OFFICE OF THE PRINCIPAL, NORTH GAUHATI COLLEGE
P. O. College Nagar, Guwahati-781031

অধ্যক্ষৰ কার্য্যালয়,
ডাক ঃ কলেজ নগৰ,

উত্তৰ গুৱাহাটী মহাবিদ্যালয়
গুৱাহাটী-৭৮১০৩১

E-mail: principalngc1962@gmail.com

PROGRAM OUTCOMES, PROGRAM-SPECIFIC OUTCOMES, AND COURSE OUTCOMES

(FYUGP UNDER NEP 2020)

NORTH GAUHATI COLLEGE

Dr. Bhaskar Jyoti Hazarika
Principal
North Gauhati College

DEPARTMENT OF ANTHROPOLOGY

Programme Outcome (PO)
Programme Specific Outcome (PSO)
Course Outcome (CO)
B.A. and B.Sc. major program in Anthropology

Programme Outcome (PO): The under graduate course offered by the Department of Anthropology, Gauhati University**,** adheres to the NEP-2020 pattern. The main objective of the course is to produce competent and skilled researchers in scientific Anthropology who can be employed in academic researches and implement their gained knowledge in the areas of general Anthropology, Anthropology of ecology and environment, tools and technology, and regional Anthropology. They will be eligible for State and National Level Services of India like Anthropological of India, Archaeological Survey of India, Forensic Laboratory, Museum etc. The course is also designed to improve the critical thinking, scientific attitude, research aptitude and providing solution to the research problems. This leads to solution to the practical problems. Thus, they are trained for competitive examinations and research related jobs and they are imparted knowledge on ethical values, culture and tradition of Indian society since ages, environmental awareness and be a good and responsible citizen.

Programme Specific Outcome (PSO):

After completion of the course, students will be able to demonstrate a broad and comparative understanding of humanity, the diversity of world cultures, and an understanding of core tenets of the four-field approach (socio-cultural, archaeological, linguistics and biological) within Anthropology as a discipline.

COURSE OUTCOME

FIRST SEMESTER:

COURSE NAME: FOUNDATIONS OF ANTHROPOLOGY

Course Outcome: Students will be able to:

1. This course will raise awareness about ethnocentrism and cultural relativism as unique aspects of the discipline. Students will understand anthropologically how and why social and cultural differences exist in the world and how such differences help us to solve problems in everyday life

2. This will provide an understanding of the essence of Biological Anthropology with respect to evolution and variation

3. Students will acquaint themselves with the prehistoric archaeological dimension of human society and its evolutionary context
Subject Name: Anthropology

SECOND SEMESTER:

COURSE NAME: FUNDAMENTALS OF ANTHROPOLOGY

Course Outcome : Students will be able to:
1. Learn the approaches to understand culture and society and critically assess the functioning of economic, political, and religious institutions
2. Analyze the changing ideas of evolutionary theories and understand the m of evolution and variation
3. Acquaint themselves with the basic methods and techniques of archaeology and as application in the field study .Students will also have training in identification and drawing of tools of pre-historic period.

THIRD SEMESTER:

COURSE NAME -FIELDWORK TRADITION AND METHODOLOGY

Course Outcome : Students will be able to:
1. Able to formulate research problem and collect requisite empirical data field
2. Able to conduct fieldwork in a variety of settings in an ethical manner.

FOURTH SEMESTER:

COURSE NAME - PHYSICAL ANTHROPOLOGY (Elective 1): BIOLOGICAL DIVERSITY IN HUMAN POPULATIONS

Course Outcome : Students will be able to
1. Assess the biological diversity in human populations on the basis of genetic markers
2. Learn the classical approaches used in classifying mankind.

COURSE NAME-Social and Cultural Anthropology
INDIAN SOCIETY AND CULTURE-1

Course Outcome : Students will be able to
1. Students will be acquainted with the traditional Indian social system, the diverse setting and problems in India.
2. Students will learn about the problems, prospects, development, and government policies for tribes and villages, and about the concept and issues regarding caste system in India.

COURSE NAME: PREHISTORIC ARCHAEOLOGY: ARCHAEOLOGICAL ANTHROPOLOGY

Course Outcome : Students will be able to
1. Students will be acquainted with how the early man invented & gradually developed technology to prepare types of tools for interaction and adaptation to environment.
2. Students will learn through experiential learning, how archaeological sites and cultural resources / materials are preserved.

COURSE NAME: ANTHROPOLOGY IN PRACTICE

Course Outcome : Students will be able to
1. Students will gain knowledge about the application of Anthropology to human

Society for welfare, planning and policy making.
2. This will help in learning the applications of anthropology in various fields.
3. The students will learn about the medico-legal problems.

FIFTH SEMESTER:

COURSE NAME: Social and Cultural Anthropology: ANTHROPOLOGICAL THEORIES AND THOUGHTS

Course Outcome : Students will be able to

1. Students will be acquainted with the basic concepts and theories of culture in Anthropology, and their functioning in the social system, based on perspectives of different scholars.

COURSE NAME: Physical Anthropology (Elective 1): HUMAN POPULATON GENETICS

Course Outcome : Students will be able to

1. Understand the method of transmission of genetic characteristics in humans.
2. Understand how ecology and other evolutionary mechanisms can alter or structure variation in population.

COURSE NAME: PHYSICAL ANTHROPOLOGY (Elective-II): HUMAN GENETICS

Course Outcome : Students will be able to

1. The students will learn about the structure and function of human genome.
2. The students will learn how genomic variation is studied.
3. The students will learn about the genomic diversity and human evolution.

COURSE NAME: Prehistoric Archaeology: PREHISTORIC CULTURES

Course outcome: Students will be able to

1. Students will be acquainted with prehistoric cultural development in Europe, Africa and Asia, through bio-archaeological evidence.

COURSE NAME: ECOLOGICAL ANTHROPOLOGY –BIOLOGICAL & CULTURAL DIMENSIONS

Course outcome : Students will be able to

1. Students will learn how adaptation allows man to survive and reproduce in their natural environment.
2. Students will be able to apply concepts and method to understand and address contemporary environmental challenge.

SIXTH SEMESTER:

COURSE NAME: Physical Anthropology (Elective 1): HUMAN GROWTH AND DEVELOPMENT

Course outcome : Students will be able to

1. It will provide the students with a broader understanding of normal growth and development across the lifespan.

COURSE NAME: Physical Anthropology (Elective-II) DEMOGRAPHIC ANTHROPOLOGY

Course Name: Social and Cultural Anthropology:

INDIAN SOCIETY AND CULTURE- II

Course outcome : Students will be able to

1. Students will learn about the basics of demography and demographic theories.
2. Student will learn about the tools used for studying population change.

Course outcome: Students will be able to

1.Students will learn about the approaches to understand Indian society and culture, the process of socio-cultural changes, and the significant contributions of Indian anthropologists.

DEPARTMENT OF ASSAMESE
Programme Outcome (PO)
Programme Specific Outcome (PSO)
Course Outcome (CO)

Programme Outcome (PO): The Four Years Under graduate Programme (FYUGP) course offered by the department of Assamese, Gauhati University, adheres to the NEP pattern. he programme specific outcomes for a B.A. in Assamese Honours typically aim to provide students with a comprehensive understanding of Assamese language, literature and culture. Language Proficiency: Students will achieve advanced proficiency in reading, writing, and speaking Assamese. To conduct research and extension projects and programmmes in relation to the afore cited disciplines and the languages of various ethnic groups in Assam and the North East.

Programme Specific Outcome (PSO): This course enables students to learn the Assamese language-literature and cultural history, develop thinking capacity, By completing the course, apart from various government services student could take option in mass communication sector i.e. print, audio visual and other social media. They can work as editor and translator. Student can also self employed in tourism sector as local guide. They can work as language teacher by establishing own institute.

COURSE OUTCOME

FIRST SEMESTER FYUGP (Assamese, Paper Code -ASM-101)

Course Name: History of Assamese Language and Literature (up to 1826)

Course Outcome: Upon completion of this course, a student will be able to:

knowledge gain on the beginning and development of Assamese language, literature and script

SECONDSEMESTER FYUGP (Assamese, Paper Code -ASM-151)

Course Name: History of Assamese Language and Literature (From 1826 to Present time)

Course Outcome: Upon completion of this course, students will be able to:

Basic knowledge on Indian literature and language from 1826 to modern time

THIRD SEMESTER FYUGP (Assamese, Paper Code- ASM-201)

Course Name: Culture of Assam

Course Outcome: Upon completion of this course, students will be able to:

Apart from gaining knowledge student could understand our cultural roots and heritage, unity among diversity etc

FOURTH SEMESTER, FYUGP (Assamese, Paper Code -ASM-251)

Course Name: General Linguistic

Course Outcome: After completion of this course a student will be able to:

Acquire knowledge on the language varieties, theory and their characteristics

Fourth Semester, FYUGP (Assamese, Paper Code -ASM-252)

Course name: Assamese poem

Course Outcome: After completion of this course a student will be able to:

- Student can develop their knowledge, definition of poem, development of Assamese poem, understanding skill, feel the essence of creative writing, develop their own writing.
- Students are exposed to wide range of poetry and fiction of the modern and postmodern eras that is representative of important trends, critical shifts and formal experimentation.

Fourth Semester FYUGP (Assamese, Paper Code -ASM-253)

Course Name: Assamese folk literature

Course Outcome: After completion of this course a student will be able to:

Student can learn indigenous knowledge for folk culture and Assamese literature in Assam and find out the racial identity of the linguistic communities with especial reference to Assam languages status.

4th Semester FYUGP (Assamese, Paper Code -ASM-254)

Course Name: Introduction of Assamese script

Course Outcome: After completion of this course a student will be able to:
knowledge gain on the beginning and development of Assamese language, literature and script

FIFTH SEMESTER, FYUGP (Assamese, Paper Code -ASM-301)

Course Name: old Indo- Ariyan and Middle Indo-Ariyan Language

Course Outcome: On completion of this course, the students will be able to
Acquire knowledge on the Indo- Ariyan language and Development, varieties and their characteristics

Fifth Semester FYUGP (Assamese, Paper Code -ASM-302)

Course Name: Assamese short story and Novel

Course Outcome: After the completion of this course the students will be able to
Acquire knowledge about short story-Novel-theory, introduction some important novels

Fifth Semester FYUGP (Assamese, Paper Code -ASM-303)

Course Name: Assamese prose

Course Outcome: After completion of the course, a student will be able to
Student can develop their expression through writing as well as talking learn how to write prose and analytical skill of prose writing.

Fifth Semester FYUGP (Assamese, Paper Code -ASM-304)

Course Name: Assamese Drama

Course Outcome: After completing the course, the students will be able to:
Student can develop their creative kill, acquire knowledge about Assamese drama, definition, development and characteristics.

SIXTH SEMESTER, FYUGP (Assamese, Paper Code-ASM-351)

Course Name: Literature and criticism

Course Outcome: Upon completion of this course, students will be able to-
Study of Assamese Literature students will be familiar with Indian culture and social aspects. The text through multiple perspective and various contexts will helpful for students to develop their personal and professional capability. Student able to learn of criticism theory and isms will helpful for student to know the modern style of literature and philosophy of writer.

Sixth Semester, FYUGP (Assamese, Paper Code-ASM-352)

Course Name: comparative Indian literature

Course Outcome: Upon completion of this course, students will be able to
Understand the world community through their study

Sixth Semester, FYUGP (Assamese, Paper Code-ASM-353)

Course Name: Grammer and Assamese Grammer

Course Outcome: After completing the course, the students will be able to:

- Students will learn definition and development of Grammar.
- History of Assamese Grammer and Characteristics.

Sixth Semester, FYUGP (Assamese, Paper Code-ASM-354)

Course Name: Non- Ariyan language of Assam

Course Outcome: After completing the course, the students will be able to:

- Gain knowledge on language families of the world
- Learn about Chino- Tibetan language group
- Gain knowledge on ethnic language of Assam
- Comparative study on Assamese and Assam- barmi Language branch.

BOTANY DEPARTMENT
PSO, PO & CO (FYUGP)

❖ Programme Specific Outcome (PSO):

PSO 1: Graduates will demonstrate advanced understanding and proficiency in specialized areas of botanical sciences, such as plant taxonomy, plant physiology, plant pathology and microbiology, plant genetics, or plant ecology.

PSO 2: Graduates will possess the ability to design and conduct independent research projects in botany, including formulating research questions, designing experiments, collecting, and analyzing data, and drawing scientifically valid conclusions.

PSO 3: Graduates will be able to interpret and analyze complex botanical data using statistical and computational methods, and effectively communicate their findings through written reports and oral presentations.

PSO 4: Graduates will have acquired proficiency in a wide range of laboratory techniques and methodologies commonly used in botanical research, including microscopy, molecular biology techniques, tissue culture, chromatography, and spectroscopy.

PSO 5: Graduates will demonstrate competence in fieldwork methodologies, plant specimen collection, preservation, and identification, and possess taxonomic expertise in the classification and identification of plant species.

PSO 6: Graduates will develop strong analytical and critical thinking skills, enabling them to identify and address complex botanical problems, evaluate scientific literature, and propose innovative solutions to real-world challenges in plant sciences.

PSO 7: Graduates will be able to communicate botanical concepts and research findings effectively to both specialist and non-specialist audiences through written reports, scientific papers, conference presentations, and outreach activities.

PSO 8: Graduates will adhere to ethical principles and professional standards in all aspects of their work, including research integrity, respect for intellectual property rights, and consideration of ethical implications in decision-making.

PSO 9: Graduates will collaborate effectively with colleagues from diverse disciplines, integrating botanical knowledge with other scientific fields to address multidisciplinary challenges in environmental science, agriculture, biotechnology, and conservation.

PSO 10: Graduates will demonstrate a commitment to lifelong learning and professional development, staying abreast of advancements in botanical sciences, engaging in continuing education, and contributing to the advancement of the field through scholarly activities and professional networking.

❖ Programme Outcome (PO):

PO 1: To demonstrate a solid understanding of fundamental concepts in various areas of botany, including plant taxonomy, physiology, pathology, microbiology, genetics, and ecology.

PO 2: To apply basic scientific methods to explore plant science problems, including formulating simple research questions, collecting and recording data, and drawing logical conclusions.

PO 3: Interpret and analyze botanical data using basic statistical tools and communicate findings effectively through written reports, diagrams, and oral presentations.

PO 4: Develop hands-on skills in commonly used laboratory techniques in botany, such as microscopy, staining, sectioning, preparation of culture media, and plant tissue handling.

PO 5: To perform fieldwork effectively, including the collection, preservation, and identification of plant specimens, and understand their classification and ecological roles.

PO 6: Cultivate analytical and critical thinking skills to understand plant-related problems and contribute to solutions in areas such as agriculture, health, and environment.

PO 7: Communicate botanical knowledge clearly and accurately to both academic and non-academic audiences through various forms of scientific communication.

PO 8: To follow ethical practices in scientific work, showing respect for biodiversity, academic honesty, and environmental responsibility.

PO 9: To work collaboratively in teams, demonstrating interpersonal skills and integrating knowledge across scientific disciplines to address biological and ecological challenges.

PO 10: To pursue lifelong learning and remain open to new developments in plant sciences, with an awareness of the role of botany in sustainable development and societal well-being.

- **Paper Code: BOT-0100104**
- **Paper Title: Plant and Microbial Diversity**

Course Objective: This paper will explain the origin of life, the diversity of Bacteria, Viruses, Algae, Fungi & Lichen, Bryophytes, Pteridophytes, Gymnosperms, and Angiosperms on the planet, and how they may be related to each other. The emphasis will also be on the hands-on approach and laboratory techniques for identification of the plant and microbial groups using various morphological features.

Course Outcomes: On successful completion of the course, students will have:

1. Knowledge with the concept of different kingdoms and the theories behind how life began.
2. Basic understanding of the characteristics, distribution, classification, reproduction, and current status of various microbial and plant communities.
3. Good understanding of virus, algae, fungus, bryophyte, and pteridophyte cell structures, dicotyledonous and monocotyledonous leaf venation patterns, and inflorescence and fruit features.
4. Knowledge to identify various groups of organisms in the laboratory through morphological analysis.

- **Paper Code: BOT-0200104**
- **Paper Title: Cell Biology and Biomolecules**

Course Objective: This paper will explain biomolecules, the basic building blocks of living organisms, with a focus on their structural organization, molecule properties, biological roles, and functions. The emphasis will be on the relationship between the structure and function of various biomolecules at the chemical level with a biological perspective, as well as a hands-on approach and laboratory techniques.

Course Outcomes: On successful completion of the course, students will be:

1. Able to obtain knowledge of structure, classification, and physicochemical properties of biomolecules and enzymes.

2. Detailed knowledge of the structure, properties, and functions of a cell and its components.
3. Acquainted with practical knowledge of properties of cell and cell membranes, DNA staining techniques, and microscopy of the plant cell.
4. Able to identify various biomolecules in the laboratory by qualitative tests of biomolecules.

- **Paper Code: BOT-0300104**
- **Paper Title: Laboratory and Field Techniques in Plant Science**

Course Objective: This paper will provide basic knowledge and understanding of good laboratory practices, laboratory waste management, understanding hazards and risks to ensure a safe laboratory environment, measurements, units, and common mathematical calculations, sampling and data collection, and instrument operation and maintenance.

Course Outcomes: On successful completion of the course, students will be:

1. Able to learn fundamental skills important for performing laboratory and field experiments.
2. Able to prepare, analysis of data and interpretation of results.

- **Paper Code: BOT-0400104**
- **Paper Title: Mycology & Phytopathology**

Course Objectives: This paper will explain the general characteristics and reproductive procedures of fungi from different groups such as Mastigomycotina, Zygomycotina, Ascomycotina, Basidiomycotina, and Deuteromycotina. The paper will also focus on the basic idea of host-pathogen interaction during disease development, along with symptomology and the disease cycle of common fungal, bacterial, and viral diseases. Furthermore, the role of fungi in various biotechnological aspects, pharmaceutics, and agriculture will be highlighted.

Course Outcomes:

On successful completion of the course, students will have:

1. Knowledge on general features of fungi and their classification
2. Knowledge on different classes of fungi, symbiotic fungi, and their characteristics

3. Knowledge on the application of fungi in different fields

4. Knowledge of plant pathogens and some important plant diseases

5. Practical knowledge on different classes of fungi based on their morphological and reproductive features

6. Practical knowledge on morphology, anatomical features of symbiotic fungi and locally available important plant pathogens.

7. Understanding biotechnological applications of fungi in industry, agriculture, and medicine.

- **Paper Code: BOT-0400204**
- **Paper Title: Morphology and Anatomy of Angiosperms**

Course Objective: This paper will explain the detailed account on the morphological and anatomical features of Angiosperms.

Course Outcomes:

1. Knowledge on morphology of angiosperms and developmental biology of plant body.
2. Knowledge on structural and anatomical organization of tissue system in plants and their classification.
3. Practical knowledge on inflorescences and fruits of angiosperms.
4. Practical knowledge on anatomical features of plant body parts.

- **Paper Code: BOT-0400304**
- **Paper Title: Microbiology**

Course Objective:

1. To give concise knowledge on basic microbiology.
2. To give practical knowledge on handling of microorganisms.
3. To inculcate knowledge on usefulness of microorganisms for sustainable development.

Course Outcomes:

1. Knowledge on microbial diversity and distribution in different habitats.
2. Knowledge on ecological and economic importance of microorganisms in our day-to-day life.

3. Knowledge on growth, reproduction and life cycles of viruses and microorganisms.
4. Knowledge on genetic recombination of bacteria.
5. Practical knowledge on microscopy, slide preparation, staining and morphological study of microorganisms.
6. Knowledge on pathogenic microorganisms, host-pathogen interaction, and immunity.
7. Practical knowledge on isolation and pure culture of bacteria/fungi from soil sample.

- **Paper Code: BOT-0400404**
- **Paper Title: Plant Resource and Economic Botany**

Course Objective:

This paper will provide an understanding of major introduced plant species, concept of centre of origin and their importance, domestication of crops and loss of genetic diversity, evolution of new crops /varieties. This paper will also provide knowledge on germ plasm diversity, importance of ethnobotany and economic importance of various plants.

Course Outcomes: On successful completion of the course, students will:

1. Know the centre of origin, domestication, and loss of genetic diversity.
2. Understand the evolution of new crops /varieties.
3. Know about the germplasm diversity.
4. Understand the economic values of various plant species.
5. Understand the importance of ethnobotany in the present context.

- **Paper Code: BOT-0500104**
- **Paper Title: Genetics**

Course Objective: To gain knowledge on classical and modern concepts of genetics.

Course Outcomes:

1. Knowledge of Mendelian and non- Mendelian inheritance in organisms.
2. Knowledge of gene and chromosomal mutations.
3. Knowledge of basic concepts of population and evolutionary genetics.

4. Ability to work out problems related to Mendel's experiments, Chromosome mapping and gene interaction.

- **Paper Code: BOT-0500204**
- **Paper Title: Molecular Biology**

Course Objective: To have detailed knowledge of DNA, RNA and central dogma of molecular biology.

Course Outcomes:

1. Knowledge of structure, organization, and replication mechanism of DNA.

2. Detailed knowledge of central dogma, mechanism of transcription and processing of different types of RNA.

3. Knowledge of genetic code, molecular mechanisms associated with various steps in protein synthesis and post translational modifications.

4. Ability to isolate genomic DNA from plant samples.

- **Paper Code: BOT-0500304**

Paper Title: Plant Ecology, Phytogeography and Climate Change

Course Objective: This course will provide an understanding on ecology and ecosystems, biotic and abiotic interactions, ecosystem processes, terrestrial and aquatic environment, population and community interactions, plant distribution and effect of climate change on natural environment. Emphasis will be given on the hands-on approach, field, and laboratory techniques.

Course Outcomes: On successful completion of the course, students will,

1. Understand the concept of ecology, ecosystems, and importance of factors.

2. Understand the population, community, biodiversity, and conservation strategies.

3. Understand the concept of phytogeography, endemism, and floristic distributions.

4. Understand the science of climate change and sustainable development strategies

5. Know the adaptation and mitigation against climate change-induced phenomena.

- **Paper Code: BOT-0500404**
- **Paper Title: Plant Systematics**

Course Objective: This paper will provide an understanding of knowledge on plant systematics, basic understanding of plant identification, classification systems and plant nomenclature, significance of systematics in different fields/branches of botany, phylogenetic and evolutionary relationships of angiosperms. The paper will also focus on knowledge about herbaria and botanical gardens in India and abroad and their significant role in plant identification.

Course Outcomes: On successful completion of the course, students will be:

1. Able to obtain knowledge on plant identification and classification systems, plant nomenclature.

2. Detailed knowledge of the phylogenetic and evolutionary relationships of angiosperms.

3. Able to obtain knowledge on various herbaria and botanical gardens in India and abroad, their role in plant systematics.

4. Acquainted with practical knowledge on vegetative and reproductive structures of angiosperms.

5. Acquainted students with practical knowledge on vegetation of an area.

- **Paper Code: BOT-0600104**
- **Paper Title: Reproductive Biology of Angiosperms**

Course Objective: This paper will explain the detailed accounts on reproductive and developmental characteristics of Angiosperm.

Course Outcomes:

1. Knowledge on detailed morphological and reproductive structures of angiosperm.

2. Knowledge on embryology and embryological abnormalities in angiosperms.

3. Practical knowledge on developmental biology of embryo and endosperms.

- **Paper Code: BOT-0600204**
- **Paper Title: Plant Physiology**

Course Objective:

Students will be able to learn the plant and water relation and thus will be able to elucidate the crucial role of water in diverse physiological functions of plants, by studying this paper. The paper will also highlight the importance of mineral elements in plant physiology and various mechanisms applied to uptake mineral elements by plants. It will provide the basic idea of pathways and mechanisms of translocation of organic solutes synthesised in plant. Furthermore, this paper will explain the role and mechanisms of action of various plant growth regulators as well as physiology of flowering and dormancy of seeds. Additionally, the paper will also focus on the different abiotic and biotic stresses encountered by the plants in their environment as well as various stress mitigation strategies employed by plants to overcome the effects of stress.

- **Course Outcomes:**

1. Knowledge on mechanisms of water, minerals, and nutrient absorption of plants
2. Knowledge on roles of plant hormones and mechanism of flowering in plants
3. Practical knowledge on effects of growth regulators on plant parts
4. Practical knowledge on determination of osmotic and water potential.

- **Paper Code: BOT-0600304**
- **Paper Title: Plant Metabolism & Biochemistry**

- **Course Objective:** Students will be acquainted with the elaborate concept of plant metabolism and biochemical pathways, by studying this paper. The paper will highlight the carbon

assimilation pathways as well as carbon oxidation and ATP synthesis mechanisms in plant body. It will provide the detailed idea of pathways and mechanisms of carbohydrate, lipid, and nitrogen metabolism in plants. Furthermore, this paper will explain the various aspects and cascades of signal transduction mechanism. Additionally, the paper will also focus on the biosynthesis and physiological roles of secondary metabolites in plants.

- **Course outcomes:**

1. Knowledge in basic understanding of plant metabolism and their regulation.
2. Knowledge in concepts of carbon assimilation, oxidation, ATP synthesis.
3. Knowledge in basic concepts of carbohydrate, Lipid and Nitrogen metabolism.
4. Knowledge in basic concepts of signal transduction.
5. Practical knowledge in separation of pigments, estimation of sugars, rate of respiration.
6. Ability to perform experiments on chromatographic techniques, spectrophotometric analysis.

- **Paper Code: BOT-0600404**
- **Paper Title: Applied Plant Biology**

Course Objective: To gain knowledge on plant tissue culture, recombinant DNA technology and applications of genetic engineering techniques.

Course Outcomes:

1. Knowledge of various methods of Plant tissue culture and their application

2. Knowledge of gene cloning, recombinant DNA technology and various methods of gene transfer in plants

3. Knowledge of the application of genetic engineering techniques for agriculture.

4. Ability to demonstrate tissue culture technique; isolate plasmid DNA and to carry out DNA manipulation using restriction enzymes.

Dr. Ruby Doley
Head, Department of Botany
North Gauhati College
Guwahati: 781031

DEPARTMENT OF CHEMISTRY
Programme Outcome (PO)
Programme Specific Outcome (PSO)
Course Outcome (CO)
FYUGP Course under Gauhati University

Programme Outcome (PO): The Chemistry Department at North Gauhati College, under the Four-Year Undergraduate Programme (FYUGP) as per NEP 2020 guidelines of Gauhati University, aims to provide a comprehensive education in chemistry. Here are some key program outcomes:

1. **Fundamental Knowledge**: Students will gain a solid foundation in various branches of chemistry, including organic, inorganic, physical, and analytical chemistry.
2. **Practical Skills**: Emphasis on laboratory skills and techniques, ensuring students are proficient in conducting experiments and using modern instrumentation.
3. **Research and Innovation**: Encouraging students to engage in research projects, fostering innovation and critical thinking.
4. **Interdisciplinary Approach**: Integrating chemistry with other scientific disciplines to provide a holistic understanding of its applications.
5. **Employability**: Preparing students for careers in academia, industry, and research by equipping them with the necessary skills and knowledge.
6. **Ethical and Social Responsibility**: Instilling a sense of ethical responsibility and awareness of the societal impacts of chemical research and industry

Programme Specific Outcome (PSO): The proposed program has outlined specific outcomes for its students. Here are the key program-specific outcomes:

1. **In-depth Chemical Knowledge**: Students will acquire comprehensive knowledge in various branches of chemistry, including organic, inorganic, physical, and analytical chemistry.
2. **Experimental Proficiency**: Emphasis on developing strong laboratory skills, enabling students to conduct experiments accurately and safely using modern techniques and instruments.
3. **Research Competence**: Encouraging students to undertake research projects, fostering a spirit of inquiry and innovation.
4. **Interdisciplinary Integration**: Applying chemical principles to solve problems in other scientific disciplines, promoting a holistic scientific approach.
5. **Career Readiness**: Equipping students with the skills and knowledge necessary for careers in academia, industry, and research.
6. **Ethical Awareness**: Instilling a sense of ethical responsibility and understanding the societal impacts of chemical research and industry

COURSE OUTCOME

SEMESTER I:

Course Name: Chemistry-I

Course Outcome:

CO1- Upon completion of this course, a student will be able to gain the knowledge of fundamental aspects of atoms, ions and molecules, structure and bonding of molecules dealt with basic quantum chemistry treatment.

CO2: Introduction to the structure, nomenclature, and properties of organic molecules. Students will learn about different types of organic reactions and mechanisms.

CO3: Students will learn about the different states of matter.

CO4-Accompanying laboratory course is designed to introduce the preparation of standard solutions, measurement of physical properties and laboratory safety.

SEMESTER II:

Course Name: Chemistry-II

Course Outcome:

CO1- Students will learn and apply the concepts of chemical bonding, coordination chemistry, acids and bases and reactive intermediates.

CO2: Students will learn about the structure, properties, and reactions of organic compounds. They will understand mechanisms of organic reactions and be able to predict the outcomes of various organic transformations.

CO3: Students will explore the laws of thermodynamics. They will learn to apply mathematical concepts to solve physical chemistry problems.

CO4: Practical sessions will focus on developing hands-on skills in conducting experiments, recording data, and interpreting results accurately and safely.

SEMESTER III:

Course Name: Chemistry-III

Course Outcome:

CO1- This course will cover advanced topics in coordination chemistry, organometallic compounds.

CO2: Students will explore complex organic reactions, mechanisms, and synthesis of organic compounds in terms of the functional groups and reactivity.

CO3- Focus on redox reactions, ideal solution and colligative properies. Students will learn to apply these concepts to real-world chemical problems.

CO4: Practical sessions will focus on advanced experimental techniques, data analysis, and interpretation of results. Students will develop skills in using sophisticated laboratory instruments.

SEMESTER IV: (Paper I)

Course Name: Inorganic Chemistry-I

Course Outcome:

CO1- Students will learn about the properties, reactions, and applications of transition metals and their compounds. Moreover, they will have an overview of lanthanides, actinides and nuclear chemistry.

CO2: Students will be able to learn the molecular symmetry, with which they will able to assign different point groups.

CO3- Practical sessions will focus on advanced inorganic synthesis, characterization techniques, and the safe handling of chemicals. Students will learn how differential reactivity under different conditions of pH can be used to identify variety of ions in a complex mixture.

SEMESTER IV: (Paper II)

Course Name: Organic Chemistry-I

Course Outcome:

CO1-The objective of this course is to illustrate the structure and reactivity of organic compounds containing carboxylic acid derivatives, nitrogen based functional groups and heterocyclic compounds.

CO2-After gaining these knowledge, students will be able to apply all these basic concepts towards the understanding of amino acids, peptides/proteins and alkaloids.

CO3-Practical session will focus to familiarize with organic synthesis and purification.

SEMESTER IV: (Paper III)

Course Name: Theoretical Chemistry

Course Outcome:

CO1-Aim of this course is to introduce the students to the important areas of quantum chemistry.

CO2-Students will be able to formulate the basic structural properties of atoms in terms of mathematical theories.

CO3-Students shall be able to plot and program equations using different programming language such as BASIC, FORTRAN, Python.

SEMESTER IV (Paper IV)

Course Name: Magnetic Resonance Spectroscopy and Analytical Techniques

Course Outcome:

CO1-Students are expected to learn about the different spectroscopic, chromatographic, electroanalytical, diffraction techniques and their applications.

CO2-Students will learn about spectroscopy and how chemical compounds are identified and separated using contemporary method.

SEMESTER V: (Paper 1)

Course Name: Inorganic Chemistry-II

Course Outcome:

CO1-This course focuses on further extending the concepts of coordination chemistry along with the chemistry of main group of elements, noble gases .

CO2-Students shall understand the preparation, structure and properties of main group elements and noble gases. They will also learn about organometallic compounds, their bonding, stability and reactivity.

CO3: The laboratory experiments will enable students to separate and estimate individual ions in multicomponent systems.

SEMESTER V: (Paper II)

Course Name: Organic Chemistry-II

Course Outcome:

CO1-This course aims at introducing students to stereo chemical aspects of organic reactions and their mechanisms.

CO2-Students will also learn the chemical aspects of carbohydrates and terpenoids.

CO3-Students will be familiarize with qualitative analysis of carbohydrates and small organic compounds with functional groups.

SEMESTER V: (Paper III)

Course Name: Reaction Dynamics

Course Outcome:

CO1-Aim of the course to teach students reaction dynamics with emphasis on order and molecularity of reactions, rate laws and rate equations.

CO2-Students will learn how to mathematically model chemical reactions and evaluate the necessary rates of the reaction.

CO3-Students will be able to visualize complex reaction mechanism via mathematical modelling.

SEMESTER V: (Paper IV)

Course Name: Light-Matter Interactions

Course Outcome:

CO1-The paper is focused on fundamental theory and application of photochemistry and various spectroscopic techniques such as rotational, vibrational, electronic and Raman Spectroscopy.

CO2- Students shall use the knowledge gained from the quantum theories to identify unknown chemical compounds using modern techniques.

SEMESTER VI: (Paper I)

Course Name: Inorganic Chemistry-III

Course Outcome:

CO1-This course aims at giving students the introduction to inorganic reactions mechanisms and bioinorganic chemistry.

CO2-The course emphasizes on organometallic chemistry with reference to transition metal-π bound complexes, metal-carbenes and organometallic complexes.

CO3- The laboratory course intends to introduce students to preparation and characterization of co-ordination complexes and double salts.

SEMESTER VI: (Paper II)

Course Name: Organic Chemistry-III

Course Outcome:

CO1-This course aims at introducing the students to photo-chemical and pericyclic organic reactions.

CO2-Students will be able to recognize the chemistry of polynuclear aromatic hydrocarbons, organometallic compounds and their reactions.

CO3-Students will develop the skill set to extract important organic components from natural samples, estimate organic compounds and perform photochemical conversion.

SEMESTER VI: (Paper III)

Course Name: Equilibria and Electrochemistry

Course Outcome:

CO1-The aim of this course is to introduce students to primarily two areas of physical chemistry-equilibria and electrochemistry. Discussion of equilibria encompasses chemical, ionic and phase equilibria.

CO2-Students are expected to learn various laws of electrochemistry, measurement of conductance, applications of electrolysis in industry.

CO3-The laboratory course is designed to introduce students to various experiments using pHmetry, conductometry, calorimetry etc.

SEMESTER VI: (Paper IV)

Course Name: Industrial chemistry

Course Outcome:

CO1-The course provides an introduction to the various industrial gases and inorganic chemicals.

CO2-Students are expected to learn the manufacturing processes, applications, storage and hazards of handling the industrial gases.

CO3-Students will learn the synthetic processes, properties and the utility of the industrially important inorganic materials.

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DEPARTMENT OF ECONOMICS
Programme Outcome (PO)
Programme Specific Outcome (PSO)
Course Outcome (CO)

Programme Outcome (PO): The Four Years Under graduate Programme (FYUGP) course offered by the department of Economics, Gauhati University, adheres to the NEP pattern aims to equip students with a comprehensive understanding of economic principles, global and national economic issues, and statistical tools for analysis, enabling them to critically evaluate development measures and understand financial systems. The goal of the course is to produce competent and skilled researchers in Economics who can be employed in academic researches and implement their gained knowledge in the areas of general economics, Public finance, Mathematical Economics, International Economics, Statistical usages in Economics , Indian Economy, Assam Economy etc. They will be eligible for state and national level services like UPSC,APSC, Banking Services etc. The course is also designed to improve the critical thinking, scientific attitude, research aptitude and providing solution to the research problems. This leads to solution to the practical problems. Thus, they are trained for competitive examinations and research related jobs and they are imparted knowledge on various topics of economics which will help them to be a good economist for the country.

Programme Specific Outcome (PSO): For the Economics FYUGP (Four-Year Undergraduate Programme) at Gauhati University, students will gain a solid foundation in economic theory, statistical analysis, and quantitative techniques, enabling them to critically analyze economic issues and apply their knowledge to real-world scenarios. This course enables students to learn the basic features of the economy of India and Assam. They will learn about the application of mathematics and statistics in economics. Students will develop a comprehensive understanding of microeconomic and macroeconomic theories and their application to economic systems. They will be able to analyze economic phenomena, including income and demographic features, and understand the functioning of financial systems. Students will be able to critically evaluate various measures of development and economic policies. This course delves into advanced microeconomic and advanced macroeconomic theories and models principles and their applications.

COURSE OUTCOME

FIRST SEMESTER (Economics 1/1)

Course Name: Introductory Economics

Course Outcome: Upon completion of this course, a student will be able to

CO1- To understand and comments upon real economic issues like the basic economic problems, demand, supply, GDP and their inter-linkages and also simple ideas of public finance
CO2- It will also allow them to evaluate economic policies in terms of coherent logical structure.

SECOND SEMESTER (Economics 1/1)

Course Name: Basic Elements of Economics

Course Outcome: Upon completion of this course, students will be able to:

CO1- Understand and critically evaluate the various measures of development CO2-Identify the regional kingdoms and analyse their administration and polity.
CO2- Use and apply the relevant statistical tools to systematically examine any given economic phenomenon
CO3-Describe and analyse the Indian economy in terms of its income and demographic features
CO4- Understand the functioning of a financial system
CO5- Relate and analyse the current events of the global and national econom

THIRD SEMESTER (Economics 1/1)

Course Name: Intermediate Economics

Course Outcome: Upon completion of this course, students will be able to:

CO1- understand the contents upon real economic issues like consumer behavior, producer behavior, money, inflation, employment, International Economics and basic theories.
CO2- Students will also get further insights to the subjects of money, inflation and Credit system

FOURTH SEMESTER (Economics 1/4)

Course Name: Public Finance

Course Outcome: After completion of this course a student will be able to:

CO1- appear in exam in the government sector, policy analysis, business and journalism.

CO2- look into efficiency and equity aspects of taxation and expenditure.
CO3- examine the objective of fiscal policy and explores Fiscal Federalism in India.

Fourth Semester (Economics 2/4)

Course name: Advanced Macroeconomics

Course Outcome: After completion of this course a student will be able to:

CO1-Get a comprehensive knowledge in macroeconomics. It provides basic ideas on macroeconomic indicators or variables.
CO2-Understand alternative theories of output and employment determination in a closed economy in short-run, medium-run.
CO3- Understand of issues related to an open economy

Fourth Semester (Economics 3/4)

Course Name: Introductory Quantitative Techniques for Economics

Course Outcome: After completion of this course a student will be able to:

CO1- Understand some ideas related to basic mathematics and elementary statistics.
CO2- Have some basic ideas of elementary mathematics like number system, sets, functions, calculus and some basics on statistical measures to be applied for solvingeconomic problems.

4th Semester (Economics 4/4)

Course Name: Advanced Microeconomics

Course Outcome: After completion of this course a student will be able to:

CO1- To provide a better understanding of the market structure.
CO2-To provide an understanding of general equilibrium, welfare economics, market structure, game theory, and economics of information.
CO3- To demonstrate that the theories discussed in class will usually be applied in real-life situations.

FIFTH SEMESTER (Economics 1/4)

Course Name: Development Economics

Course Outcome: On completion of this course, the students will be able to

CO1- Understand and critically evaluate the process of development.
CO2-Interpret the various development strategies and theories to assess the different development paths followed by different societies of the world.
CO3- Gain awareness on the real meaning of development and comprehend how poverty, inequality and environment are linked to the process of development

Fifth Semester (Economics 2/4)

Course Name: INDIAN ECONOMY

Course Outcome: After the completion of this course the students will be able to

CO1-Know the status of Indian economy in some development indicators since independence
CO2-Built up an analytical thought among students to see the relevance of policies and its effects on different sectors.

Fifth Semester (Economics 3/4)

Course Name: International Economics

Course Outcome: After completion of the course, a student will be able to

CO1- comprehend the economic relationships among countries in terms of both trade and monetary issues.
CO2- understand and explain the composition, direction and consequences of international trade, and the determinants and effects of trade policy.

Fifth Semester (Economics 4/4)

Course Name: Intermediate Quantitative Techniques for Economics

Course Outcome: After completing the course, the students will be able to:

CO1- Understand the knowledge of mathematical tools likematrix algebra, multivariable optimization, etc. along with statistical tools of probability, theoretical distribution and time series to build up strong quantitative skill.
CO2- apply these quantitative tools for solving economic problems

SIXTH SEMESTER (Economics 1/4)

Course Name: Assam Economy

Course Outcome: Upon completion of this course, students will be able to

CO1- Know the status of Assam economy in some development indicatorssince independence
Co2- Enhance knowledge about the linkage between human capital formation and different sectors of an economy.
CO3- Built up an analytical thought among students to see the relevance of policies and its effects on different sectors.

Sixth Semester (Economics 2/4)

Course Name: Basics of Econometrics

Course Outcome: Upon completion of this course, students will be able to

CO1-Understand the basic concepts and principles of econometrics.
CO2- Develop an understanding of the components of a linear regression model, including the intercept and slope terms.
CO3-Apply linear regression analysis to real-world data.
CO-4- Understand the meaning and interpretation of a linear regression analysis results
CO5- Employ alternative estimation techniques such as multi-variable regression.

Sixth Semester (Economics 3/4)

Course Name: : FUNDAMENTALS OF FINANCIAL ANALYSIS

Course Outcome: After completing the course, the students will be able to:

CO1-Understand and undertake valuation of both debt and equity instruments
CO2- Gain awareness on the structure and functions of financial markets
CO3- Illustrate the trading in the stocks market and analyze the complexities of the derivative

Sixth Semester (Economics 4/4)

Course Name: Environmental Economics

Course Outcome: After completing the course, the students will be able to:
CO1-Help to develop a comprehensive knowledge and understanding of the issues related to environment and economy.
CO2-Acquaint someone with the issues related to market failure of environmental goods and the instruments which can prevent the damages of market failure of environmental goods.
CO3- Build up a critically analysis as to how an economy should use the natural resources in an optimum way, such that an economy can take up the path of sustainable development.

Department of Education

North Gauhati College

Four Year Undergraduate Programme (FYUGP) Syllabus

Subject : Education

Programme Outcome:

The Four Year Undergraduate Programme (FYUGP) courses offered by the department of Education , North Gauhati College, adheres to the NEP 2020. The programme aims to help students to gain knowledge of Philosophy, Sociology, Psychology, Management, and ICT to set the context of teaching profession and advances the capacities in teaching, research , Project Work and extension work in the field of education. The curricula will also help the students to gain knowledge & skills to deal with Issues related to population, environment, gender equality, different literacy, Yoga & Health Education etc. and respond to emerging issues by applying critical, constructive, and creative thought process. The curricula will also enable the students to use diversified tools & technologies of communications and communication Skills to serve the professional purpose and standards expected from classroom to broader zone of educational activities. Furthermore, the present curricula will develop self-sufficiency, sincerity, independent thinking as education is a lifelong process for empowering the students to face all challenges in their future endeavours.

Program Specific Outcomes (PSOs):

1. Foundational Knowledge of Education: Develop a comprehensive understanding of educational theories, philosophies, policies, and practices, and their application in various educational contexts.

2. Pedagogical Skills: Acquire and demonstrate effective teaching methods, instructional strategies, and classroom management techniques suitable for diverse learners.

3. Research Competency: Develop the ability to conduct educational research, analyze data, and apply findings to improve teaching-learning processes.

4. Educational Psychology Application: Understand and apply psychological principles to support student learning, motivation, and development.

5. Curriculum Design and Assessment: Gain skills to design, implement, and evaluate curricula that meet the needs of learners and educational standards.

6. Technology Integration in Education: Use modern educational technologies and digital tools to enhance teaching, learning, and administrative processes.

7. Social and Ethical Responsibility: Demonstrate a commitment to promoting equity, inclusivity, and ethical practices in educational setting and the broader community.

8. Professional Communication: Exhibit effective communication skills for interaction with students, parents, colleagues, and stakeholders in the education sector.

9. Lifelong Learning: Develop a disposition for continuous professional development and adapt to changing educational trends and challenges.

10. Leadership and Collaboration: Cultivate leadership and teamwork abilities to contribute to institutional growth and community engagement.

Four Year Undergraduate Programme (FYUGP) Syllabus

1 ST SEMESTER Subject Name: Education Course Name: PRINCIPLES OF EDUCATION

Course Code: EDU0100104 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome:

After going through this paper the students will be

- Able to know the meaning, types and sound principles of education.
- Students will be able to get acquainted with the concepts like differ
- Have knowledge about different aims of education and its application in educational setting.
- Able to understand the democratic ideals and set up of education.

Four Year Undergraduate Programme (FYUGP) Syllabus

2 ND SEMESTER

Subject Name: Education Course Name: EDUCATIONAL PSYCHOLOGY

Course Code: EDU0200104 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcomes:

After completion of this course the students will be able to:

- Understand the relationship between education and psychology.
- Explain the need of educational psychology in teaching learning process.
- Describe the nature and theories of learning and role of motivation in learning. Understand the concept of memory, forgetting, attention and interest.
- Understand intelligence, its theories and measurement and acquaint themselves with different types of personality and the adjustment mechanism.
- Understand the types of exceptional children and significance of individual differences in a classroom.

Four Year Undergraduate Programme (FYUGP) Syllabus

3 RD SEMESTER

Subject Name: Education

Course Name: EDUCATIONAL SOCIOLOGY Course Code: EDU0300104 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome: After completion of this paper the learner will be able to:

- Understand the concept and nature of sociology
- Analyse the relationship of sociology with education.
- Understand the concept and nature of culture
- Analyse the relationship of culture with education.
- Understand the concept of socialization and its processes,
- Explain the role of education on socialization.
- Understand the concept, nature and factors of social change.
- Explain the role of education on social change.
- Understand the concept and nature of social group and its types.
- Analyse the difference between social group and crowd.

Four Year Undergraduate Programme (FYUGP) Syllabus

4 TH SEMESTER

Subject Name: Education

Course Name: EDUCATIONAL PHILOSOPHY Course Code: EDU0400104 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome: After completion of this paper the learner will be able to:

- Understand the concept, nature, functions and branches of philosophy.
- Analyse the relationship of philosophy with science.
- Understand the concept, nature, scope and functions of educational philosophy.
- Analyse the relationship of philosophy with education.
- Understand different Indian schools of philosophy.
- Analyse the educational implications of different Indian philosophy.
- Understand different Western schools of philosophy.
- Analyse the educational implications of different Western philosophy.
- Understand the philosophy of great philosophers and their contributions.

Four Year Undergraduate Programme (FYUGP) Syllabus

4 TH SEMESTER

Subject Name: Education Course

Name: DEVELOPMENT OF EDUCATION IN INDIA Course Code: EDU0400204 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome: After completion of this course the learner will be able to:

- Recount the concept of Ancient Indian education system
- Describe the education system in Ancient India, particularly Vedic Education.
- Examine the education system in Medieval India.
- Analyse the education system during British Period .
- Understand the Educational situation during the time of Independence .
- Explain the recommendations and educational importance of different Education . Commission and Committees in post Independent India .
- Analyse the National Policy on Education in different times .
- Accustom with the recent Educational Development in India.

Four Year Undergraduate Programme (FYUGP) Syllabus

4 TH SEMESTER Subject Name: Education Course Name: GUIDANCE AND COUNSELING Course Code: EDU400304 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcomes:

After completion of this course the students will be able to:

- Understand the concept, need and importance of Guidance and Counselling.
- Know the different types and approaches to Guidance and Counselling.
- Acquaint themselves with the organization of guidance service and school guidance clinic.

Four Year Undergraduate Programme (FYUGP) Syllabus

4 TH SEMESTER

Subject Name: Education Course Name: HUMAN RIGHTS, VALUE AND PEACE EDUCATION

Course Code: EDU0400404 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Objectives: After completion of this course the learners will be able to demonstrate the ability to

- Explain the basic concept, nature and scope of human rights .

- Describe the meaning, nature, principles, curriculum and teaching methods of human rights education at different levels of Education.
- Know the role of United Nations on human rights.
- Understand enforcement mechanism in India
- Know the role of advocacy groups

Four Year Undergraduate Programme (FYUGP) Syllabus

5 TH SEMESTER

Subject Name: Education

Course Name: EDUCATIONAL TECHNOLOGY Course Code: 300 – 399 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Objectives:

After completion of this course the learners will be able to demonstrate the ability to:

- Make the students understand the objective of educational technology in teaching learning process.
- Acquaint the students with innovations in the field of education through technology .
- Make the students understand about various methods and devices of teaching .
- Acquaint students with levels, effectives of teaching and classroom management.
- Make the students understand the strategies of effective teaching as a profession .

Four Year Undergraduate Programme (FYUGP) Syllabus 5 TH SEMESTER

Subject Name: Education

Course Name: EMERGING ISSUES IN EDUCATION Course Code: 300 – 399

Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome:

After completion of this unit, students will able to-

- Make the students acquaint with major emerging issues national, state, and local .
- Acquaint the students with the various issues in education that are emerging in the recent. years in the higher education system
- Address the various problems and challenges of education in India at all levels.

Four Year Undergraduate Programme (FYUGP) Syllabus

5 TH SEMESTER

Subject Name: Education Course Name: ENVIRONMENTAL EDUCATION

Course Code: 300 – 399 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome: On completion of this course, the students will be able to

1. Understand the concept of environment and its relation between human beings .

2. Realise the importance of Environmental Education and learn the strategies aware people on environment

3. Discuss on Environmental Issues and Challenges and learn to deal effectively with environmental hazards

4. Evaluate the environmental status at regional and global level and acquire skills to conserve and preserve environment

5. Acquaint themselves with the SDGs and true causes of decline of environmental values among people.

Four Year Undergraduate Programme (FYUGP) Syllabus

5 TH SEMESTER Subject Name: Education

Course Name: RESEARCH METHODOLOGY

Course Code: 300 – 399 (Elective-1) Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome:

After completion of this course the learner will be able to:

- Enable the students to understand the concept of Educational Research.
- Acquaint the students with the different steps of Educational Research.
- Develop an understanding of different types of educational research.
- Acquaint the students about the preparation of Research Proposal.

Four Year Undergraduate Programme (FYUGP) Syllabus

5 TH SEMESTER Subject Name: Education Course Name: DEVELOPMENTAL PSYCHOLOGY Course Code: 300 – 399 (Elective 2) Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome: After completion of this course the learner will be able to: After completion of this course the learner will be able to:

- Understand the meaning, nature, scope and different methods of developmental psychology .

- Understand the pre-natal period of development.
- Know the characteristics and different developmental aspects of infancy period.
- Explain the parental attitude and family role in the development of infants.
- Know the characteristics and different developmental aspects of childhood period.
- Understand the role of family and school in social and personality development of childhood.
- Understand the meaning, characteristics and developmental tasks of adolescence.
- Explain the need and importance of studying adolescence.
- Understand the social, emotional and personality development of adolescence.
- Analyse the role of family, school and peers on adolescents' development.

Four Year Undergraduate Programme (FYUGP) Syllabus

5 TH SEMESTER Subject Name: Education Course Name: TEACHER EDUCATION Course Code: 300 – 399 (Elective 3) Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome:

After completion of this course the learner will be able to:

- Explain the Concept, Scope, Aims & Objectives and Significance of teacher education Acquaint with the development of Teacher Education in India .
- Acquaint with the different organising bodies of teacher education in India and their functions in preparation of teachers for different levels of education .
- Acquaint with the innovative trends and recent issues in teacher education, and be able to critically analyse the status of teacher education in India .
- Understand and conceive the qualities, responsibilities and professional ethics of teachers.

Four Year Undergraduate Programme (FYUGP) Syllabus

5 TH SEMESTER Subject Name: Education Course Name: EDUCATIONAL MANAGEMENT Course Code: 300 – 399 (Elective 4) Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Objectives: After completion of this course the learners will be able to demonstrate the ability to

- Develop an understanding of the basic concept of educational management.
- Enable the students to know about the various resources in education and their application.
- Enable the students to understand the concept and importance of educational planning.
- Enable the students to know about the financial resources and financial management in education .

Four Year Undergraduate Programme (FYUGP) Syllabus

6 TH SEMESTER Subject Name: Education

Course Name: MENTAL HEALTH AND HYGIENE

Course Code: 400 – 499 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome: After completion of this course the learner will be able to:

- Acquaint with the fundamentals and development of mental health and the characteristics of a mentally healthy person.
- Understand the concept and importance of mental hygiene and its relationship with mental health.
- Acquire knowledge about the principles, factors promoting mental health and the role of home, school, and society in maintaining proper mental health.
- Learn the meaning and problem of adjustment and also the different adjustment mechanisms.

Four Year Undergraduate Programme (FYUGP) Syllabus

6 TH SEMESTER

Subject Name: Education

Course Name: EDUCATIONAL MEASUREMENT AND LABORATORY PRACTICAL

Course Code: 400 – 499 Credit: 4 (3+1) Total: 100 (Internal – 20 External – 60+20)

Course Specific Outcome:

After completion of this course the learner will be able to:

- Understand the concept of measurement and evaluation in education.
- Acquaint the students with the general procedure of test construction and characteristics
- of a good test.
- Develop an understanding of different types of educational tests and their uses.
- Acquaint the students about personality test, and aptitude tests.

Four Year Undergraduate Programme (FYUGP) Syllabus

6 TH SEMESTER

Subject Name: Education Course Name: EDUCATIONAL STATISTICS AND PRACTICAL Course Code: 400 – 499 Credit: 4 (3+1) Total: 100 (Internal – 20 External – 60+20)

Course Specific Outcome: After completion of this course the learner will be able to:

- Develop the basic concept of Statistics.
- Be acquainted with different statistical procedures used in Education.
- Develop the ability to represent educational data through graphs.
- Familiarize the students about the Normal Probability Curve and its applications in education.

Four Year Undergraduate Programme (FYUGP) Syllabus

6 TH SEMESTER

Subject Name: Education

Course Name: MENTAL HEALTH AND HYGIENE

Course Code: 400 – 499 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome: After completion of this course the learner will be able to:

- Acquaint with the fundamentals and development of mental health and the characteristics of a mentally healthy person.
- Understand the concept and importance of mental hygiene and its relationship with mental health.
- Acquire knowledge about the principles, factors promoting mental health and the role of home,school, and society in maintaining proper mental health.
- Learn the meaning and problem of adjustment and also the different adjustment mechanisms.
- Familiarise with the concept and issues of positive psychology, mental health of women, role of WHO and stress management.
- Will be able to apply the knowledge gained from this course ,for Upliftment of one's one's mental health.

Four Year Undergraduate Programme (FYUGP) Syllabus

6 TH SEMESTER

Subject Name: Education Course Name: GENDER STUDIES

Course Code: 400 – 499 Credit: 4 Total: 100 (Internal – 20 External – 80)

Course Specific Outcome: After going through this paper the students will be

- able to know the meaning of gender , difference between sex and gender ,types like Family,Marriage, Kinship, Religious institution, Gender Stereotype
- able to understand the meaning of the subject gender studies, its importance and features, different roles on the basis of gender
- able to get acquainted with the process of Socialization and Gender biases in the School ,Family and Society
- have knowledge about different provisions for gender equality
- able to apply gender sensitive approach

DEPARTMENT OF ENGLISH (FYUGP)

NORTH GAUHATI COLLEGE

List of programme outcomes (PO) and course outcomes (CO)

PROGRAMME SPECIFIC OUTCOMES

Programme Specific Outcomes (PSOs):

PSO 1: Exhibit comprehensive knowledge and understanding of English literature, encompassing its historical development, diverse forms, thematic concerns, cultural contexts, and evolving literary practices.

PSO 2: Develop and apply critical thinking skills by engaging with literary theories and criticism to analyze, interpret, and evaluate a wide range of English literary texts.

PSO 3: Demonstrate the ability to analyze, conceptualize, and articulate complex ideas, theoretical frameworks, and research findings related to literatures in English through effective communication.

PSO 4: Assess global issues and multicultural perspectives, integrating ethical values, social responsibility, and environmental awareness into academic inquiry and practice.

Paper 1

English CORE –Semester 1
English Literary and Social History

Course Objective

This paper is designed to introduce students to English literary and social history in terms of ideas and/or events that bear on the production of texts earmarked for study of the basics of English literature. Students will here be expected to familiarise themselves with the literary and social aspirations of English as revealed in its literature through the different periods and ages. Topics are broad and general enough to be readily manageable in the first semester and have been selected with a view to sensitising students to the vast panorama of socio-cultural changes across different ages.

Course Outcome

This paper on English Literary and Social History aims to enable students to acquaint themselves with literary and cultural institutions understand the contexts of literature engage with social and political realities that have impacted English literature learn the different trajectories of social and cultural movement analyse the inter-connections between texts, contexts and influences

situate modes of reading through an examination of social and cultural embeddedness in the context of English literature.

Paper 2

English CORE –Semester-2
Forms, Genres and Concepts of English Literature

Course Objective
This paper is designed to introduce students to the major forms, genres and concepts of English literature.
Students will here be expected to familiarise themselves with the themes, ideas and different generic dimensions of literary writing and practice. The topics are broad and general enough to be readily manageable in the second semester and have been selected with a view to enable students to connect and associate these concepts and forms with reference to texts and their specific contexts.

Course Outcome
This paper on the major forms, genres and concepts of English literature aims to enable students to acquaint themselves with the fundamental categories of literary practice, both in terms of their emergence in history and by reference to the way they have evolved in practice. Students will also be able to situate and envision the interconnections between these terms, apart from engaging with the variations and departures through the study of these concepts and forms.

Paper 3

English CORE-Semester-3
Rhetoric, Prosody, Grammar and Comprehension

Course Objective
This course on Rhetoric, Prosody and Comprehension is designed to enable the graduates to acquire, by the end of this course, a comprehensive knowledge of literary devices and their effective use in both academic and non-academic sectors. Graduates will also be able to develop critical thinking and analytical reasoning which will enable them to think out of the box in their professional lives as well. By the end of the course the graduates should also be able to make a practical application of the information and communication technology that will be used in the classes to illustrate the concepts in rhetoric and prosody. Graduates will further acquire listening, understanding and analytical skills as part of the comprehension component of the course.

Course Outcome:

•A detailed knowledge of the most widely used concepts of rhetoric and prosody in literature in English .

•The ability to identify and use these concepts in both academic and non-academic fields as well as in one's own use of English.
•The practical application of these concepts in close reading of literature.
•The ability to analyze and interpret texts in terms of their literary and representational qualities.

Paper 4

English CORE-Semester-4
British Poetry: Renaissance to Romanticism

Course Objective
This course will introduce the students to some of the best examples of British poetry written between the sixteenth and the early nineteenth century. It will give the students a fair idea of what constitutes the canon within this time frame and make the students cognizant of the dominant genres of the different epochs. The paper will situate the various thematic concerns within their historical contexts.

Course Outcome:

Having completed this paper, the student will be able to locate the poetic text within the contextual framework, it will facilitate the understanding of the genre, themes, structures and the philosophical underpinnings of poetry. Students will be able to distinguish between the subtle differences of the poetic voice in different epochs.

Paper 5

English CORE-Semester-4

British Drama: Renaissance to the Eighteenth Century

Course Objective

This course will encourage the student to understand drama as a distinctive literary genre with unique characteristics. It will introduce the students to some representative examples of British Drama written between the Renaissance and the eighteenth century. The paper will familiarize students with the evolution and growth of drama as the dominant genre during the Renaissance and its displacement in the later epoch. Students will be able to situate the various thematic concerns within their historical contexts and locations

Course Outcome:

Having completed this paper, the student will be able to locate the dramatic text within its historical, contextual and performative framework. Students will understand the generic differences between various modes of drama and recognize the themes and the dialectical interplay that affect the structuring of the plays which will enable various ways of critically engaging with the dramatic text.

Paper 6

English CORE –Semester 4
British Fiction: Augustan to Victorian

Course Objectives:

- Through the carefully selected texts, to give the students an in-depth idea of the evolution and time line of the British novel from Augustan to Victorian times
- To acquaint the students about different novel forms of this time-period such as picaresque fiction and the bildungsroman
- To enlighten the students about the fundamentals of traditional fiction

Course Outcome:

- The students will acquire the necessary knowledge about different contexts that shape novel-writing
- They will be able to analyse novels of the period in terms of elements such as plot, character and setting

Paper 7

English CORE –Semester 4

British Poetry: Victorian to Postmodern

Course Objective: This paper is designed to introduce students to English poetry from the Victorian period to the present. Students will have an opportunity to engage with and read the major poets covering two centuries of verse composition encompassing a variety of poetic styles and practices.

Course Outcome:

•A focus on English poetry of the Victorian age and the following period up to the present.

•An engagement with the essential poetic themes through specific poems.
•A focus on the issues shaping literary traditions in poetry of the stated periods.
• A close processing of cultural imperatives in the development of British poetry up to the present.

Paper 8

English CORE –semester 5
British Drama: Victorian to Postmodern

Course Objective:
This course would enable the students:
• to learn about Modern British Drama from the early years of the twentieth century to the new millennium
• to do close reading of the plays by British playwrights.
•to understand genre, style and theme of these plays.
• to locate British drama within its historical contexts.
• to learn how social and political situations influence playwrights' choice of plot and characterisation.
• learn about Avant Garde or experimental drama.

Course Outcome:
After completion of the course, a student would:
• learn literary tradition, historical and cultural contexts of a play.
• know various new techniques and forms of drama
• learn to analyse a play.
• evaluate gestures and use of time/space by different playwrights.
• apply concepts of dramatic composition and performance
• get ideas of stagecraft, direction and key scene compositions.
• analyse how plays deal with personal and public spaces.
• learn British drama and its significance in World Literature.

Paper 9

English CORE –Semester 5
Life Narratives

Course Objectives:

- Students will be educated about the distinctiveness and variety of the genre of Life Narratives
- At the same time students will be exposed to the range and inclusiveness of the genre, which has many sub-genres that invite study
- Students will be acquainted with narratological approaches which lead to more analytical interpretations of Life Narratives
- They will also learn about the affinities with other genres and disciplines such as History and Fiction.

Course Outcome:

At the end of the Course the students should be able to

- Go beyond the traditional approaches to study Life Narratives, which are often confined to splitting the genre into biographies and autobiographies of canonical western authors.
- Appreciate the broader conditions and contexts that enable and nurture Life Narratives in specific junctures of history
- Be equipped to closely look at themes and strategies employed by the writers and write critical essays on them.

Paper 10

English CORE –Semester 5
Fiction: Modern and After

Course Objectives:
This paper is designed to

• Give students an overview of the development of fiction in the English language during the 20th &
21st centuries
• Familiarize them with the contexts in which fiction emerges in different cultures in this period
• Acquaint them with themes and concerns of this fiction

Course Outcome:
• Comprehensive historical knowledge of fiction in the 20th and 21st centuries (disciplinary attribute)
• Critical thinking (critical and analytical ability to understand contemporary life and times through
the fiction)
• Creativity (Enhanced imagination and emotional intelligence through exposure to a variety of

human situations and experiences in fiction)
• Multicultural spirit (Broad perspective on diversity and multiple cultures)

Paper 11

English CORE –Semester-5
Literary Criticism

Course Objectives:
This paper is designed to

• Provide learners with a foundational understanding of the genesis and development of the field.
• Familiarize learners with the various concept and thoughts generic to the field.
• Provide training into critical approached to various genres of literature.
• Provide insights into various critical tools required for the study of literature.

Course Outcome :
• Comprehensive historical knowledge of the growth of criticism from the beginning to the 20th century.
• Critical ability to comprehend and examine texts.
• Critical understanding of the difference between genres of literature.

Paper 12

English CORE –Semester-6
Women's Writing

Course objective:
This course will acquaint students with women's writing across genres, cultures and historical periods. They will study these writings with the help of some key concepts and ideas in women's/feminist studies. The study of the specific texts will develop the students' critical thinking and analytical abilities. They will acquire knowledge of different cultures and the challenges faced by women in diverse social settings. They will develop empathy and gender sensitivity which will help them to tackle problems in real life situations.

Course Outcome:
• An understanding of the basic concepts which are of use in analyzing women's writing
• A familiarity with women's writing across genres, times and cultures
• An ability to analyze a text setting it against its socio-cultural and historical background
• An appreciation of the basic themes, issues and stylistic features of a particular piece of women's writing.

Paper 13

English CORE-Semester-6
Literature and the Environment

Course Objective: To equip students with a comprehensive knowledge of multiple perspectives on the relationship between literature and environment.
• To provide students with a historical and contextual knowledge of the representation of and approaches to the environment through literature.
• To develop skills in critical analysis, research, and writing, which will enable the students to engage in scholarly discussions on this area.
• To develop in the students a critical vocabulary pertaining to the field of environmental humanities

Course Outcome:

This course on Literature and the Environment focuses on exploring the relationship between literature and the environment, which has been an ongoing topic of exploration for many decades now. Literature has the ability to capture and reflect the myriad and complex relationships between humans, non-human animals and the environment. The course thus aims to provide a comprehensive understanding of the ways in which environmental concerns and the ecological crisis in the contemporary world are represented and addressed in literature.

Paper 14

English CORE –Semester 6
Northeast Indian Literature

Course Objectives:
This course on Northeast Indian Literature is designed to familiarize students with the literature emerging from the 8 states of Northeast India so that as students from the region they know the history, culture, oral and writing traditions as well as the diversity of the region. While some writers write in English, some works will be read in English translations. The course aims:

• To provide a sampling of literatures in English and in translation
• To train students to appreciate literature emerging from Northeast India
• to make students see how folk stories, myths and legends frame the narratives of the region
• To introduce students to the themes, concerns and styles adapted by the writers and also look at aspects which are specific to the region and find reflection in their works

Course Outcome:

Having studied core English literature in the previous semesters the students are expected to expand their horizons of English studies which includes literatures other than British. By the end of the course the students are expected to have developed an understanding of:

• The Folk in Narrative as many writers are seen to draw resources for their work from available folk forms and tales.
• Myths and Legends how they are reworked and find expression in the prescribed texts.
• The Diverse Traditions, History and Landscape specific to each state of the region which find reflection in the representative works.

Paper 15

(Any one option)
English CORE –Semester-6
Indian Writing (Option A)

Course Objectives:
The course aims to:

• give the student a taste of Indian writing from different regions of the country.
• to make students see how different historical and cultural backgrounds of the various Indian languages and literatures add to the complexity of Indian Writing.
• To introduce students to the themes, concerns and styles adapted by the writers and also look at aspects which are specific to the region and find reflection in their works

Course outcome:

• Critical thinking (A wide familiarity with the range of themes that are evoked from the Indian context; the rich and innovative styles used by the writers; the Indian literary landscape; concepts in postcolonial studies and the practical application of these in reading and interpreting Indian literature.)
• Analytical reasoning/thinking (The ability to critically analyze and interpret texts in terms of their literary and cultural qualities with specific reference to the Indian literary landscape, and an awareness of the political aspects of any literary representation.)
• Research-related skills (The ability to problematize concepts in Indian literature and culture and consequently to ask relevant questions regarding them.)
• Creativity (An ability to view a problem or situation from multiple perspectives to develop a richer, more nuanced, and more analytical responses to it)
• Multicultural competence and inclusive spirit (A keen ability to observe and analyze the attitudes and beliefs of diverse cultures as reflected in literature. Comprehend the comprehensive

knowledge of the values and traditions of various cultures. Development of a sensitive and empathetic understanding of diverse cultures, identities, and the literary works they inspire)

Paper 15

(Any one option)
English CORE –Semester-6
American Literature (Option B)

Course Objectives:
This paper is designed to
• Give students a general understanding of the development of American Literature
• Familiarize them with historical contexts of this literature
• Acquaint them with themes and forms that make this literature distinctive

Course Outcome:
• Comprehensive literary-historical knowledge (disciplinary attribute)
• Critical thinking (critical and analytical ability in comprehending today's world)
• Creativity (Enhanced imagination and emotional intelligence through exposure to a variety of situations in American literary experience)
• Multicultural spirit (Broad perspective on diversity and multiple cultures)
• Empathy (Ability to empathize with and understand human suffering and the creative expression of moods and emotions

Paper 15

(Any one option)
English CORE –Semester-6
Shakespeare (Option C)

Course Objectives:
• Give students a sense of Shakespeare in his time
• Acquaint them with Shakespeare's plays, poetry, and themes
• Point them towards the afterlife of Shakespeare in other sites, media and forms

Course Outcome:
• Comprehensive knowledge of the subject of this paper
• Creativity (Think in new ways about issues and concerns of our world)
• Communication skills (Articulate complex thoughts with clarity and precision)
• Research related skills (Undertake research in the fields explored)

• Multicultural competence and inclusive spirit (Demonstrate national and global perspective on the field and sympathy for alternative modes of expression in the arts)
• Value inculcation (Demonstrate humanist, ethical and moral values)
• Empathy (Identify with and understand other perspectives and feelings)

Paper 15

(Any one option)
English CORE-Semester 6
Contemporary Writing (Option D)

Course Objectives:

This paper is designed to introduce students to writings of the contemporary period from a variety of locations and cultures. Students will have an opportunity to engage with and read the major writers encompassing a variety of writing styles and practices and in different genres.

Course Outcome
• A focus on contemporary writing through a reading of important texts.
• An engagement with the essential themes through a sustained critical assessment.
• A focus on the issues shaping literary traditions in the contemporary world.
• A close processing of cultural imperatives in the development of writing of the present times

DEPARTMENT OF GEOGRAPHY
Programme Outcome (PO)
Programme Specific Outcome (PSO)
Course Outcome (CO)

Programme Outcome (PO) – Department of Geography

Four-Year Undergraduate Programme (FYUGP), Gauhati University

The Four-Year Undergraduate Programme (FYUGP) offered by the Department of Geography, Gauhati University, follows the National Education Policy (NEP) 2020 framework. The primary objective of the programme is to develop competent and skilled geographers equipped with scientific and analytical understanding of spatial patterns and processes, both physical and human.

The course nurtures students for careers in **academic research, environmental management, regional and urban planning, disaster management, geoinformatics (GIS and Remote Sensing), and resource assessment**. Graduates will be eligible for employment in **state and national level services such as UPSC, APSC, Indian Meteorological Department (IMD), Town and Country Planning, and organizations like ISRO, NRSC, and environmental consultancies**.

In addition to technical skills, the programme enhances **critical thinking, scientific temperament, research aptitude**, and the ability to propose sustainable solutions to real-world geographic and environmental challenges. The curriculum emphasizes **field-based learning, data interpretation, cartographic techniques**, and the use of geospatial tools.

Furthermore, students are trained for competitive examinations and research-based careers while being inculcated with **ethical values, environmental consciousness, cultural appreciation**, and a strong sense of **responsible citizenship**.

Programme Specific Outcome (PSO) – Department of Geography

Four-Year Undergraduate Programme (FYUGP), Gauhati University

This course enables students to acquire a comprehensive understanding of both **physical and human geography**, with a focus on the spatial patterns and interrelationships between people, place, and environment. Students gain in-depth knowledge of the **geographical features of India and the Northeast region, including Assam**, covering aspects such as landforms, climate, natural resources, and population distribution.

They explore topics related to **economic geography, regional development, urbanization, agriculture, industrial location, transport systems, and environmental management**. The course also includes the **study of global geographical issues**, such as climate change, globalization, and sustainable development, along with the geography of continents and major countries like the USA, China, and Japan.

Students are trained in **cartographic techniques, statistical methods, and geospatial technologies (GIS and Remote Sensing)** for spatial analysis and representation of data. They also learn **research methodology in geography**, including field survey techniques and report writing, which equip them for academic and applied research.

The programme emphasizes **scientific reasoning, critical thinking, and environmental awareness**, helping students to understand and address real-world challenges. It fosters a deep appreciation for **cultural diversity, regional identity, and the dynamic human-nature relationship**, preparing them for careers in education, planning, research, environmental consultancy, and civil services.

COURSE OUTCOME

First Semester

Course Name: Introduction to Physical Geography

- To introduce students to the principles of physical geography and their applications.
- To enable students to develop a deep understanding of the processes that drive physical geography.
- To enable students to apply the principles of physical geography to practical real world situations.

Second Semester

Course Name: Introduction to Human Geography

- To understand the basic concepts, theories, and approaches of human geography.
- To develop the skills required to analyze and interpret geographical phenomena
- To appreciate the importance of human geography in understanding contemporary world issues and challenges.

Third Semester

Course Name: Geography as a Spatial Science

- Understanding of the basic concepts of geography as a spatial science.
- Understanding of the methods of spatial analysis and their application in analysing geographic processes.
- Ability to critically analyse the spatial dimensions of a range of geographic processes

Fourth Semester

Course Name: Geomorphology

- This course will help students to understand the evolution and development of various land-forms and the associated geomorphic processes in different geo environmental settings.
- It enables students to apply geomorphic knowledge and techniques to investigate different land features and the causes of their changes in spatiotemporal contexts.
- it will help students to get exposure to the theories and concepts related to the development of the earth and its relief features.

Course Name: Population and Settlement Geography

- The paper will be useful for students in developing ideas about spatio-temporal changes in the characteristics of population and settlement and the factors associated with them.
- The paper will be useful for students preparing for various competitive exams including civil services.

Course Name: Geography of India

- The paper will be useful for students in developing an understanding of Indian geography and its various dimensions.
- It will also be useful for students preparing for various competitive examinations including civil services.

Course Name: Cartographic Techniques

- Understanding the importance of various cartographic techniques in geographical study General understanding of map type, map scale and map content.
- An acquaintance of different cartographic techniques for the representation of various facets of physical and human geographic data of any area.

Fifth Semester

Course Name: Climatology, Biogeography and Oceanography

- Students will acquaint themselves with the primary concepts of Climatological, biogeographical and oceanographic factors.

Course Name: Quantitative methods in Geography

- Thorough understanding of the statistical methods and techniques used in geographical studies.
- Understanding of tabulation, analysis and interpretation of geographical data.

Course Name: Social, Cultural and Political Geography

- This course will help equip the students to comprehend various social and political aspects of phenomena and their interface within the realm of geography.
- The paper will be very useful for students preparing for various competitive examinations including civil services.

Course Name: Economic and Resource Geography

- The paper will be useful for students in developing ideas on how geographical aspects organize the economic space and will offer perspectives to students if they wish to pursue a research programme associated with economic perspectives.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services.

Sixth Semester

Course Name: Geography of Environment and Development

- This paper will be useful for students in developing ideas on environmental issues including disasters that geographers need to address.
- This paper will be useful for students preparing for different competitive exams including civil services along with enhancing services to society in addressing awareness levels towards the environment.

Course Name: Introduction to Remote Sensing and GIS

- The paper remains useful for students in developing skills in spatial data analysis to pursue a research programme.
- Understanding the use of Different RS and GIS softwares

Course Name: Surveying Techniques

- Understanding the importance of various field surveying techniques in geographical study General understanding of preparation techniques of different types of plans and map
- An acquaintance of different surveying tool and techniques for the representation of various spatial objects/phenomena.

Course Name: Urban Geography

- This paper introduces the students to the field of urban geography and its major aspects.
- It seeks to develop new insights among students on the relevance of an urban geography and associated problems in a rapidly urbanizing world.

Course Name: Geography of North East India

- The paper will be useful for students in developing an understanding of native regional geography and its various unique dimensions.
- It will also be useful for students preparing for various competitive examinations including civil services.

DEPARTMENT OF HISTORY
Programme Outcome (PO)
Programme Specific Outcome (PSO)
Course Outcome (CO)

Programme Outcome (PO): The Four Years Under graduate Programme (FYUGP) course offered by the department of history, Gauhati University, adheres to the NEP pattern. The goal of the course is to produce competent and skilled researchers in scientific history who can be employed in academic researches and implement their gained knowledge in the areas of general history, history of ecology and environment, tools and technology, and regional history. They will be eligible for state and national level services like UPSC,APSC, Archeological Survey of India, museum etc. The course is also designed to improve the critical thinking, scientific attitude, research aptitude and providing solution to the research problems. This leads to solution to the practical problems. Thus, they are trained for competitive examinations and research related jobs and they are imparted knowledge on ethical values, culture and tradition of Indian society since ages, environmental awareness and be a good and responsible citizen.

Programme Specific Outcome (PSO): This course enables students to learn the ancient, medieval and modern history of India and Assam. They learn about their society, economy and culture. The political history of India under different regimes has been discussed elaborately. They learn about the national movement in India and writing trends on national movement in India. The students also learn the history of different ancient civilizations of the world. The students also get to learn the elaborate history of Europe and developed countries of Asia such as China and Japan. Students also learn the different stages of development of science and technology in India. The students are imparted knowledge on research methodology in history and historiography of different periods of the world.

COURSE OUTCOME

FIRST SEMESTER (History 1/1)

Course Name: History of India (Up to 1206 CE)

Course Outcome: Upon completion of this course, a student will be able to

CO1-explain the emergence of state system in North India as well as development of imperial state structure and state formation in South India in the early period

CO2-They will be able to relate the changes and transformations in polity of early India and the linkages developed through contacts with the outside world

SECONDSEMESTER (History 1/1)

Course Name: History of India (1206-1757 CE)

Course Outcome: Upon completion of this course, students will be able to:

CO1-Explain the political transition that took place under the Sultanate and the Mughals and how it changed the geo-political structure between 1206-1757.

CO2-Identify the regional kingdoms and analyse their administration and polity.

CO3-Explain the formation of different pre-modern states apart from the Sultanate and the Mughals during this period along with their administrative system, political ideologies, legitimation, and the institution of kingship.

THIRD SEMESTER (History 1/1)

Course Name: History of India (c. 1757 to 1947 CE)

Course Outcome: Upon completion of this course, students will be able to:

CO1-Explain the major factors that led to the establishment and consolidation of British rule in India.

CO2-Identify the events, personalities and the process that led to development of resistance against British colonial rule and the eventual growth of Indian nationalist movement that ultimately led to the end of the British rule in the country.

FOURTH SEMESTER (HISTORY 1/4)

Course Name: History of Assam (up to 1826 CE)

Course Outcome: After completion of this course a student will be able to:

CO1-Explain in general outline the history of Assam from the earliest times to the advent of the British.

CO2-Identify major events and personalities in the political history of Assam from the earliest times to the occupation of Assam by the English East India Company

Fourth Semester FYUGP (HISTORY 2/4)

Course name: Social Formation and Cultural Patterns of the Ancient and Medieval World

Course Outcome: After completion of this course a student will be able to:

CO1-Describe some of the most significant events and societies of pre-modern world.

CO2-Explain political events relating to the ancient Greece city states and Rome.

CO3-Analyse the complexities of historical forces in West Asia and the rise of Islam.

Fourth Semester FYUGP (History 3/4)

Course Name: History: Concepts and Ideas

Course Outcome: After completion of this course a student will be able to:

CO1-Explain the concepts and scope of History.
CO2-Compare and contrast History with other disciplines.
CO3-Analyse the traditions of historical writing.
CO4-Evaluate critical issues relating to the subject of History.

4th Semester FYUGP (HISTORY 4/4)

Course Name: Social and Economic History of India (Up to 1206 CE)

Course Outcome: After completion of this course a student will be able to:

CO1-Explain in general outline the economic history of Early India.

CO2-Analyse the phases of development of economy from pastoral to Settled Agriculture

CO3- Identify major factors that influenced society and religions.

CO4-Appreciate art and architecture of Ancient India

FIFTH SEMESTER, FYUGP (HISTORY 1/4)

Course Name: Rise of the Modern West

Course Outcome: On completion of this course, the students will be able to

CO1-Explain the major trends and developments in the Western world between the 14th to the 16th century CE.

CO2-Analyse the significant historical shifts and events and the resultant effects on the civilizations of Europe in the period.

Fifth Semester FYUGP (HISTORY 2/4)

Course Name: History of Europe (1648-1870 CE)

Course Outcome: After the completion of this course the students will be able to

CO1-Evaluate the historical evolution and political developments that occurred in Europe in the period between 1648 to 1870.

CO2-Analyse the evolution of social classes, nation states, evolution of capitalism and nationalist sentiment in Europe.

CO3-Relate to the variety of causes that dragged the world into devastating wars in the intervening period.

Fifth Semester FYUGP (HISTORY 3/4)

Course Name: History of East Asia: China and Japan (1839-1949)

Course Outcome: After completion of the course, a student will be able to

CO1-Explain the gradual opening of China and the increasing influence of European powers therein.

CO2-Analyse the reaction to Western imperialism up to the establishment of the Communist Republic in modern China.

CO3-Describe Japan's transition from feudalism to modernity, internal reconstruction, changes in socio-economic and political structures up to the rise of militarism.

Fifth Semester FYUGP (HISTORY 4/4)

Course Name: Social and Economic History of India (1206-1757 CE)

Course Outcome: After completing the course, the students will be able to:

CO1-Describe the changes in the society of medieval India including the rise of nobility and the Bhakti and Sufi movements.

CO2- Analyse how the economy of Medieval India developed under the Sultanate and the Mughal rule.

SIXTH SEMESTER, FYUGP (HISTORY 1/4)

Course Name: History of Assam (1826-1947 CE)

Course Outcome: Upon completion of this course, students will be able to

CO1-Describe the annexation of Assam by the imperialist British forces.

CO2-Explain the expansion and consolidation of the British colonial rule in Northeast India.

CO3-Analyse the development of nationalism in Assam and its role in India's freedom struggle.

Sixth Semester FYUGP (HISTORY 2/4)

Course Name: Social and Economic History of Assam (Up to 1947 CE)

Course Outcome: Upon completion of this course, students will be able to

CO1-Analyse the socio-economic history of Assam including among others the development of caste system, religious beliefs, agriculture and land system.

CO2-Explain the development trade and commerce, various agricultural regulations, plantation economy, development of modern industries, transport system, education, the emergence of middle class, development of literature and press, and growth of public associations.

CO3-Appreciate the diversity of Assam.

Sixth Semester FYUGP (HISTORY 3/4)

Course Name: History of Europe (1870-1945 CE)

Course Outcome: After completing the course, the students will be able to:
.
CO1-Explain the major political developments in Europe from 1870 το 1939.

CO2-Describe how the rise of two unified nations of Germany and Italy gave rise of intense imperialist contest the world over.

CO3-Analyse the causes and consequences of World War I and the developments leading to World War II.

Sixth Semester FYUGP (HISTORY 4/4)

Course Name: Social and Economic History of India (1757-1947 CE)

Course Outcome: After completing the course, the students will be able to:

CO1-Describe how the imperial British rule economically exploited India and caused drain of wealth.

CO2-Analyse how the colonial encounter effected social change in India.

CO3-Appreciate the socio-cultural diversity of India.

DEPARTMENT OF MATHEMATICS

Programme Outcome (PO)

Programme Specific Outcome (PSO)

Course Outcome (CO)

Programme Outcome (PO): Communicate mathematics effectively by oral, written, computational and graphic means, Create mathematical ideas from basic axioms, Gauge the hypothesis, theories, techniques and proofs provisionally, Utilize mathematics to solve theoretical and applied problems by critical understanding, analysis and synthesis, Identify applications of mathematics in other disciplines and in the real world, leading to enhancement of career prospects in a plethora of fields, Appreciate the requirement of lifelong learning through continued education and research, Demonstrate comprehensive knowledge about current research in the subject of specialisation; critical observation to identify research problems and to collect relevant data from a wide range of sources, analysis and interpretation of data using methodologies as appropriate to the area of specialisation for formulating evidence based research output, In Career development shows proficiency in academic, professional, soft skills and employability required for higher education and placements, Work in teams with enhanced inter-personal skills leadership qualities.

Programme Specific Outcome (PSO): To develop the ability to think critically, To develop the ability to think logically & analytically, To use mathematical reasoning in everyday life, Ready for research

COURSE OUTCOME (CO)

FIRST SEMESTER (Mathematics 1/1)

Course Name: Classical Algebra

Course Outcome: **CO 1 :** Employ DeMoivre's theorem in a number of applications to solve numerical problems
CO 2 : Learn the basic concepts of exponential, logarithmic and hyperbolic functions of complex numbers.

CO 3 : Learn how to find the nature of the roots of a given polynomial equation by Descartes' rule, also learn about symmetric functions of the roots of cubic and biquadratic equations

CO 4 : Recognize consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix. Find inverse and rank of a matrix

CO 5 : Learn how to solve cubic and biquadratic equations.

SECOND SEMESTER (Mathematics 1/1)

Course Name: Calculus

Course Outcome: **CO1 :** Understand continuity and differentiability in terms of limits.

CO 2 : Describe asymptotic behaviour in terms of limits involving infinity.
CO 3 : Understand importance of mean value theorems.

THIRD SEMESTER (Mathematics 1/1)

Course Name: Ordinary Differential Equations

Course Outcome: **CO1 :** Learn basics of 1st order ordinary differential equations and 2nd order linear differential equations.

CO 2 : Learn different techniques for solving the differential equations**.**

FOURTH SEMESTER (Mathematics 1/4)

Course Name: Real Analysis

Course Outcome: **CO 1:** Understand many properties of the real line R, including completeness and Archimedean properties.

CO 2: Learn to define sequences in terms of functions from N to a subset of R.

CO 3: Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.

CO 4: Apply limit comparison tests for convergence, the ratio, root, Rabbe's, integral tests for convergence of an infinite series of real numbers.

CO 5: alternating series and absolute convergence of an infinite series of real numbers.

Fourth Semester FYUGP (Mathematics 2/4)

Course name: Complex Analysis (with practical)

Course Outcome: **CO 1 :** Learn the significance of differentiability of complex functions leading to the understanding of Cauchy−Riemann equations.

CO 2 : Learn some elementary functions and valuate the contour integrals.

CO 3 : Understand the role of Cauchy−Goursat theorem and the Cauchy integral formula.

Fourth Semester FYUGP (Mathematics 3/4)

Course Name: Analytical Geometry

Course Outcome: **CO1 :** Learn transform coordinate systems.

CO 2 : Learn about pair of straight lines.

CO 3 : Have a clear understanding of the conic sections and related properties.

CO 4 : Recognise three dimensional surfaces represented by equations of the second degree.

CO 5 : Learn two different systems of coordinates which are very useful to define the position of a point in space.

CO 6 : Acquire basic concepts of Vector Algebra and understand the use of geometric view of vectors in Coordinate Geometry.

4th Semester FYUGP (Mathematics 4/4)

Course Name: Number Theory

Course Outcome: **CO 1 :** Explain division algorithm, Euclid's algorithms and greatest common divisor

CO 2 : Explain the concepts of congruences, linear congruences.

CO 3 : Explore the Chinese Remainder theorem to solve simultaneous linear congruences.

CO 4 : Explain Fermat's theorem and Wilson's theorem.

CO 5 : Solve a range of problems in number theory.

CO 6 : Apply mathematical ideas and concepts within the context of number theory.

CO 7 : Communicate number theoretic techniques to a mathematical audience.

FIFTH SEMESTER, FYUGP (Mathematics 1/4)

Course Name: Group Theory-I

Course Outcome: **CO1** : Recognize the mathematical objects called group, ring and fields.

CO 2 : Link the fundamental concepts of groups and symmetries of geometrical objects.

CO 3 : Explain the significance of the notion of permutation groups, cosets, cyclic groups, normal subgroups and factor groups.

CO 4 : Analyse consequences of Lagrange's theorem and Fermat's Little theorem.

CO 5 : Describe structure preserving mappings between groups and their consequences.

CO 6 : Describe the fundamental concepts in ring theory such as of the subrings, integral domains, ideals, factor rings and fields.

Fifth Semester FYUGP (Mathematics 2/4)

Course Name: Multivariate Calculus

Course Outcome: **CO1 :** Learn the conceptual variations when advancing in calculus from one variable to multivariable discussion.

CO 2 : Understand the maximization and minimization of multivariable functions subject to the given constraints on variables.

CO 3 : Learn about inter-relationship amongst the line integral, double and triple integral formulations.

CO 4 : Familiarize with Green's, Stokes' and Gauss divergence theorems

Fifth Semester FYUGP (HISTORY 3/4)

Course Name: Theory of Real Functions

Course Outcome: **CO1 :** Have a rigorous understanding of the concept of limit of a function.

CO 2 : Learn about continuity and uniform continuity of functions defined on intervals.

CO 3 : Understand geometrical properties of continuous functions on closed and bounded intervals.

CO 4 : Learn extensively about the concept of differentiability using limits, leading to a better understanding for applications.

CO 5 : Know about applications of mean value theorems and Taylor's theorem.

Fifth Semester FYUGP (Mathematics 4/4)

Course Name: Numerical Analysis (with practical)

Course Outcome: **CO1 :** Learn some numerical methods to find the zeroes of nonlinear functions of a single variable and solution of a system of linear equations, up to a certain given level of precision.

CO 2 : Know about iterative and non-iterative methods to solve system of linear equations.

CO 3 : Know interpolation techniques to compute the values for a tabulated function at points not in the table.

CO 4 : Integrate a definite integral that cannot be done analytically.

CO 5 : Find numerical differentiation of functional values.

CO 6 : Solve differential equations that cannot be solved by analytical methods.

SIXTH SEMESTER, FYUGP (Mathematics 1/4)

Course Name: Linear Algebra

Course Outcome: **CO 1 :** Learn about linear spaces and their general properties, linear dependence and linear independence of vectors, bases, and dimension of vector space.

CO 2 : Basic concepts of linear transformations, dimension theorem, matrix representation of a linear transformation, and the change of coordinate matrix.

CO 3 : 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.

CO 4 : Compute inner products and determine orthogonality on vector spaces, including Gram−Schmidt orthogonalization to obtain orthonormal basis.

Sixth Semester FYUGP (Mathematics 2/4)

Course Name: Partial Differential Equations (with practical)

Course Outcome: **CO 1 :** Formulate, classify and transform first order PDEs into canonical form.

CO 2 : Learn about method of characteristics and separation of variables to solve first order PDE's.

CO 3 : Classify and solve second order linear PDEs.

CO 4 : Learn about Cauchy problem for second order PDE and homogeneous and non-homogeneous wave equations.

CO 5 : Apply the method of separation of variables for solving many well-known second order PDEs.

Sixth Semester FYUGP (Mathematics 3/4)

Course Name: Metric spaces

Course Outcome: **CO 1 :** Learn various natural and abstract formulations of distance on the sets of usual or unusual entities. Become aware one such formulations leading to metric spaces.

CO 2 : Analyse how a theory advances from a particular frame to a general frame.

CO 3 : Appreciate the mathematical understanding of various geometrical concepts, viz. Balls or connected sets etc. in an abstract setting.

CO 4 : Learn about the two important topological properties, namely connectedness and compactness of metric spaces.

Sixth Semester FYUGP (Mathematics 4/4)

Course Name: Mechanics

Course Outcome: **CO1 :** Know about the concepts in statics such as moments, couples, equilibrium in both two and three dimensions.

CO 2 : Understand the theory behind friction and center of gravity.

CO 3 : Know about conservation of mechanical energy and work-energy equations.

DEPARTMENT OF PHYSICS
Programme Outcome (PO)
Programme Specific Outcome (PSO)
Course Outcome (CO)

Programme Outcome (PO) – Department of Physics

The Four-Year Undergraduate Programme (FYUGP) offered by the Department of Physics, Gauhati University, is designed in accordance with the National Education Policy (NEP) 2020 framework. The main aim of the programme is to cultivate highly skilled and knowledgeable physicists who possess a deep understanding of the fundamental principles and theories of physics, both classical and modern. Students will be equipped with a strong analytical foundation, enabling them to comprehend the physical world and its phenomena across various scales.

Alongside developing technical proficiency, the programme fosters critical thinking, scientific inquiry, and problem-solving abilities. It emphasizes the practical application of theoretical knowledge through laboratory experiments, computational modelling, and hands-on projects. Students are trained in cutting-edge areas such as quantum mechanics, electromagnetism, thermodynamics, astrophysics, condensed matter physics, and computational physics, using advanced tools and techniques.

Programme Specific Outcome (PSO) – Department of Physics

The primary objective of this course is to enable learners to gain a comprehensive understanding of various fundamental topics in the physical sciences. These include mechanics, electrostatics, thermodynamics, wave optics, relativity, atomic physics, quantum mechanics, astrophysics, electronics, and electromagnetism. Additionally, the course is designed to develop the learners' problem-solving skills, particularly by applying mathematical concepts and computer programming techniques to address challenges in these areas of study. Through this, students will be equipped with both theoretical knowledge and practical skills necessary for tackling complex physical science problems.

COURSE OUTCOME (CO) – Department of Physics

First Semester

Course: Mathematical Physics and Mechanics (PHY101)

- On successful completion of the course, students will be able to understand the calculus of vectors and concept of curved spaces which play central roles in developing insight of the theories of physics.

- They will learn the powerful method of computation through Dirac delta function which often appears in complex problems of physics.
- Students will be able to understand and apply the concepts of dynamics of particles, energy, oscillation and basic properties of matter in various problems of physics, technology and engineering.
- They will be trained in concept realisation through laboratory practices.

Second Semester

Course: Mathematical Physics & Electricity and Magnetism (PHY151)

- After the successful completion of the course, students will be able to understand methods of solving various differential equations appearing in physics. It will give an idea of how to study evolution of a physical system.
- Through matrix algebra students will be able to compute various matrix operations which are required for solving physical problems.
- They will be able to understand electric field and magnetic fields in matter, dielectric properties of matter, magnetic properties of matter, application of Kirchhoff's law in different circuits, and application of network theorem in different circuits.
- The students will also get accustomed to using multimeters and potentiometers, and they will be able to determine some of the important physical quantities related to electricity and magnetism for a better understanding of the topic.

Third Semester

Course: Waves and Optics (PHY201)

- On successful completion of the course students will understand Simple Harmonic Oscillation and superposition principle, understand the classical wave equation in transvers and longitudinal waves and solutions of few physical systems on its basis.
- They will understand the concept of normal modes in transvers and longitudinal waves, understand the interference as superposition of waves from coherent sources and also understand the basic principle of Young's double slit experiment, Fresnel's Biprism, Newton's Rings, Michelson interferometer etc.
- Students will understand the basic concept of diffraction, Fresnel and Fraunhofer diffraction from a slit, understand the concept of polarisation of light, the production and detection of polarized light, understand working principle of prism, biprism, spectrometer, Newton's ring apparatus, grating, CRO, sodium and mercury light sources etc.

Fourth Semester

Course: Classical Mechanics (PHY251)

- On successful completion of the course students will be able to apply the laws of classical dynamics to physical problems of motion of particles, systems of particles and fluids in various fields of physics and natural science as a whole.
- They will also get the exposure of the idea of how space and time play role in dynamics of matter.

Course: Quantum Mechanics I (PHY252)

- On successful completion of the course students will be able to learn physical and mathematical fundamentals of Quantum physics, and various topics in it.
- These concepts are used in various branches of physics, like condensed matter physics, lasers, quantum statistics, atomic and molecular physics, particle physics, astrophysics and optics, etc.

Course: Analog Electronics (PHY253)

- On successful completion of the course, students will be able to understand the physics of semiconductor p-n junction and devices such as rectifier diodes, Zener diode, photodiode, etc.
- They will understand the basics of bipolar junction transistors, transistor biasing, and stabilization circuits; the concept of feedback in amplifiers and the oscillator circuits.
- Students will also have an understanding of operational amplifiers and their applications.

Course: Mathematical Physics (254)

- On successful completion of the course, the students will be equipped with the techniques related to solving partial differential equations using separation of variables method, application of Fourier series analysis, solving complex integrations, dealing with tensors and probability distributions which are relevant while dealing with wave mechanics, electrodynamics, quantum mechanics, theory of relativity and experimental physics.

Fifth Semester

Course: Atomic and Molecular Physics (PHY301)

- Students will be ability to describe the atomic spectra of one and two valance electron atoms and will also understand the change in behavior of atoms and corresponding modification of their spectra in external applied electric and magnetic field.
- They will understand the basic principle of pure rotational, vibrational, Rotation-Vibration and Raman spectra of molecules and their few applications.

Course: Condensed Matter Physics (PHY302)

- On successful completion of the course students will be able to acquire the basic knowledge of crystal structure, bonding in solids and elementary idea lattice dynamics of materials, dielectric, ferroelectric and magnetic properties of solids, the physics of electrons in solids, basic idea about nanomaterials, thin film and soft matter and understand the basic concept in superconductivity.

Course: Heat and Thermodynamics (PHY303)

- Upon completion of this course, students will be able to learn thermal properties of gas molecules and their collisions. With this course, students will acquire knowledge of thermodynamics with practical insights into thermal physics, which will help them to understand real world situations

Course: Electromagnetic Theory (PHY304)

- After the successful completion of the course, students will acquire the concepts of Maxwell's equations, propagation of electromagnetic (EM) waves in different homogeneous-isotropic as well as anisotropic unbounded and bounded media, production and detection of different types of polarized EM waves, general information of waveguides and fibre optics.

Sixth Semester

Course: Nuclear & Particle Physics (PHY351)

- On successful completion of the course, the students shall be able to understand the structure and properties of a nucleus. They will also know about the properties of strong nuclear force that keeps the nuclei bound. They will learn about the radioactive decays and various laws of radioactive disintegration.
- Students will have adequate knowledge on the construction and working principles of particle accelerators and detectors.
- Moreover, students will be introduced to the world of particle physics – types and interactions. The acquired knowledge can be applied in the areas of nuclear medicine, medical physics, archaeology, geology and other interdisciplinary fields of Physics and Chemistry. It will enhance the special skills required for these fields.

Course: Digital Electronics (PHY352)

- After successful completion of the course student will be able to develop, implement and analyze digital logic circuits and apply them to solve real-life problems and classify different semiconductor memories.

Course: Astronomy and Astrophysics (PHY353)

- On successful completion of this course students will be able to understand the fundamental concepts in astronomy.
- They will be able to apply physics of celestial objects in understanding the universe.
- They will be equipped with the skills required for (i) observational astronomy (ii) virtual observatory tools and (iii) physical concepts of recent frontiers in astrophysics.

Course: Statistical Mechanics (PHY354)

- Upon completion of the course, students will get accustomed to the microscopic origin of thermodynamic processes.
- After successful completion of the course, students will be able to perceive classical and quantum pictures of physical and chemical events.

Department of Political Science

Programme Outcome (PO)

Programme Specific Outcome (PSO)

Course Outcome (CO)

Programme Outcome (PO): The Programme Outcome (PO) for Political Science under the National Education Policy (NEP) 2020 is designed to reflect the broader goals of the NEP, which emphasizes multidisciplinary learning, critical thinking, ethical reasoning, and active citizenship. The programme outcome aims to gain a comprehensive understanding of political thought and systems, governance structures, constitutions, public administration, and international relations from both Indian and global perspectives. The PO encourages development of critical thinking, analytical skills and civic responsibility and foster awareness of regional, national, and global political dynamics. Students will have the capacity to engage in independent research and scholarly inquiry in the discipline. They will have a deep understanding of research methodologies and possess the skills to conduct both qualitative and quantitative research.

Programme Specific Outcome (PSO): Programme Specific Outcome helps student to learn about the Indian Constitution, different strands of political ideology, understand the themes and issues in political thought and thinkers of India, public administration, comparative political systems, international relations and global affairs, public administration and policy analysis, political processes of India, about the role of United Nations in Global Conflict, concept and strands of Feminist thought, politics in Northeast India, rural local governance, various debates surrounding human rights and others. The Department of Political Science aims to enhance teaching and research in Political Science and offer employment-oriented courses in emerging areas like Human Rights, Peace and Conflict Resolution, Gender Studies, Environmental Politics, Green Governance, and Poverty Alleviation.

COURSE OUTCOME

First Semester

Course Name: POL 01-01: Introduction to Political Theory

Course Outcomes:

• CO1: After completing the course students will be better equipped to understand the key concepts in political theory and various related conceptual categories.

• CO2: They will also be in a better position to engage in application of concepts and understand the limitations.

Second Semester:

Course Name: POL 02-01: Indian Government and Politics

Course Outcomes:

CO1: Students will develop an understanding of the legacy of national movement and the principles that shaped the formation and functioning of the Constituent Assembly of India.

CO2: It will help in developing critical thinking about role of ideas and norms in shaping democracy in India. It will make them understand what is constitution and how has the working of contributed to the consolidation of democracy in India.

CO3: Students will be able to make sense of the institutional design, challenges and resilience marking key public institutions in India.

CO4: The students will develop basic understanding on the constitutional provisions related to the legislative procedures in Indian Parliament. It will enhance their understanding related to the procedures; practices related to the passage of a bill from drafting to its passage by the Parliament.

CO5: It will help students in developing a nuanced understanding of the importance of states in Indian politics and how the changing character of federalism in India made states the key player.

Third Semester:

Course Name: POL 03-01: Perspectives on Public Administration

Course Outcomes:

CO1: Students will learn the basic concepts related to Public Administration and its significance.

CO2: Students will understand the major classical and contemporary administrative theories and approaches and a critical thinking on them.

CO3: It will help students to understand importance of personnel administration in an administrative system and issues related to it including civil service neutrality and need, role and independence of Public Service Commission.

CO 4: Students will develop basic understanding on recent debates in public administration.

Fourth Semester:

Course Name: POL 04-01: Understanding International Relations

Course Outcome:

CO1: To make students understand the key theoretical approaches in international relations

CO2: To familiarize students with the history of evolution of international relations in the twentieth century.

CO3: To enable students to comprehend the nature of global economy.

CO4: To demonstrate the basic knowledge of some of the contemporary global issues.

POL 04-02: Political Theory: Concepts and Debates

Course Outcome:

CO1: Understand the dimensions of shared living through these political values and concepts.

CO2: Appreciate how these values and concepts enrich the discourses of political life, sharpening their analytical skills in the process.

CO3: Reflect upon some of the important debates in political theory.

CO4: Develop critical thinking and the ability to make logical inferences about socio-economic and political issues, on the basis of comparative and contemporary political discourses in India.

POL 04-03: Political Processes in India

Course Outcome:

CO1: This Course is helpful in making students familiar with the significant political processes shaping Indian Politics in last seven decades.

CO2: As such, the paper would help the students to know in detail about electoral processes and trends, party system in India, dynamics of Indian politics including regionalism, caste and religion as well as the changing nature of the Indian State.

CO3: Their engagement with the selected scholarly articles included in the reading list will essentially orient them towards the larger intellectual and research tradition on issues of Indian politics.

CO4: The paper will be helpful in terms of competitive examinations including NET/JRF, SLET as well as research in the field of Indian Politics.

POL 04-04: Public Policy and Administration in India

CO1: The students will understand the basic concept of public policy, policy analysis, public policy process and governance. The students also get the knowledge of different stages of public policy in terms of theoretical formulation.

CO2: The student will learn about the principles of financial management, which are necessary for the examination purpose.

CO3: Students will develop basic understanding on the best practices in public administration such as RTI, e-Governance etc.

CO4: The student will learn about the various welfare policies and the role of governance in it.

Fifth Semester

Course Name:

POL 05-01: Western Political Philosophy

Course Outcome:

CO1: It will help the students in understanding the interconnectedness of philosophy and politics and interpret ideas underlying traditions in political philosophy

CO2: It will help to analyze the debates and arguments of leading political philosophers belonging to different traditions.

CO3: The students will be in a position to appraise the relevance of political philosophy in understanding contemporary politics.

POL 05-02: Indian Political Thought

Course Outcome:

CO1: Better understand the themes and issues in political thought of India.

CO2: Compare and contrast positions of leading political thinkers in India on issues that are constitutive of modern India.

CO3: Comprehend the importance of the socio-political context for the emergence of the ideas.

CO4: Assess the relevance of political thought of India in understanding contemporary politics.

POL 05-03a: United Nations and Global Conflict

CO1: To make students learn the importance of United Nations as an organization.

CO2: To enable students to have a basic understanding of the political processes of the United Nations.

CO3: To make students learn the relevance of United Nations and its intervention in global conflicts critically.

CO4: To help students identify and analyse the key conflicts that have shaped contemporary global politics.

POL 05-03b: Comparative Government and Politics

Course Outcome:

CO1: To analyse the importance of different methods of "comparison".

CO2: To understand the different forms of governments.

CO3: To assess the working of institutions.

POL 05-04a: Introduction to India's Foreign Policy

Course Outcome:

CO1: To enable students to learn about the evolution of India's engagement with the world and foreign policy formulation process in India.

CO2: To familiarize students the nature of India's evolving relationship with major powers and its neighbours.

CO3: To demonstrate the knowledge of multilateral diplomacy of India.

POL 05-04b: Understanding South Asia

Course Outcome:

CO1: To identify geo-political and historical construction of South Asia as a region.

CO2: To analyse the politics and socio-economic issues of the South Asian Region.

CO3: To assess the relevance of regionalism in South Asia and India's position in the region.

Sixth Semester:

Course Name: **POL 06-01: Human Rights: Traditions and Debates**

Course Outcome:

CO1: To understand various dimensions of Human Rights and multiple challenges.

CO2: To make sense of institutional framework as well as theoretical perspectives of human rights.

CO3: To develop critical thinking and the ability to make logical inferences about socioeconomic and political issues.

Course Name: POL 06-02: Feminism: Theory and Practice

Course Outcome:

CO1: It will help to better appreciate key concepts that offer an understanding of gender inequality.

CO2: Students will be in a position to comprehend the meaning of feminism and the theoretical developments associated with it.

CO3: It will help to appraise the origin and development of feminism in the West and Socialist states.

CO4: This course will help the students to comprehend the trajectory of women's movement in India and the issues addressed.

CO5: It will lead to analysing and understanding the importance of gender in Northeast India in certain key aspects.

Course Name: POL 06-03a: Politics in Northeast India

Course Outcome:

CO1: It will help to better appreciate key concepts that offer an understanding about political development in Northeast India.

CO2: Students will be in a position to comprehend the meaning of political development in Northeast India.

CO3: This course will help the students to comprehend the trajectory of ethnic movement in Northeast India and the issues addressed.

CO4: It will lead to analysing and understanding the importance of Issues of Northeast India in certain key aspects.

Course Name: POL 06-03b: Conflict and Peace Building

Course Outcome:

CO1: To learn the basic concepts about conflict and Peace Building.

CO2: To Understand different approaches and theories to peace and conflict studies.

CO3: To learn the various skills and techniques as conflict responses in the society.

CO4: To understand the nature of socio-cultural conflicts based on ethnic, religious and gender.

CO5: Students will understand, compare and evaluate theories and research on the causes of intergroup and international conflict and violence.

CO6: Develop a critical understanding of how societies develop nonviolent means of basic social change, recover from violence, and prevent it from reoccurring in the future.

Course Name: POL 06-04a: Rural Local Governance: Theory & Practice

Course Objective:

CO1: This paper will help students understand the importance of grass root political institutions in empowering people.

CO2: The students also gain knowledge about the important and significance of rural local governance.

CO3: Student will learn the constitutional structure of the rural local bodies.

CO4: Student will understand the inter relationship among the concepts of decentralization, democracy and participation.

Course Name: POL 06-04b: Urban Local Governance: Theory and Practice

Course Outcome:

CO1: Have a basic understanding of the policies and institutions governing cities and urban areas.

CO2: Have a basic knowledge of the constitutional structure of urban governance.

CO3: Understand the concepts and different dimensions of urban governance highlighting the major debates in the contemporary times.

CO4: Evaluate the importance of urban governance in the context of a globalising world, environment, administration and development.

CO5: Equipping students with the skill to analyse good governance practices and initiatives of urban governance system.

DEPARTMENT OF ZOOLOGY, NORTH GAUHATI COLLEGE

POs, PSOs and COs under Four-Year Undergraduate Programme in Zoology

PROGRAMME OUTCOMES (POs):

After completing the Four-Year Undergraduate Programme in Zoology, Students are expected to achieve the following Programme Outcomes:

PO1: Critical Thinking: The graduates of Zoology should be competent for critical analysis of problems related to biology, sustainable uses of biological resources and their conservation strategies. They should be able to rationally analyse and conduct guided academic inquiries in various areas of interest in the chosen discipline.

PO2: Communication Skills: Capability to convey the intricate information effectively and efficiently and development of soft skills. The students should be able to present and express information, thoughts, experiments and results clearly and concisely for effective communication of any issues related to animals.

PO3: Problem Solving: Solve the problems related to animal sciences without relying on assumptions and guess work.

PO4: Analytical and Logical Reasoning: Capability of seeking solutions and logically solving them by experimentation and data processing either manually or through software.

PO5: Research-oriented Skills: Ability to use tools and techniques used in different fields of Zoology and carry out research effectively.

PO6: Cooperation/Teamwork/Leadership: Ability to work effectively in a heterogeneous team so as to recognise and mobilise relevant resources essential for a project, should be able to manage the project in a responsible way by following ethical scientific conduct and bio-safety protocols.

PO7: Reflective Thinking: To relate new knowledge to prior understanding and engage their thinking and learning strategies. After completion of the course the students should be able to understand the value of animal resources, need for conservation, bio-prospecting and sustainable utilization of resources for human welfare.

PO8: Digital Literacy/Use of Modern Tools: Capable of using computers for biological simulation, computation and appropriate software for biostatistics, and employing search tools to locate, retrieve, and evaluate zoology-related data.

PO9: Environmental Awareness: Demonstrate awareness on environment, wild life conservation, management and contribute as policy makers in wild life conservation, animal preservation and environment protection.

PO10: Entrepreneurship and Employability: In-depth knowledge of applied subjects ensuring the inculcation of employment skills so that students can make a career and become an entrepreneur in diverse fields of aquatic biology, sericulture, apiculture etc.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

The programme specific outcomes of the Undergraduate Programme in Zoology are listed below. After completing the programme, the students will be able to

PSO1: Understand the identification, classification and differentiate diverse non-chordates and chordates based on their morphological, anatomical and systemic organization and to describe economic, ecological and medical significance of various animals in human life.

PSO2: Develop practical skills in identifying and classifying various non-chordate species using morphological and genetic techniques.

PSO3: Know the practical skills in biotechnology, biostatistics, bioinformatics and molecular biology and understand the basic experimental skills in various techniques in the fields of genetics; molecular biology; biotechnology; qualitative and quantitative microscopy; enzymology and analytical biochemistry.

PSO4: Understand about the in-depth knowledge and about comparative anatomy and developmental biology of various biological systems; and about the organisation, functions, strength and weaknesses of various systems and the way evolution has shaped these traits in the human body.

PSO5: Get knowledge about the state of degradation and conservation status, as well as the present state and health of ecosystems at local and global levels.

COURSE OUTCOMES FOR ALL ZOOLOGY PAPERS OFFERED UNDER FYUGP

After completing each course, students will be able to:

PAPER: DIVERSITY OF NON-CHORDATES (CORE A1)
CODE: ZOO-1011

Course Learning Outcomes:

Upon completion of the course, students should be able to:

1. Learn about the importance of systematics, taxonomy and structural organization of animals.
2. Understand evolutionary history and relationships of different non-chordates through functional and structural affinities.
3. Critically analyze the organization, complexity and characteristic features of Non-chordates making them familiarize with the morphology and anatomy of representatives of various animal phyla.
4. Comprehend the economic importance of non-chordates, their interaction with the environment and role in the ecosystem.
5. Enhance collaborative learning and communication skills through practical sessions, teamwork, group discussions, assignments and projects.

PAPER: DIVERSITY OF CHORDATES (CORE A2)
CODE: ZOO-1021

Course Learning Outcomes:

Upon completion of the course, the students will be able to:

1. Understand different classes of chordates, level of organization and evolutionary relationship between different subphyla and classes, within and outside the phylum.
2. Study about diversity in animals making students understand about their distinguishing features.
3. Appreciate similarities and differences in life functions among various groups of animals in Phylum Chordata.
4. Comprehend the circulatory, nervous and skeletal system of chordates.
5. Know about the habit and habitat of chordates in marine, freshwater and terrestrial ecosystems.

PAPER: PRINCIPLES OF GENETICS
CODE: ZOO-2011

Course Learning Outcomes:

Upon completion of the course, the students will be able to:

1. Understand the basic principles of inheritance.
2. Analyze Mendelian Law and gene interactions leading to development of analytical skills and critical thinking enabling the students to present the conclusion of their findings in a scientific manner.

3. Know the mechanisms of mutations, the causative agents and the harmful impact of various chemicals and drugs being used in day-to-day life.
4. Gain knowledge on genetic and environmental basis of sex determination.

MAJOR COMPULSORY PAPER: ANIMAL TAXONOMY, SYSTEMATICS AND BIOSTATISTICS
CODE: ZOO-2021

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Understand the general principles of taxonomy and systematics.
2. Explain the importance of Zoological nomenclature and its rules.
3. Understand the importance of systematics in biology and comprehend the taxonomic categories and explain the concept of species.
4. Acquire basic knowledge of phylogeny and understand important terminologies to represent phylogenies.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 1: ANIMAL PHYSIOLOGY AND ENDOCRINOLOGY
CODE: ZOO-2022

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Understand the principles of normal biological function of the animal body.
2. Understand basic animal physiology and correlate it with the various histological structures.
3. Understand the homeostasis in animals in response to changes in their external environment.
4. Perform practical related to animal physiology.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 2: PRINCIPLES OF ECOLOGY AND EVOLUTION
CODE: ZOO-2023

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Understanding of key concepts in ecology with emphasis on historical perspective, role of physical factors and concept of limiting factors etc.
2. Figure out the population characteristics, population dynamics, growth models and interactions.
3. Recognize the community characteristics, ecosystem development and climax theories.
4. Know about the types of ecosystems, food chains, food webs, energy models, and ecological efficiencies.
5. Apply the basic principles of ecology in wildlife conservation and management.
6. Instil scientific quantitative skills, evaluate experimental design, read graphs, and analyse and use information available in scientific literature.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 3: COMPARATIVE ANATOMY OF VERTEBRATES
CODE: ZOO-2024

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Explain comparative account of the different vertebrate systems and understand the pattern of vertebrate evolution and organization.
2. Learn the comparative account of integument, skeletal components, their functions and modifications in different vertebrates.
3. Understand the evolution of brain, sense organs and excretory organs to a complex, highly evolved forms;
4. Learn to analyse and critically evaluate the structure and functions of vertebrate systems, which helps them to discern the developmental, functional and evolutionary history of vertebrate species.

MAJOR COMPULSORY PAPER: FUNDAMENTALS OF BIOCHEMISTRY
CODE: ZOO-3011

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Understand the basic principle, structure and function of biomolecules like carbohydrates, proteins and nucleic acids.
2. Understand the role of these molecules in the functioning of animal systems.
3. Analyze the characteristics, kinetics, regulation and inhibition of enzymes-the biological catalysts and as such will have a brief overview of the biochemical system of the body.
4. Gain practical knowledge about the different functional groups present in these molecules.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 4: BIOCHEMISTRY OF METABOLIC PROCESSES AND REGULATION
CODE: ZOO-3012

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Understand the principles of catabolic and anabolic processes.
2. Understand carbohydrate, protein and lipid metabolism and correlate it practical observations.
3. Understand the process of energy production in the body.
4. Perform practicals related to metabolic processes.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 5: IMMUNOLOGY
CODE: ZOO-3014

Course Learning Outcomes:
Upon completion of the course, the students will be able to:

1. Understand about the various cells and organs of the immune system.
2. Understand the concepts of antigens, antibodies and their interactions.
3. Gain knowledge on the functioning of the immune system and the role of vaccines in preventing diseases.
4. Perform practical related to immunology and its functioning in mammals.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 6: MOLECULAR BIOLOGY
CODE: 3016

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Appreciate how structure of DNA was discovered and how their structures are influenced by both internal and external factors.
2. Understand the significance of direction-specific DNA synthesis and processing of RNA protects and regulate their translation.

MAJOR COMPULSORY PAPER: CELL BIOLOGY
CODE: 3021

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Students will learn about different cell types.
2. Students will acquire knowledge about the composition of cells and cellular compartments and detail study about the functioning of these organelles.
3. Students will acquire knowledge about cellular energetic and concept of protein sorting
4. Students will learn about the different level of DNA packaging within the cells and also learn about different types of chromosomes.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 7: DEVELOPMENTAL BIOLOGY
CODE: 3022

Course Learning Outcomes:
Upon completion of the course, the students will be able to:
1. Understand about the role of mitosis and meiosis cell division, cellular differentiation during gametogenesis.
2. Understand how fertilization happens and the factors that affect fertilization event.
3. Understand the basic embryonic development and organogenesis.
4. Analyze the role different hormones and cellular signalling during development through metamorphosis and teratogenesis.

5. The students will learn and appreciate the importance of IVF, amniocentesis and embryonic stem cells.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 8: COMPUTATIONAL BIOLOGY
CODE: 3024

Course Learning Outcomes:
Upon completion of the course, the students will be able to:

1. Understand the basic principles of biology, computer science and mathematics.
2. Utilize existing software to effectively extract information from large databases and to use this information to solve biological problems.
3. Analyze the intersection of life and information science, the core of shared concepts, language of structure and function relationship, gene expression, phylogenetic analysis through database.

DISCIPLINE SPECIFIC ELECTIVE (DSE) PAPER 9: ADVANCED ENTOMOLOGY
CODE: 3025

Course Learning Outcomes:
Upon completion of the course, the students will be able to:

1. Understand the basic physiological systems of Insects
2. Develop basic concept on pest and pest control strategies.
3. Develop concept on common insect pest of crops and stored grains
4. Develop idea on life history of the beneficial insects
5. Get knowledge on the diverse applications of insect products.