronics in their day-to-day life. It deals with both analog and digital electronics.
601(Theory) (Non – CBCS)	Nuclear Physics	To acquire knowledge and apply it to study the structure of nucleus. Know the formation of nucleus and their binding energy. To motivate the students and analyze the energy released by the nucleus during the fission and fusion

		process.
602(Theory) (Non – CBCS)	Mathematical Methods - VI	Students will gain the knowledge of tensors.
	Solid State Physics	The students will get to know about the structure of a solid and also the concept of the magnetic properties of matter.
603 (Theory) (Non – CBCS)	Modern Optics	Knowledge about laser, holography, optical fibres and their application will be acquired by the students.
	Electromagnetic Theory	Thorough knowledge of electromagnetic nature of wave will be gained together with the proof of basic laws of reflection and refraction.
604(Theory) (Non – CBCS)	Statistical Mechanics	Will gain the knowledge of statistical system and its co-ordinate together with application of MB, FD and BE statistics.
	Principles of Programming Concepts and C++ Programming	On successful completion of this subject the students have the programming ability in C++ Language to deal with physics problems.

**Note:** More over there are 8 practical papers in which the students are allowed to testify and visualise the different phenomenon of physics so that the students are motivated towards the subject.

There is also computational lab in HC-1016 and in 6<sup>th</sup> semester (Non-CBCS) where students not only learn computer programming and numerical analysis but their application in solving problems in physics.

### **DEPARTMENT OF POLITICAL SCIENCE**

The syllabus of the department can be divided into two parts. The fifth semester students belong to the old semester course and the 1<sup>st</sup> and 3<sup>rd</sup> semester students belongs to the new CBCS course. The course program has been so designed that in the present job scenario the students are able to cope themselves with the job market.

The first year students are made acquainted with the concept of political theory. Without having a sound base of theory the understanding of the subject becomes difficult. The second paper deals with the constitutional process. The paper gives an insight into the rules and regulations a citizen is supposed to know. He is made aware about his rights and duties. He is acquainted with the entire administrative process.



The third semester students are taken deeper into the administrative procedure as they have to study a paper on public administration. The paper deals in detail regarding every aspect of administration. The students are not only confined to the regional or national paper but they are taken on a world cruise as one of the paper deals with international relations and world history. They get a glimpse of how international relations were jeopardized by the two devastating world wars and what steps have been taken by the various world organizations such as the league of nation and the UNO. The paper also gives an insight into the past history starting with the treaty of Westphalia.

A new paper has been introduced known as skill enhancement which is meant for both Honours and regular students. Students from other streams can also study this paper. The paper has both theoretical and practical aspect so the theory part enhances the theoretical concept and the practical part would enable the students to go deeper into the learning of the real administration of the country.

As for the 5<sup>th</sup> semester students they have to study six papers. Each of the papers elaborately deals with the political system not only of our own country but the world around. It teaches us about Human rights and also men's relation with society and culture. It also gives us a glimpse into our past philosophy, and also shows us our sociological traits.

The study of political science has with the present curriculum provides ample scope to the students in the job avenues. Various lines are open for them; from the teaching profession to the administrative field the scope is endless. Even the industrial arena is open for them.

#### **Course Outcomes (Non- CBCS):**

Course	Outcome
<b>Public administration</b>	This paper deals with the administration of the country. The students learn in detail about the mechanism through which the state machinery works. The students get an insight into how the central as well as the state government carries out its function
<b>Local governance</b>	The students are taught the intricacies of government functioning at the grass roots level. Local government provides the platform and also training ground for future politicians. It is the stepping stone for future progression into the national arena.

<b>Human Rights</b>	This paper teaches the students about our rights. Through this paper the students are acquainted with the rights in the national as well as international level. They are also shown how to claim redressal in case the executive or for that matter or other organization tries to trespass with our rights.
<b>Contemporary issues</b>	This paper gives an insight to the students regarding any current issues that are taking place globally. The students are kept updated with the current events, taking place in all spheres like , environment, terrorism, global warming, human rights violation, fundamentalism

### **DEPARTMENT OF ZOOLOGY**

Programme Outcome	Apart from engaging themselves in study, research and documenting the fascinating fauna of nature, there are also many other specializations that the students pursuing the field can venture into. Being physiologists, taxonomists, embryologist, ecologist, academicians, biotechnologist, microbiologist, etc are some of the few among them since the program imparts intellectual and professional skill.
Programme Specific Outcome	<ul style="list-style-type: none"> <li>❖ Helps them to know about the diverse animal diversity, its ecological and evolutionary relationship among each other.</li> <li>❖ They will know about the various technique of studying animal diversity, or other aspects of animal study such as their behaviour, physiology etc</li> <li>❖ By gaining knowledge about the biology of animals students can help contribute in different problems of nature in day to day life such as man animal conflict etc</li> <li>❖ Students may also undertake entrepreneurship projects on fisheries,</li> </ul>

	<p>sericulture, animal husbandry, agriculture improvement and contribute to economic growth of the country.</p> <ul style="list-style-type: none"> <li>❖ Regular project work, seminars and field study help them to learn how to present themselves or critically analyze situation and report them scientifically.</li> <li>❖ Core issues of wildlife management, ecological disruptions, environmental pollution, disease effecting poultry, agriculture,etc could be well solved with this knowledge of Zoology.</li> </ul>
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Courses	Course outcome
<p>Semester I.</p> <p>ZOO-HC-1016:Non-chordates I:Protista to Pseudocoelomates</p> <p>ZOO-HC-1026: Principles of Ecology</p>	<p>Students get to know about diversity of invertebrates, its identification and how to classify them scientifically, know about taxonomic knowledge to identify new species etc</p> <p>They know about the environment, its conservation strategies, and wildlife management principles</p>
<p>Semester II</p> <p>ZOO-HC-2016: Non-chordates II:Coelomates</p> <p>ZOO-HC-2026: Cell Biology</p>	<p>Students get to know about diversity of invertebrates, its identification and how to classify them scientifically, know about taxonomic knowledge to identify new species etc</p> <p>Cell biology help to know the structure and function of cell.</p>
<p>Semester III</p> <p>ZOO-HC-3016:DIVERSITY OF CHORDATES</p> <p>ZOO-HC-3026 Physiology: Controlling and Coordinating Systems</p> <p>ZOO-HC-3036:FUNDAMENTALS OF BIOCHEMISTRY</p>	<p>Students get to know about diversity of vertebrates, its identification and how to classify them scientifically.</p> <p>The course speaks about the basic physiological process of animals, its detailed functioning, biochemistry speaks about the various biological reaction occurring in the biological system, endocrinology teaches about hormone and the processes they control,</p>
<p>Semester IV</p> <p>ZOO-HC-4016:COMPARATIVE</p>	<p>The course content gives idea comparative knowledge of the basic structure of organs or organ system in different group of</p>

ANATOMY OF VERTEBRATE		animals to establish the evolutionary relationship.
ZOO-HC-4026:PHYSIOLOGY: SUSTAINING	LIFE	The course speaks about the basic physiological process of animals, its detailed functioning, biochemistry speaks about the various biological reaction occurring in the biological system, endocrinology teaches about hormone and the processes they control,
ZOO-HC-4036:BIOCHEMISTRY METABOLIC PROCESS	OF	
Semester V		
ZOO-HC-5016:MOLECULAR BIOLOGY		This science allows understanding of how the natural world works. It provides insights into the mechanisms of evolution, growth, development, reproduction, and disease, plus tools to improve our quality of life. This may be through the development of a drug or drought-resistant crop plant or understanding what controls an individual's health. Making connections between molecular mechanisms driving a process and the outcomes of those mechanisms on the physiology and/or behavior of an organism allows understanding of biological organization and function, from molecules to cells, tissues, organs and the entire organism.
ZOO-HC-5026: PRINCIPLES GENETICS	OF	
		Molecular biology methods are used extensively in modern-day drug discovery, research and development, and diagnostics.
		Heredity principles are studied in Genetic and how characters are transferred from one generation to other. It helps in gene therapy, gene manipulation in embryos (IVF), in cancer treatment etc
Semester VI.		
ZOO-HC-6016:DEVELOPMENTAL BIOLOGY		It imparts knowledge of embryonic development of different animals, various evolutionary mechanism that gave rise to the present day animal diversity,

ZOO-HC-6026:EVOLUTIONARYBIOLOGY .	
<b>ZOOLOGY-Discipline Specific Electives(DSE)</b>	
<p>ZOO-HE-5016: COMPUTATIONAL BIOLOGY AND BIOSTATISTICS</p> <p>ZOO-HE-5026: ANIMAL BIOTECHNOLOGY</p> <p>ZOO-HE-5036: ENDOCRINOLOGY</p> <p>ZOO-HE-5046: PARASITOLOGY</p>	<p>Biological techniques deal with different techniques used for studying biology and biostatistical tools used for analysing biological data.</p> <p>Endocrinology teaches about hormoneand the processes they control</p> <p>different sophisticated biological techniques for modern techniques, use of computer for studying animal diversity.</p> <p>Disease related parasites, their life cycle , causative organisms are studied in parasitology and hence can be explored to find means of combating it</p>
<p>ZOO-HE-6014 :BIOLOGY OF INSECTA</p> <p>ZOO-HE-6026: FISH AND FISHERIES</p> <p>ZOO-HE-6036: REPRODUCTIVE BIOLOGY</p> <p>ZOO-HE-6046: WILDLIFE CONSERVATION AND MANAGEMENT</p> <p>ZOO-HE-6056 DISSERTATION</p>	<p>Insecta includes a huge group of insects that can be used as biopesticides, for food, for medicines, for maintaining food chain etc. knowledge about them can illicitreserch in this field.</p> <p>Fish and fisheries gives knowledge about the wide scope in fish rearing, cultivation and marketing.</p> <p>Concepts of reproductive biology can help students to pursue their career as embryologist and in conservationprospects.</p> <p>Adequate knowledge of wildlife management will help in controlling man animal conflicts and poaching and other activities that disrupt the ecology.</p>
<b>Skill Enhancement Courses</b>	
ZOO-SE-3014: ORNAMENTAL FISH AND	The topics covered under Ornamental Fishand Fisheries can generate

FISHERIES	<p>autochthonous income source for the students.</p> <p>For rural students, this subject will give them opportunities to train rural youths in ornamental fish culture</p> <p>For urban students, they can develop entrepreneurship in their own house, as ornamental fish can be cultured in small aquariums.</p> <p>They can also become specialized inbreeding of ornamental fishes and supply ornamental fish spawns, thus conserving the wild stalk</p>
ZOO-SE-3024: APICULTURE	<p>Apiculture provides products such as honey and wax that are used commercially.</p> <p>Honeybees are responsible for pollination and thus help in increasing the yield of theseveral plants.</p> <p>Some recent researches have proven that honeybees venom comprises a mixture of proteins that has the capability of destroying the AIDS virus. These aspects can be explored for research and development.</p>
ZOO-SE-4014: Non-MulberrySericulture	<p>Since agriculture is a basic need for humans, there is always a lot of scope in this field of study. With the advent of technology and developments that come with it, there has been a wide variety of job opportunities in both public and private enterprises. Sericulture offers career opportunity in Govt. research centers, silk boards, academic fields, sericulture units, agriculture sector banks etc. One can get jobs in Central Government agencies like Central Silk Board/Silk Export Promotion Council/Fao/Nabard, Krishi Vigyan</p>

	Kendra etc. Candidates with M.Sc sericulture can apply for the post of lecturer, professor and lab assistant.
ZOO-SE-4024:Wildlife Photography and Eco-tourism .	The majority of wildlife photographers can work as freelancers. This means that they take photographs in hopes of selling them, or they are commissioned to take photographs of certain animals. The photographs that a wildlife photographer takes may be featured in different types of publications, including books and scientific journals. Travel and nature magazines also work with wildlife photographers on a regular basis. Some of these publications might even hire full or part-time wildlife photographers as staff members.

### **Department of Bodo**

#### **Semester-I**

**BOD-HC-1016**

**History of Bodo Literature (Early Period)**

Course outcomes:

- Come to know about the contribution of the Missionaries
- Come to know about the contribution of the native speakers

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

Suggested readings:

Boro Thunlaini Zarimin-Manoranjana Lahary  
History of Boro Literature-Madhu Ram Boro  
Boro Thunlaini Zarimin Arw Thunlai Bizirnay-Riju Kumar Brahma  
Boro Thunlaini Mohor-Dharanidhar Wary

**BOD-HC-1026**

**Literary Criticism (Western)**

Course outcomes:

- Come to know about the concept of literary criticism
- Come to know about different genres of literature

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 eco-feminism)

Suggested readings:

Thunlai Bizirnay-Guneswar Muchahary

An Introduction to the study of Literature-H W Hudson

Modernity, Postmodernity and Neo-Sociological Theories-SL Doshi

Aspects of the Novel-E M Forster

Principles of Literary Criticism-I A Richards

#### BOD-AE-1014 Communicative Bodo

Course outcomes:

- Come to know about the spelling system used in writing Bodo language
- Come to know about practical application of Bodo language in different perspectives

Unit-I Spelling System in Bodo

Unit-II Applied Grammar (Use of Case and Case endings, Tone, Tense and Tense Markers, Synonyms, Antonyms)

Unit-III Commercial Advertisement (Use of Bodo Language in Print and Electronic Media, Administrative terminology)

Unit-IV Essay writing (Current Issues, commercial and literary pursuits)

Suggested readings:

Boro Bhasa Shiksha-Mohini Mohan Brahma

Boro Rao- Bhaben Narzee

Gwzwo Raokhanthi-Madhuram Boro

Gwnang Raokhanthi-Kamal Kumar Brahma

Boro Raokhanthi-Swarna Prabha Chainary

#### BOD-HG-1016 Textual Analysis on Bodo Drama (Early period)



Course Outcomes:

- Come to know about the background of Bodo drama
- Come to know about old period Bodo drama

Unit:I Origin and development of old Bodo drama

Unit:II Dwrswn Jwhwlao-Satish Chandra Basumatary

Unit:III Obongni Phao- Bhaben Phwrwnggiri

Unit-IV Dukhashri-Upendra Narzary

Suggested readings:

Theory of the Drama-A Nicoll

Bhaothina Santhwu-Manoranjana Lahary

Boro Phaothaini Bizirnay-Swarna Prabha Chainary

Boro Phaothai Thunlai Bizirnay-Bhounik Ch. Boro

## **Semester II**

BOD-HC-2016

History of Bodo Literature (Modern Period, 1952 to 2015)

Course Outcomes:

- Come to know about the beginning of modern period of Bodo literature
- New trends and developments in Bodo literature

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

Suggested readings:

Boro Thunlaini Zarimin-Manoranjana Lahary

History of Boro Literature-Madhu Ram Boro

Boro Thunlaini Zarimin Arw Thunlai Bizirnay-Riju Kumar Brahma

Thunlai Bizirnay-Guneswar Muchahary

Nwizi Zwuthaini Boro Khonthai-Phukan Ch. Basumatary

Boro Solomani Bizirnay-Swarna Prabha Chainary

Boro Phaothaini Bizirnay-Swarna Prabha Chainary

Boro Phaothai Thunlai Bizirnay-Bhounik Ch. Boro

BOD-HC-2026  
Literary Criticism (Eastern)

Course Outcomes:

- Come to know about theory and concept of eastern literary criticism
- Come to know about the uses of Rasa, Chanda and Alankara with special reference to Bodo literature

Unit:I History and development of eastern literary criticism

Unit:II Rasa

Unit:III Chanda

Unit:IV Alankara

Suggested readings:

Thunlai Arw Gohena-Manoranjana Lahary

Thunlaini Bidwi Arw Gohena-Indramalati Narzaree

Boro Khonthaini Khobam Gohena Arw Bidwi- Phukan Ch. Basumatary

Sahityar Saj-Sonapati Devsarma

BOD-HG-2016  
Non-fictional prose in Bodo

**Course Outcomes:**

Students can come to know about the changes coming in Bodo non-fictional prose from early to modern period

Unit: I Development of non-fictional prose in Bodo (early period)

Unit: II Development of non-fictional prose in Bodo (modern period)

Unit: III Critical review on prose pieces-

- a. **Kinshit nivedan-Rupanath Brahma**
- b. **Boro sahityar jagaran-Panchanan Kachari**
- c. Aglani Bathra-Anandaram Mushahary
- d. Phwrlang Babaji arw Boroni Harimu-Pramod Chandra Brahma

Unit: IV Critical review on prose pieces-

- a. Thunlayao rahasya santhwu-Kamal Kumar Brahma
- b. Udangsri swmaosarnayao Borophwr-Jagendra Kumar Basumatary
- c. Boro mwsanay arw harimu-Girindra Kumar Daimary
- d. Phwthaynay arw ginay-Brajendra Kumar Brahma

Suggested readings:

Bibar (magazine)-Satish Ch. Basumatary (ed.)  
Hathorkhi-Hala (magazine)-Pramod Ch. Brahma (ed.)  
Raithai Bihung (Vol. I & II)-Publication Board, Bodo Sahitya Sabha

**Semester III**

BOD-HC-3016  
Introduction to Language and Linguistics  
Marks: 80

Course Outcomes:

- Can gather general idea about language and linguistics
- Can learn about different levels of linguistic analysis

Unit-I Language: Definition of Language, Characteristics of Language, Why study Language?

Unit-II Linguistics: Definition, Linguistics as a Science, Branches of Linguistics, Scope of Linguistics,  
Levels of Linguistic analysis

Unit-III Introduction to Phonetics, Phonology and Morphology

Unit-IV Introduction to Syntax, Semantics and Vocabulary

Suggested readings:

An Introductory text book of Linguistics and Phonetics- RL Varshney  
An Introduction to Descriptive Linguistics – HA Gleason (Jr.)  
Bhasa Vijyan- Upendra Nath Goswami

BOD-HC-3026

Bodo Poetry (Early period)

Course Outcomes:

- Come to know about the trend of old Bodo **poetry**
- About mystic and romantic poems composed during the period
- About the poems composed to bring social awareness among the mass

Unit-I Trend of Bodo Poetry (from inception to 1952)

Unit-II

- a. Angni Khwina- Rupnath Brahma
- b. Khathi Gasa- Khatish Bhusan Brahma
- c. Dani Boro Phisa- Madaram Brahma
- d. Mwdwi- Ishan Moshahary

Unit-III

- a. Thwinay –Pramod Ch. Brahma
- b. Baidi Mwzang Khwurang- Kali Kumar Lahary
- c. Habilas-Nileswar Brahma
- d. Bathu Baraya Makhu Khurzidung- Prasanna Kumar Boro Khakhluary

Unit-IV

- a. Eroino Din Thanga-Ratiram Brahma
- b. Sikhangdo- Surendra Nath Brahma
- c. Zakhangdo- Jaladhar Brahma
- d. Angni Simang- Maniram Songphramnary

Suggested readings:

Thunlai arw Sansri –Brajendra Kr. Brahma  
Zothai Bidang- Mangalsing Hazowary  
Boro Thunlaini Mohor Musri-Anil Boro  
Nwizi Zwuthaini Boro Khonthai – Phukan Ch. Basumatary

BOD-HC-3036

Introduction to Culture

Course Outcomes:

- Come to know about the general concept of culture
- The relation between folklore and society
- About diffusion, acculturation and assimilation of culture

Unit-I Definition of Culture, Characteristics of Culture, Society and Culture, Culture and Civilization, Language and Culture  
Unit-II Folklore and Folk-society, Folklore and its sub-genres  
Unit-III Folk religion, folk beliefs and superstition (analysis may be done from the folkloristic point of view)  
Unit-IV Process of cultural diffusion, acculturation and assimilation

Suggested readings:

Boro Kocharir Samaj aru Sanskriti-Bhaben Narzee  
Lok-Sanskriti- Nabin Chandra Sarma  
Aspects of Social Customs of the Bodos-Dr. Kameswar Brahma  
Folk Literature of the Boros- Dr. Anil Boro

BOD-SE-3014

Translation Studies

Course outcomes:

- Come to know about theory, concept and types of translation
- Come to learn about different types of translation into Bodo

Unit: I Theory, concept and types of Translation

Unit: II Translation of Advertisement from Print and Electronic Media into Bodo

Unit: III Translation: News Item, Essay and Interview

Unit: IV Review on Suitability and Acceptability of the translated Book “Wings of Fire” By Dr. A P J Abdul Kalam

Suggested readings:

Tulanamulak Sahitya Aru Anubad Bichar-Niranjana Mahanta Bezbor  
Translation Today-Uday Narayan Sing & PP Giridhar

BOD-HG-3016

Bodo Drama

Course Outcomes:

- Students can learn about different types of drama in Bodo literature
- About influence of Assamese and Bangla drama in Bodo literature
- Can come to know about few selected dramas in Bodo

Unit:I Origin and development of Bodo drama

Unit:II Influence of Assamese and Bangla drama in old Bodo drama

Unit:III Horbadi Khwmsi-Kamal Kr. Brahma

Unit:IV Onlaynaya Zewaribadi Gwtharmwn- Dr. Premananda Moshahary

Suggested readings:

Theory of Drama-A Nicoll  
Bhaothina Santhwu-Manoranjana Lahary

Boro Phaothaini Bizirnay-Swarna Prabha Chainary  
Boro Phaothai Thunlai Bizirnay-Bhounik Ch. Boro

**Semester-IV**  
**BOD-HC-4016**

Modern Bodo Poetry (From 1952 to 2015)

Course Outcomes:

- Come to know about the trend of modern Bodo poetry
- About new symbols and techniques used by the poets

Unit-I Trends of Modern Bodo Poetry

Unit-II

- a. Mahabuddhani Toposhya- Samar Brahma Choudhury
- b. Zibraltarni Onthai- Prasenjit Brahma
- c. Sangrema- Brajendra Kr. Brahma
- d. Jiu Swinai- Surath Narzary

Unit-III

- a. Gufur Dauthua Dabw Gabw-Anju
- b. Sangrema jiu-Bishnujyoti Kochary
- c. Amen- Bikram
- d. Sase Badari Mwntham Saogari-Aurobinda Uzir

Unit-IV

- a. Bishnu Rabhanw- Anil Boro
- b. Halua- Nandeswar Boro
- c. No- Badal Basumatary
- d. Ang da Daina- Jwngsar Narzary

Suggested readings:

Thunlai arw Sansri –Brajendra Kr. Brahma  
Zothai Bidang- Mangalsing Hazowary  
Boro Thunlaini Mohor Musri-Anil Boro  
Nwizi Zwuthaini Boro Khonthai – Phukan Ch. Basumatary

Bod-HC-4026

Bodo Language Come to know about origin, concentration  
and development of the Bodo language

**Course outcomes:**

- Present status of Bodo language

Unit-I The term Bodo, origin and development of the Bodo language, demographic composition and concentration of the Bodos

Unit-II Characteristics and present status of Bodo language

Unit-III Linguistic impact of other languages on Bodo in case of phonology, morphology, syntax and vocabulary

Unit-IV Language variation (in this unit topics like idiolect, dialect, difference between dialect and idiolect, standard language, process of standardization are to be included)

Suggested readings:

Structure of Boro Language-Madhu Ram Boro

Gwnang Raokhanthi-Kamal Kumar Brahma

Raoni Mohor (Part-I, II & III)-Swarna Prabha Chainary & Phukan Basumatary

Boro Raokhanthi-Swarna Prabha Chainary

An Introduction to the Boro Language-Phukan Basumatary

BOD-HC-4036

Bodo Culture Come to know about Bodo society and culture

### **Course Outcome:**

- About cultural elements of the Bodos

Unit-I The Bodo society and trait of Bodo Folk-culture, its traditionalism and prospect of continuity

Unit-II Food habits of the Bodos

Unit-III Material Culture

Unit-IV Social folk-customs, fairs and festivals of the Bodos

Suggested readings:

Boro Kacharir Samaj Aru Sanskriti- Bhaben Narzee

Lok-Sanskriti-Nabin Chandra Sarma

Aspects of Social Customs of the Bodos- Dr. Kameswar Brahma

Folk Literature of the Boros-Dr. Anil Boro

BOD-SE-4014  
Manuscript Preparation  
Marks: 80

Course outcomes:

- Come to know about manuscript preparation and use of punctuations and symbols
- About benefits of editing and taking into MS word & PageMaker

Unit: I Types of Manuscript: Use of Punctuation, Sign and Symbols

Unit: II Importance of Editing and Proof Reading; Symbols used in Proof reading, Proofreader, Proof reading process

Unit: III Process, Purpose and benefits of Editing

Unit: IV Taking Manuscripts in MS Word Format and Page Maker etc.

Suggested readings:

A Few Suggestions to McGraw-Hill Authors-McGraw Hill Book Company, Forgotten Books  
Guidelines for manuscript preparation-Gayle Giese & Pick Edmondson

BOD-HG-4016  
Bodo Fiction  
Marks: 80

Course Outcomes:

- Come to know about Bodo novels
- Come to know about Bodo short stories

Unit-I                      Zuzaini Or- Chittaranjan Muchahary

Unit-II                    Bwrai Phagladiyani Gwdan Dara- Nabin Malla Boro

Unit-III

- a. Gwdan Slogan-Nilkamal Brahma
- b. Phangnwi Nalengchor Biphang-Chittaranjan Muchahary
- c. Banggra-Dharanidhar Wary

Unit-IV

- a. Mr Hybridni Gwlwmdwi Arw Mwdwi-Z D Basumatary
- b. Haraoni Saikhel-Gobinda Basumatary
- c. Baikhwnda Satha Arw Laothi Gozo-Suniti Narzary

Suggested readings:

Thunlai arw Thunlai- Brajendra Kr. Brahma



Serza-Siphung- Anil Boro  
Sundoywi Thunlai Bizirnay-Bijoy Baglary  
Boro Solomani Bizirnay- Swarna Prabha Chainary

**Semester-V**  
**BOD-HC-5016**  
Manoranjan Lahary

Course outcomes:

- Come to know about life and literary works of Manoranjan Lahary

Unit-I Life and works of Manoranjan Lahary

Unit-II Poems and essays of Manoranjan Lahary

Unit-III Fictions of Manoranjan Lahary

Unit-IV Dramas of Manoranjan Lahary

Suggested readings:

Thunlai Arw Sansri- Brajendra Kr. Brahma

Manoranjan Laharini Thazim Rebgon-Bodo Publication Board, Bodo Sahitya Sabha

**BOD-HC-5026**  
**Structure of Bodo Language**

Course outcomes:

- Come to know about phonology of Bodo language
- Come to know about the structure of morphology, syntax and vocabulary of Bodo language

Unit-I Phonological analysis (Phoneme and its description, distribution of phonemes, use of Tone and syllable)

Unit-II Morphological analysis (with special reference to system of number, gender, numeral classifiers, use of personal pronouns, case marker, structure of verbs, application of tense and tense-marker)

Unit-III Syntactic analysis (Types of sentences, IC analysis of Bodo sentences, Word order)

Unit-IV Vocabulary (Introduction to Bodo Vocabulary, Mutual Impact of Lexis between the Bodo and other languages, basic features of Bodo words)

Suggested readings:

Structure of Boro Language- Madhu Ram Boro

Gwzvu Raokhanthi- Kamal Kr. Brahma

Boro Raokhanthi- Swarna Prabha Chainary

BOD-HE-5016

Bodo Folk-Literature

Course outcomes:

- Come to know about Bodo folk-literature and its sub-division
- Come to know about different genres of Bodo folk-literature

Unit-I Orality of Bodo Folk Literature and Sub-division of Bodo folk literature

Unit-II Folk Songs

Unit-III Folk Tales

UNIT-IV Charms and Incantations

Suggested readings:

Boro Kacharini Samaj Arw Harimu-Harinarayan Khakhlary & Gobinda Basumatary (trans.)

Folk Literature of the Boros-Anil Boro

BOD-HE-5026

Dialects of Bodo Language

Course outcomes:

- Come to gather a general idea on dialect and dialectology of Bodo language
- About Bodo dialects and its uses in literature

Unit: I What is Dialect, Importance of Dialect and Dialectology

Unit: II Regional dialect, social dialect and diglossia

Unit: III Linguistic variations of Bodo dialects

UNIT: IV Dialects used in Bodo Literature

- a. Bathu Nam Bwikhaguni Gidu- Prasanna Lal Boro Khakhluary
- b. Jwnghthi-Dhireswar Boro Narzee
- c. Gwkha, Gwdwi arw Gwbab- Bidyut Basumata

Suggested readings:

Boro Khuga Rao Buthumnayni Swmwndwi-Koklabari Primary Bodo Sahitya Sabha  
Dialectology-J K Chambers & Peter Trudgill

**Semester-VI**

BOD-HC-6016

Contribution of women writers in Bodo literature

Course Outcomes:

- Come to know about women writings in Bodo
- Contribution of women writers in different genres of literature

Unit:I What is women literature, why women literature, significance of women literature

Unit:II Women contribution in Bodo poetry

Unit:III Women contribution in Bodo short story

Unit:IV Women contribution in Bodo novel

Suggested readings:

Ziuli-Rita Boro (ed.)

Gambari-Jwishri Boro (ed.)

Signifying self: women and literature-Malashri Lal & others (ed.)

Interpreting homes in South Asian literature-Malashri Lal & Sukrita Paul Kumar

Cognate Languages of the Bodo

Course outcomes:

- Come to know about Bodo group of languages and their common characteristics
- Come to know about phonology, morphology and vocabulary of Bodo group of languages

Unit-I Bodo group of Languages, Common characteristics and concentration of this group of peoples

Unit-II Comparative Phonology of Bodo, Garo, Dimasa, Rabha, Kokborok and Tiwa with special reference to Vowel, Consonant 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)

Unit-III Comparative Morphology of Boro, Garo, Dimasa, Rabha, Kokborok and Tiwa with special reference to Structure of Noun, Pronoun, Number, Gender, Verb, Tense and Adjective

(In this Unit students are suggested to compare the morphology of any two languages with the morphology of the Bodo Language)

Unit-IV 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)

Suggested readings:

Rabha Raothap- Rabha Bhasa Parishad

Khurangnala- U V Jose

Ku.bidik- Harenda W Marak

Garo Grammar- Robins Burling

Grao Dima Pandar- Nagendra Nath Dutta

Tiwa Matpadi- V Len Kholar

Kak-Kuthumma-Prabhas C Dhar (ed.)

Anglo Dimasa Grammar and Dictionary- R R Barman (ed.)

Raoni Mohor (part-I, II & III)- Swarna Prabha Chainary & Phukan Basumatary

An Introduction to the Boro language- Phukan Basumatary

BOD-HE-6016  
Life Writing in Bodo

Course outcomes:

- Come to know about life writing and its types
- Come to know about biography and travel works in Bodo

Unit: I Introduction to Life Writings

(Definition of life writings, Growth and development of first person narrator, Expression of Voice, Structure and Style)

Unit: II Types of Life Writings

(Autobiography, Biography, Nature writings, personal writings, Literary Journalism, Travel writing, Letter writing, Diary etc.)

Unit: III Biography

Swrangni Lamajwng – Bidyasagar Narzary

UNIT: IV Travel Works:

Sina Nihao arw Chiye Chiye – Jogesh Deory

Suggested readings:

Encyclopedia of life writing-Margaretta Jolly

Essays on Life Writing-Marlene Kadar (ed.)

BOD-HE-6026  
Dissertation Writing

(In this paper, students are suggested to prepare a dissertation at least of 50 pages on the topic assigned by the departmental teachers using research methodology. Examiners will examine this dissertation. Dissertation will carry 80 marks and viva-voce carry 20 marks. Viva –voce will be held in the department in presence of at least one external).

Unit:III Critical review on prose pieces-

- a. **Kinshit nivedan-Rupanath Brahma**
- b. **Boro sahityar jagaran-Panchanan Kachari**
- c. Aglani Bathra-Anandaram Mushahary
- d. Phwrlang Babaji arw Boroni Harimu-Pramod Chandra Brahma

Unit: IV Critical review on prose pieces-

- e. Thunlayao rahasya santhwu-Kamal Kumar Brahma
- f. Udangsri swmaosarnayao Borophwr-Jagendra Kumar Basumatary
- g. Boro mwsanay arw harimu-Girindra Kumar Daimary
- h. Phwthaynay arw ginay-Brajendra Kumar Brahma

Suggested readings:

Bibar (magazine)-Satish Ch. Basumatary (ed.)  
Hathorkhi-Hala (magazine)-Pramod Ch. Brahma (ed.)  
Raithai Bihung (Vol.I & II)-Publication Board, Bodo Sahitya Sabha

### **Semester III**

BOD-HC-3016

Introduction to Language and Linguistics

Course Outcomes:

- Can gather general idea about language and linguistics
- Can learn about different levels of linguistic analysis

Unit-I Language: Definition of Language, Characteristics of Language, Why study Language?

Unit-II Linguistics: Definition, Linguistics as a Science, Branches of Linguistics, Scope of Linguistics,  
Levels of Linguistic analysis

Unit-III Introduction to Phonetics, Phonology and Morphology

Unit-IV Introduction to Syntax, Semantics and Vocabulary

Suggested readings:

An Introductory text book of Linguistics and Phonetics- RL Varshney  
An Introduction to Descriptive Linguistics – HA Gleason (Jr.)  
Bhasa Vijyan- Upendra Nath Goswami

BOD-HC-3026

Bodo Poetry (Early period)

Course Outcomes:

- Come to know about the trend of old Bodo poetry

- About mystic and romantic poems composed during the period
- About the poems composed to bring social awareness among the mass

Unit-I Trend of Bodo Poetry (from inception to 1952)

Unit-II

- Angni Khwina- Rupnath Brahma
- Khathi Gasa- Khatish Bhusan Brahma
- Dani Boro Phisa- Madaram Brahma
- Mwdwi- Ishan Moshahary

Unit-III

- Thwinay –Pramod Ch. Brahma
- Baidi Mwzang Khwurang- Kali Kumar Lahary
- Habilas-Nileswar Brahma
- Bathu Baraya Makhu Khurzidung- Prasanna Kumar Boro Khakhluary

Unit-IV

- Eroino Din Thanga-Ratiram Brahma
- Sikhangdo- Surendra Nath Brahma
- Zakhangdo- Jaladhar Brahma
- Angni Simang- Maniram Songphramnary

Suggested readings:

Thunlai arw Sansri –Brajendra Kr. Brahma  
 Zothai Bidang- Mangalsing Hazowary  
 Boro Thunlaini Mohor Musri-Anil Boro  
 Nwizi Zwuthaini Boro Khonthai – Phukan Ch. Basumatary

BOD-HC-3036  
 Introduction to Culture

Course Outcomes:

- Come to know about the general concept of culture
- The relation between folklore and society
- About diffusion, acculturation and assimilation of culture

Unit-I Definition of Culture, Characteristics of Culture, Society and Culture, Culture and Civilization, Language and Culture

Unit-II Folklore and Folk-society, Folklore and its sub-genres

Unit-III Folk religion, folk beliefs and superstition (analysis may be done from the folkloristic point of view)

Unit-IV Process of cultural diffusion, acculturation and assimilation

Suggested readings:

Boro Kocharir Samaj aru Sanskriti-Bhaben Narzee  
Lok-Sanskriti- Nabin Chandra Sarma  
Aspects of Social Customs of the Bodos-Dr. Kameswar Brahma  
Folk Literature of the Boros- Dr. Anil Boro

BOD-SE-3014

Translation Studies

Course outcomes:

- Come to know about theory, concept and types of translation
- Come to learn about different types of translation into Bodo

Unit: I Theory, concept and types of Translation

Unit: II Translation of Advertisement from Print and Electronic Media into Bodo

Unit: III Translation: News Item, Essay and Interview

Unit: IV Review on Suitability and Acceptability of the translated Book “Wings of Fire” By Dr. A P J  
Abdul Kalam

Suggested readings:

Tulanamulak Sahitya Aru Anubad Bichar-Niranjana Mahanta Bezbora  
Translation Today-Uday Narayan Sing & PP Giridhar

BOD-HG-3016

Bodo Drama

Course Outcomes:

- Students can learn about different types of drama in Bodo literature
- About influence of Assamese and Bangla drama in Bodo literature
- Can come to know about few selected dramas in Bodo

Unit:I Origin and development of Bodo drama

Unit:II Influence of Assamese and Bangla drama in old Bodo drama

Unit:III Horbadi Khwmsi-Kamal Kr. Brahma

Unit:IV Onlaynaya Zewaribadi Gwtharmwn- Dr. Premananda Moshahary

Suggested readings:

Theory of Drama-A Nicoll  
Bhaothina Santhwu-Manoranjana Lahary



Boro Phaothaini Bizirnay-Swarna Prabha Chainary  
Boro Phaothai Thunlai Bizirnay-Bhounik Ch. Boro

**Semester-IV**  
**BOD-HC-4016**

Modern Bodo Poetry (From 1952 to 2015)

Course Outcomes:

- Come to know about the trend of modern Bodo poetry
- About new symbols and techniques used by the poets

Unit-I Trends of Modern Bodo Poetry

Unit-II

- e. Mahabuddhani Toposha- Samar Brahma Choudhury
- f. Zibraltarni Onthai- Prasenjit Brahma
- g. Sangrema- Brajendra Kr. Brahma
- h. Jiu Swinai- Surath Narzary

Unit-III

- e. Gufur Dauthua Dabw Gabw-Anju
- f. Sangrema jiu-Bishnujyoti Kochary
- g. Amen- Bikram
- h. Sase Badari Mwntham Saogari-Aurobinda Uzir

Unit-IV

- e. Bishnu Rabhanw- Anil Boro
- f. Halua- Nandeswar Boro
- g. No- Badal Basumatary
- h. Ang da Daina- Jwngsar Narzary

Suggested readings:

Thunlai arw Sansri –Brajendra Kr. Brahma  
Zothai Bidang- Mangalsing Hazowary  
Boro Thunlaini Mohor Musri-Anil Boro  
Nwizi Zwuthaini Boro Khonthai – Phukan Ch. Basumatary

Bod-HC-4026

Bodo Language

Course outcomes:

- Come to know about origin, concentration and development of the Bodo language
- Present status of Bodo language

Unit-I The term Bodo, origin and development of the Bodo language, demographic composition and concentration of the Bodos

Unit-II Characteristics and present status of Bodo language

Unit-III Linguistic impact of other languages on Bodo in case of phonology, morphology, syntax and vocabulary

Unit-IV Language variation (in this unit topics like idiolect, dialect, difference between dialect and idiolect, standard language, process of standardization are to be included)

Suggested readings:

Structure of Boro Language-Madhu Ram Boro

Gwnang Raokhanthi-Kamal Kumar Brahma

Raoni Mohor (Part-I, II & III)-Swarna Prabha Chainary & Phukan Basumatary

Boro Raokhanthi-Swarna Prabha Chainary

An Introduction to the Boro Language-Phukan Basumatary

BOD-HC-4036

Bodo Culture

Course outcomes:

- Come to know about Bodo society and culture
- About cultural elements of the Bodos

Unit-I The Bodo society and trait of Bodo Folk-culture, its traditionalism and prospect of continuity

Unit-II Food habits of the Bodos

Unit-III Material Culture

Unit-IV Social folk-customs, fairs and festivals of the Bodos

Suggested readings:

Boro Kacharir Samaj Aru Sanskriti- Bhaben Narzee

Lok-Sanskriti-Nabin Chandra Sarma

Aspects of Social Customs of the Bodos- Dr. Kameswar Brahma

Folk Literature of the Boros-Dr. Anil Boro

BOD-SE-4014  
Manuscript Preparation

Course outcomes:

- Come to know about manuscript preparation and use of punctuations and symbols
- About benefits of editing and taking into MS word & PageMaker

Unit: I Types of Manuscript: Use of Punctuation, Sign and Symbols

Unit: II Importance of Editing and Proof Reading; Symbols used in Proof reading, Proofreader, Proof reading process

Unit: III Process, Purpose and benefits of Editing

Unit: IV Taking Manuscripts in MS Word Format and Page Maker etc.

Suggested readings:

A Few Suggestions to McGraw-Hill Authors-McGraw Hill Book Company, Forgotten Books  
Guidelines for manuscript preparation-Gayle Giese & Pick Edmondson

BOD-HG-4016  
Bodo Fiction

Course Outcomes:

- Come to know about Bodo novels
- Come to know about Bodo short stories

Unit-I                    Zuzaini Or- Chittaranjan Muchahary

Unit-II                  Bwrai Phagladiyani Gwdan Dara- Nabin Malla Boro

Unit-III

- d. Gwdan Slogan-Nilkamal Brahma
- e. Phangnwi Nalengkor Biphang-Chittaranjan Muchahary
- f. Banggra-Dharanidhar Wary

Unit-IV

- d. Mr Hybridni Gwlwmdwi Arw Mwdwi-Z D Basumatary
- e. Haraoni Saikhel-Gobinda Basumatary
- f. Baikhwnda Satha Arw Laothi Gozo-Suniti Narzary

Suggested readings:

Thunlai arw Thunlai- Brajendra Kr. Brahma

Serza-Siphung- Anil Boro  
Sundoywi Thunlai Bizirnay-Bijoy Baglary  
Boro Solomani Bizirnay- Swarna Prabha Chainary

**Semester-V**  
**BOD-HC-5016**  
Manoranjan Lahary

Course outcomes:

- Come to know about life and literary works of Manoranjan Lahary

Unit-I Life and works of Manoranjan Lahary

Unit-II Poems and essays of Manoranjan Lahary

Unit-III Fictions of Manoranjan Lahary

Unit-IV Dramas of Manoranjan Lahary

Suggested readings:

Thunlai Arw Sansri- Brajendra Kr. Brahma

Manoranjan Laharini Thazim Rebgon-Bodo Publication Board, Bodo Sahitya Sabha

**BOD-HC-5026**  
Structure of Bodo Language

Course outcomes:

- Come to know about phonology of Bodo language
- Come to know about the structure of morphology, syntax and vocabulary of Bodo language

Unit-I Phonological analysis (Phoneme and its description, distribution of phonemes, use of Tone and syllable)

Unit-II Morphological analysis (with special reference to system of number, gender, numeral classifiers, use of personal pronouns, case marker, structure of verbs, application of tense and tense-marker)

Unit-III Syntactic analysis (Types of sentences, IC analysis of Bodo sentences, Word order)

Unit-IV Vocabulary (Introduction to Bodo Vocabulary, Mutual Impact of Lexis between the Bodo and other languages, basic features of Bodo words)

Suggested readings:

Structure of Boro Language- Madhu Ram Boro

Gwzvu Raokhanthi- Kamal Kr. Brahma

Boro Raokhanthi- Swarna Prabha Chainary

BOD-HE-5016

Bodo Folk-Literature

Course outcomes:

- Come to know about Bodo folk-literature and its sub-division
- Come to know about different genres of Bodo folk-literature

Unit-I Orality of Bodo Folk Literature and Sub-division of Bodo folk literature

Unit-II Folk Songs

Unit-III Folk Tales

UNIT-IV Charms and Incantations

Suggested readings:

Boro Kacharini Samaj Arw Harimu-Harinarayan Khakhlary & Gobinda Basumatary (trans.)

Folk Literature of the Boros-Anil Boro

BOD-HE-5026

Dialects of Bodo Language

Course outcomes:

- Come to gather a general idea on dialect and dialectology of Bodo language
- About Bodo dialects and its uses in literature

Unit: I What is Dialect, Importance of Dialect and Dialectology

Unit: II Regional dialect, social dialect and diglossia

Unit: III Linguistic variations of Bodo dialects

UNIT: IV Dialects used in Bodo Literature

- a. Bathu Nam Bwikhaguni Gidu- Prasanna Lal Boro Khakhluary
- b. Jwngthi-Dhireswar Boro Narzee
- c. Gwkha, Gwdwi arw Gwbab- Bidyut Basumata

Suggested readings:

Boro Khuga Rao Buthumnayni Swmwndwi-Koklabari Primary Bodo Sahitya Sabha  
Dialectology-J K Chambers & Peter Trudgill

**Semester-VI**

BOD-HC-6016

Contribution of women writers in Bodo literature

Course Outcomes:

- Come to know about women writings in Bodo
- Contribution of women writers in different genres of literature

Unit:I What is women literature, why women literature, significance of women literature

Unit:II Women contribution in Bodo poetry

Unit:III Women contribution in Bodo short story

Unit:IV Women contribution in Bodo novel

Suggested readings:

Ziuli-Rita Boro (ed.)

Gambari-Jwishri Boro (ed.)

Signifying self: women and literature-Malashri Lal & others (ed.)

Interpreting homes in South Asian literature-Malashri Lal & Sukrita Paul Kumar

BOD-HC-6026  
Cognate Languages of the Bodo

Course outcomes:

- Come to know about Bodo group of languages and their common characteristics
- Come to know about phonology, morphology and vocabulary of Bodo group of languages

Unit-I Bodo group of Languages, Common characteristics and concentration of this group of peoples

Unit-II Comparative Phonology of Bodo, Garo, Dimasa, Rabha, Kokborok and Tiwa with special reference to Vowel, Consonant 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)

Unit-III Comparative Morphology of Boro, Garo, Dimasa, Rabha, Kokborok and Tiwa with special reference to Structure of Noun, Pronoun, Number, Gender, Verb, Tense and Adjective

(In this Unit students are suggested to compare the morphology of any two languages with the morphology of the Bodo Language)

Unit-IV 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)

Suggested readings:

Rabha Raothap- Rabha Bhasa Parishad

Khurangnala- U V Jose

Ku.bidik- Harenda W Marak

Garo Grammar- Robins Burling

Grao Dima Pandar- Nagendra Nath Dutta

Tiwa Matpadi- V Len Kholar

Kak-Kuthumma-Prabhas C Dhar (ed.)

Anglo Dimasa Grammar and Dictionary- R R Barman (ed.)

Raoni Mohor (part-I, II & III)- Swarna Prabha Chainary & Phukan Basumatary

An Introduction to the Boro language- Phukan Basumatary

Course outcomes:

BOD-HE-6016 Life

Writing in Bodo

- Come to know about life writing and its types
- Come to know about biography and travel works in Bodo

Unit: I Introduction to Life Writings

(Definition of life writings, Growth and development of first person narrator, Expression of Voice, Structure and Style)

Unit: II Types of Life Writings

(Autobiography, Biography, Nature writings, personal writings, Literary Journalism, Travel writing, Letter writing, Diary etc.)

Unit: III Biography

Swrangni Lamajwng – Bidyasagar Narzary

UNIT: IV Travel Works:

Sina Nihao arw Chiye Chiye – Jogesh Deory

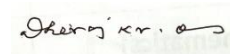
Suggested readings:

Encyclopedia of life writing-Margaretta Jolly  
Essays on Life Writing-Marlene Kadar (ed.)

BOD-HE-6026

Dissertation Writing

(In this paper, students are suggested to prepare a dissertation at least of 50 pages on the topic assigned by the departmental teachers using research methodology. Examiners will examine this dissertation. Dissertation will carry 80 marks and viva-voce carry 20 marks. Viva –voce will be held in the department in presence of at least one external).



(Dhiraj Kumar Das)  
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Co. Ordinator  
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