श्री वेंकटेश्वर कॉलेज
SRI VENKATESWARA COLLEGE
NEW DELHI

श्री वेंकटेश्वर कलाशाला
श्री वेंकटेश्वर महाविद्यालय
Sri Venkateswara College
(दिल्ली विश्वविद्यालय) (University of Delhi)
NAAC A+ Accredited
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Prof. K. Chandramani Singh
Acting Principal

SRI VENKATESWARA COLLEGE
UNIVERSITY OF DELHI
DHAULA KUAN, NEW DELHI-110021

Program outcomes (POS), Program Specific Outcomes (PSOs) and Course Outcomes (COs) for all Undergraduate courses offered by Sri Venkateswara College

Program Outcomes are a set of statements that provide information about the contents, scope and competencies expected to be developed for a particular course of study or program offered by an Institution. This clarity helps the teacher to plan and execute content-delivery in an efficient manner. while the learner (student) is made aware of the standards that he/she is expected to attain. Being a constituent college of University of Delhi (DU), Sri Venkateswara College follows the syllabus as prescribed by the University of Delhi. Programme Specific Outcomes (PSOs) for the courses offered provide information about the knowledge and skills that would be expected to be possessed by a student, in a particular subject, upon the completion of a undergraduate program. The PSOs and POs are communicated to students at the commencement of every semester.

In order to develop clear academic goals, University of Delhi has made it mandatory to formulate Course Outcomes (COs) describing what every student should be able to attain at the end of any particular course. The COs has been developed in consultation with Head of Department, teachers, students and other stakeholders. The CO is also communicated by respective faculty to the students at the commencement of the course.

The POs, PSOs and COs, as included in the undergraduate syllabus are also uploaded on the College website for wider dissemination and ease of access. This exercise has been undertaken for all courses of the Old Courses, CBCS and the LOCF, and the New Course (UGCF) effective from 2022-23.

Ag. Principal

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Courses Offered by Sri Venkateswara College

List of UG Courses

S. No.	NAME OF THE UNDERGRADUATE COURSE
1	B.Sc. (Hons) Biochemistry
2	B.Sc. (Hons) Biological Sciences
3	B.Sc. (Hons) Botany
4	B.Sc. (Hons) Chemistry
5	B. Com (Hons)
6	B.A (Hons) Economics
7	B.Sc. (Hons) Electronics
8	B.A. (Hons) English
9	B.A (Hons) Hindi
10	B.A (Hons) History
11	B.Sc. (Hons) Mathematics
12	B.Sc. (Hons) Physics
13	B.A (Hons) Political Science
14	B.A (Hons) Sanskrit
15	B.A (Hons) Sociology
16	B.Sc. (Hons) Statistics
17	B.Sc. (Hons) Zoology
18	B.A Program
19	B. Com (Programme)
20	B.Sc. (Prog) Life Science

Ag. Principal

SRI VENKATESWARA COLLEGE
(University of Delhi)

Program Learning Outcomes (POs), Program Specific Outcomes (PSOs) & Course Outcomes (COs) of UG Courses under NEP-UGCF, 2022 for 1st and 2nd Semester.

1. COURSE: B.SC. (HONS.) BIOCHEMISTRY

DEPARTMENT: BIOCHEMISTRY

Programme Learning Outcomes (POs)

The curriculum is designed to achieve the following outcomes:

PO1: Inculcate the basic concepts of biochemistry including an understanding of the fundamental biochemical principles and their applications in a systematic, methodical, scientific, evidence-based process. The programme will also provide a general understanding of the related disciplines with a holistic knowledge generation in biological sciences.

PO2: Develop problem solving and analytical skills through case studies, research papers and hands-on-experience, especially integrated into skill enhancement courses.

PO3: Students will gain proficiency in basic laboratory techniques and be able to apply the scientific method to the processes of experimentation, hypothesis testing, data interpretation and logical conclusions.

PO4: Provide requisite knowledge of laboratory safety, data replication and quality control, record keeping and other aspects of "responsible conduct of research".

PO5: Ability to employ modern library search tools to locate and retrieve primary literature on a topic and critically evaluate the literature.

PO6: Students will be able to apply and effectively communicate scientific reasoning and data analysis in both written and oral forms. They will be able to communicate effectively with well-designed posters and slides in talks aimed at scientific audiences as well as the general public.

PO7: Students will learn to work collaboratively in a team.

PO8: Students will gain knowledge of ethical and good laboratory practices, health and biohazard regulations, plagiarism and intellectual property rights related issues practiced in modern era of scientific investigation.

PO9: Graduates will be able to apply the major theories and research procedures to contemporary societal issues.

P10: The programme will prepare students to plunge into various fields of higher education or related profession in various disciplines, armed with plethora of knowledge, hands-on-experience and scientific attitude, at national and global levels.

Program Specific Outcome (PSO)

Provide students with scholarly experiences, both theoretical and hands-on, that help in still deep interests in learning the chemistry underlying the working of biological systems while developing broad and balanced knowledge and understanding of key biological concepts, principles and theories. The idea is to equip students with appropriate tools of analysis so that they can independently tackle issues and problems in the field of biology and chemistry.

- Encourage students to study the structure and function of specific molecules and pathways and their interactions and networking in biological systems with particular emphasis on regulation of chemical reactions in living cells.
- Develop in students an inquisitive learning approach to seek answers regarding the complex workings of various physiological systems, cellular multiplication and differentiation and communication within and between cells and organs, and the chemical bases of inheritance and disease.
- Empower students to apply the knowledge and skills they have acquired to the solution of specific theoretical and applied problems in Biochemistry.
- Build concepts in biochemistry that would enable them to undertake further studies in Biochemistry and related areas or in multidisciplinary areas and help develop a range of generic skills that are relevant to wage employment, self-employment and entrepreneurship.

Course Outcomes: B.Sc. (Hons.) Biochemistry (NEP UGCF-2022)

Core Course(s)

BCH-DSC-101: BIOMOLECULES (SEMESTER – I)

On successful completion of the course students will be:

- Able to comprehend the structure, function and acid base properties of amino acids.
- Introduced to the structure, properties and roles of carbohydrates, lipids and nucleic acids.

- Aware of the importance of vitamins in biological systems.
- Able to independently identify various biomolecules in the laboratory by qualitative test methods.
- Acquainted with chemical and molecular foundations of life and appreciate the role of buffer in biological systems.

BCH-DSC-102: PROTEINS (Semester – I)

After completion of the course, a student will

- Understand the diverse functions of proteins in a cell.
- Understand the hierarchy of protein architecture – primary, secondary, tertiary & quaternary structure, with the ability to distinguish features of globular & fibrous proteins.
- Be able to comprehend the fundamental mechanisms of protein folding and stabilityand their relation to conformational diseases.
- Understand specialized proteins like structural proteins.
- Gain comprehension of structure-function relationship of proteins and their significance in physiology, diseases and applications in industry and medicine.

BCH-DSC-103: BIOCHEMICAL TECHNIQUES (Semester – I)

- Acquire knowledge about the principles and applications of spectrophotometric and chromatographic techniques used in a biochemistry lab.
- Learn about the principle and applications of electrophoresis and centrifugation techniques.
- Students will obtain hands-on experience to develop their experimental skills expected from any biochemistry student working in a research lab.

BCH-DSC-201: ENZYMES (Semester – II)

- Students will learn the nature and importance of enzymes in living systems.
- Students will gain insight into the thermodynamic and molecular basis of catalysis by enzymes and the underlying basis of their specificity.
- Students will understand the mechanisms of enzyme action, kinetics of enzyme catalyzed reactions and clinical importance of enzyme inhibitors.
- Students will also learn to appreciate how enzymes are regulated and the physiological importance of enzyme regulation in the cell.

- The course will introduce students to the applications of enzymes in research and medicine as well as in industry, which will bolster their foray into industrial and biomedical research.

BCH-DSC-202: METABOLISM OF CARBOHYDRATES (Semester – II)

Carbohydrates major biomolecules as building blocks in any organism. An understanding of the metabolism of these groups of molecules will help students to know the functioning of an organism, as a whole. There are various degradation and synthesis pathways these molecules undergo based on the energy requirement of an organism so as to maintain body homeostasis. Detailed analysis of the pathways will provide an insight into the diseases caused by defects in metabolism highlighting the importance of the same. The metabolism of carbohydrate course will provide to undergraduate students:

- Concept of metabolism, characteristics of metabolic pathways and strategies used to study these pathways.
- Detailed knowledge of various pathways involved in carbohydrate metabolism with the enzyme involved and regulation.
- Diseases caused by defects in metabolism with emphasis on the metabolic control and cure of diseases.
- Understanding of various metabolic pathways in animals.

BCH-DSC-203: CELL BIOLOGY (Semester – II)

After the completion of the course, the students will have:

- Insights into the basic structure and function of the cell and cellular organelles.
- Introduction to the concept of model systems, cell division and cell to cell interaction.
- Understanding of the structural framework of the cell as cytoskeletal structures.
- Knowledge of various techniques used in cell biology experiments.

Generic Elective Course(s) (GE) (Common Pool)

BCH-GE-1: MOLECULES OF LIFE (Semester I)

- The course will provide an understanding of how the structure of biomolecules determine their chemical properties and functions.
- Students will develop understanding of biochemistry at atomic level and appreciate the biological importance of each biomolecule.
- Students will gain insight into basic structures, classification, chemistry and properties of amino acids, carbohydrates, lipids and nucleic acid along with their biological role.

- Students will learn about the nutritional roles of water soluble and lipid soluble vitamins in the body along with their occurrence.

BCH-GE-2: TECHNIQUES IN BIOCHEMISTRY (Semester II)

- Students will acquire knowledge about the principles and applications of spectrophotometric and chromatographic techniques used in a biochemistry laboratory.
- Students will learn about the principles and applications of centrifugation and electrophoresis.
- It will also give them an opportunity to get hands-on experience to develop their experimental skills expected from any student working in a research lab.

Skill Enhancement Course (SEC) (Common Pool)

SEC 1: PERSONALITY DEVELOPMENT AND COMMUNICATION (Semester-I)

- After studying this course, students will be able to understand the importance of oral and written communication in day-to-day working of an organisation.
- They will be able to develop interpersonal skills and problem solving skills.
- They will be able to understand the role of body language in effective communication.

SEC 2: ESSENTIAL FOOD NUTRIENTS (Semester-II)

- After studying this course, the student will be able to:
- Account for chemistry of foods: composition of food, role of each component
- Recognize some of the reactions and changes in individual food components which occur during processing, handling and storage

Value Addition Course(s) (VAC) (Common Pool)

VAC1: AYURVEDA AND NUTRITION (Semester-I)

- Awareness of traditional food cultures of India
- Evaluate changing food patterns and lifestyle over the years
- Understand Indian Knowledge Systems (IKS) and key vedic principles with respect to Food and Nutrition.
- Apply basic tenets of traditional diets for health and disease
- Prepare selected healthy recipes based on Ayurvedic principles

VAC2: THE ART OF BEING HAPPY (Semester-II)

- The students shall be able to evaluate the factors contributing to the phenomenon of happiness in the personal, familial and community life of an individual in different cultures in the Indian context
- They will be able to develop healthy interpersonal relationships and well-being cherishing the values of Indian culture and philosophy
- They will be able to relate the global phenomenon of sustainable development and become sensitive to the needs of the planet.
- They will be able to apply the experience of Aananda at a personal level.

2. COURSE: B.SC. (HONS.) BIOLOGICAL SCIENCES

DEPARTMENT: BIOLOGICAL SCIENCES

Programme Learning Outcomes (PO)

The curriculum is designed to achieve the following outcomes:

PO1: To develop an in-depth knowledge and understanding of the fundamental concepts and principlesunderlying Biological processes.

PO2: To impart the procedural knowledge that creates different types of professionals in the field of Biological Science and related fields such as Plant physiology, Animal Behaviour, Natural Resource Management, Microbiology, Biotechnology, Nutritional Biochemistry and in teaching, research and environmental monitoring.

PO3: Students will be able to undertake hands-on laboratory work and activities that help develop students' practical knowledge and skills that are required for pursuing a career in clinical diagnosis, drug design, vaccine development, pharmaceutical industry, teaching, research, environmental monitoring.

PO4: Students will be able to use skills required for the extraction, separation, and synthesis of a varietyof biomolecules utilized in clinical diagnosis, pharmaceutical industry or in research laboratories.

PO5: Students will be encouraged to effectively communicate scientific reasoning and data analysis inboth written and oral forms.

PO6: Students will gain knowledge of ethical and good laboratory practices, health and biohazard regulations, plagiarism and intellectual property rights related issues practised in the modern era of scientific investigation.

PO7: Students will recognize and appreciate the importance of Biological Science and its application in academics, clinical diagnosis, prevention and treatment of diseases,

agriculture, and industry and inthe economic, environmental and social contexts.

Course Outcomes: B.Sc. (Hons.) Biological Sciences (NEP UGCF-2022)

Core Course(s)

BS-DSC-101: Basic Concepts of Biomolecules (Semester I)

After the successful completion of the course, the students will be able to

- Understand and apply the fundamental principles of chemistry which include bonding, electronic effects, molecular forces and stability of reactive intermediates tobiomolecules.
- Gain an insight into the influence of chemical bond polarization on a molecularstructure and its reactivity.
- Identify the type of metabolic reaction and draw reaction mechanisms for keymetabolic processes.
- Recognize stereochemistry of a biomolecule and give a rational explanation of itsbiological reactivity based on stereochemistry.
- Understand the chemistry and biological functions of carbohydrates and lipids.

BS-DSC-102: Photobiology (Semester I)

After the successful completion of the course, the students will be able to

- Understand and appreciate the dual nature of light.
- Comprehend the impact of light on biodiversity from pole to pole.
- Gain knowledge about the various photoreceptors in plants and animals and will appreciate and understand the mechanism of photosynthesis.
- Understand bioluminescence, photoperiodism and biological rhythms.
- Gain knowledge about the ecological and physiological responses to light.

BS-DSC-103: Diversity of Life forms I (Semester I)

After the successful completion of the course, the students will be able to

- Understand characteristic features of different plant and animal life forms.
- Identify, classify and differentiate diverse non-chordates based on their morphological,anatomical and systemic organization.
- Understand similarities and differences in life functions among various non-chordates.
- Appreciate and understand the relevance of wild relatives of cultivated plants, theirdomestication and green revolution.

- Understand the general characteristics, classification, economic importance, morphology, asexual and sexual reproduction of Algae, Fungi, Bryophytes and Pteridophytes.

BS-DSC-201: Cell Biology (Semester II)

After the successful completion of the course, the students will be able to

- Understand the cell and its biology which will help them to get an insight into theorigin of cells, cellular structure, various components of cells and functions.
- Understand the chemical composition, physicochemical and functional organization of organelle.
- Demonstrate the knowledge of common and advanced laboratory practices in cyto-biology.
- Acquire knowledge about how cells divide by means of meiosis and mitosis and willbe able to correlate different factors which control cell cycle progression.

BS-DSC-202: Diversity of Life forms I (Semester II)

After the successful completion of the course, the students will be able to

- Understand different characteristic features of different plant and animal life forms, classes of chordates, level of organization and evolutionary relationship between different subphyla and classes, within and outside the phylum.
- Study about diversity in animals and plants making students understand about their distinguishing features.
- Appreciate similarities and differences in life functions among various groups of animals and plants.
- Know about the habit and habitat of animals in marine, freshwater and terrestrial ecosysytems.
- Understanding of systematics its importance in biodiversity management, nomenclatureand classification systems of the plants.

BS-DSC-203: Chemical Energetics, Ionic Equilibria and Nanomaterials (Semester II)

After the successful completion of the course, the students will be able to

- Understand the concept of nano-dimensions.
- Know the various methods of preparation of nanomaterials.
- Know the different characterization techniques used for the analysis of nanomaterials and understand the basic principle behind these techniques.
- Understand the diverse properties of nanostructures.
- Appreciate the real-world applications of nanomaterials.
- Understand the laws of thermodynamics, basic principles of thermochemistry and equilibria and successfully extend the concepts learnt in this course to biological systems.
- Understand concept of pH and its effect on the various physical and chemical propertiesof the compounds.
- Use the concepts learnt to predict feasibility of chemical reactions and to study the behaviour of reactions in equilibrium.
- Explain the concept of ionization of electrolytes with emphasis on weak acid and baseand hydrolysis of salt.
- Apply the concepts of pH and electrolytes while studying other chemistry courses andeveryday life.

3. COURSE: B.SC. (HONS.) BOTANY

DEPARTMENT: BOTANY

Program Outcomes (POs)

The core courses form the backbone of this framework whereas discipline specific electives, generic electives, skill enhancement courses and value addition courses would add academic excellence in the subject together with multi-dimensional and interdisciplinary approach.

The curriculum is based on the following learning outcomes –

PO1: To develop an in-depth knowledge and understanding of the fundamental concepts and principles underlying plant sciences.

PO2: To impart the procedural knowledge that creates different types of professionals in the field of Botany and associated fields such as Agriculture, Natural Resource Management, Microbiology, Biotechnology and in teaching, research and environmental monitoring.

PO3: Students will be exposed to laboratory expertise and skills in subjects like taxonomy, ecology, molecular biology, plant physiology, plant metabolism, plant tissue culture, plant

microbe interaction that help develop in students practical knowledge and skills that are required for teaching, research, environmental monitoring.

PO4: Students will be introduced to different biostatistics tools that aid in analysis of different forms of biological data and its interpretation.

PO5: Students will be able to use various bioinformatics tools for training in the basic theory and application of programs used for database searching, protein and DNA sequence analysis and prediction of protein structures.

PO6: Students will be encouraged to effectively communicate scientific reasoning and data analysis in both written and oral forms.

PO7: Students will gain knowledge of ethical and good laboratory practices, health and biohazard regulations, plagiarism and intellectual property rights related issues practiced in modern era of scientific investigation.

PO8: Students will also be introduced to broader horizons of the subject like ethnobotnay, medicinal botany, organic farming, hydroponics, biofertilisers, mushroom cultivation, ayurveda and nutrition, plant breeding etc.

Course Outcomes: B.Sc. (Hons.) Botany (NEP UGCF 2022)

Core Course(s)

BOT-DSC-1: Plant Diversity and Evolution (Semester-I)

By studying this course students will gain basic knowledge on:

- The diversity and general characteristics of plants and microbes.
- Various groups of plants and their evolutionary relationships.
- Basic principles and concepts of evolution that contribute to plant diversity.
- The diversity of plants and microbes present on the planet and their relationships with each other in light of evolution.

BOT-DSC-2: Cell Biology: Organelles and Biomolecules (Semester-I)

By studying this course, students will gain basic knowledge on:

- The relationships between the properties of biomolecules, their cellular activities and biological functions.
- Physico-chemical composition of organelles and their functional organization.
- The Cell as a structural and functional unit of life.

- The various types of biomolecules (proteins, carbohydrates, lipids and nucleic acids) and their roles in cell structure and function.
- The structures of different organelles and their role in fundamental metabolic processes of a cell.

BOT-DSC-3: Basic Laboratory and Field Skills in Plant Biology (Semester-I)

This course will be able to demonstrate basic knowledge and understanding of:

- Fundamental skills important for performing laboratory and field experiments.
- Good laboratory practices, management of laboratory waste, understanding hazards and risks to ensure a safe laboratory environment.
- Basics of measurements, units and common mathematical calculations, sampling and data collection.
- Operation and maintenance of basic laboratory instruments.
- Presentation, analysis of data and interpretation of results.

BOT-DSC-4: Microbiology and PlantMicrobe Interactions (Semester-II)

Learning Outcomes:

- Understanding microbes and their roles and applications.
- Understanding about modes of reproduction of Viruses, Archaebacteria, Eubacteria
- Understand plant-microbe interaction
- Understanding about the microbial world and their interactions with plants.

BOT-DSC-5: Plant Resources and Economic Botany (Semester-II)

The course will help students gain knowledge on:

- The economic importance of diverse plant species and train them in identifying plants of economic importance through field visit/s, live plant specimens, herbarium specimens and digital resources.
- The different plant parts and plant products such as food, fibers, medicines, oils and others).
- The processing of various plant resources and train them to identify and analyse nutrients using simple microchemical tests.
- The economic importance and products derived from plants and their roles in our daily lives.

- The regional diversity in food crops and other plants and their ethnobotanical importance.

BOT-DSC-6: Plant Systematics (Semester-II)

On completion of the course the students will be able to:

- Understand technical terminology used in plant taxonomy.
- Apply the terminologies to describe, identify and classify flowering plants .
- Search and analyse taxonomic information from internet-based scientific databases and other resources.
- Interpret and evaluate the concept of species and evolutionary processes in angiosperms.
- Comprehend and compare various systems of classifications.
- Recognise diversity in local/regional flora.
- Appreciate the significance and application of systematics in science and welfare of society.

Generic Elective course(s) (GE) (Common Pool)

BOT-GE-1: Plant Diversity and Human Welfare (Semester-I)

After studying this course, the student will gain knowledge about:

- The diversity of various groups of plants, their characteristics and identification.
- Different phytogeographic zones in India.
- The basic principles of conservation of Biodiversity and Sustainable Development Goals (SDG).
- The role of plants in human welfare.
- The different groups of plants and their roles in supporting human life.

BOT-GE-2: Biofertilizers (Semester-I)

On successful completion of this course, a student will be able to:

- Visualize and identify different types of microorganisms with a compound microscope.
- Understand the classification of microorganisms according to their shape/ structurefor morphological identification. Prepare and sterilize different types of culture media.
- Isolate microorganisms from the environmental samples and culture in aseptic conditions.

- To develop an understanding of biological systems used as fertilizers and build skills in handling microbial inoculants.
- To understand the optimum conditions for growth and multiplication of useful microbes such as *Rhizobium*, cyanobacteria, mycorrhizae, *Azotobacter* etc.
- To understand the role of microbes in mineral cycling and nutrition of plants.
- To gain expertise in various methods of decomposition of biodegradable waste, conversion into compost and apply this knowledge and skill in their daily life.

BOT-GE-3: Protected Agriculture – Hydroponics and Organic Cultivation (Semester-I)

The Learning Outcomes of this course are as follows:

- Students will develop a thorough understanding of the concepts of Hydroponics, Aquaponics and Organic farming.
- Students will be trained in establishing hydroponic facility.
- Students will learn the development of various organic products such as biopesticides, biofertilizers and bio-0rganic growth promoters.
- Students will understand various government policies in marketing of hydroponic and organic produce.
- Students will understand Good Agricultural Practices associated with protected agriculture.

BOT-GE-6: Ethnobotany (Semester-II)

After studying this course the student will have an understanding of the value and usefulness of the natural products and their efficient use by the local communities as food and medicine and their conservation practices. It will also impart knowledge of the plants used by the local communities, tribals, ethnic groups, their nutritive and medicinal value.

BOT-GE-7: Viewing and Capturing Diversity in Nature (Semester-II)

On successful completion of this course, a student will be able to:

- Understand the digital camera or smartphone camera functions.
- Use different photographic equipment to enhance their photographic skills.
- Know about the photographic variables with weather and season.
- Exploit their photographic work in various professions and for entrepreneurship development.
- Have a comprehensive introduction to photography, including aesthetics and technique.
- Rrethink the environment in which they live through the medium of pictures.

- Build familiarity with digital camera and smartphone photography.
- Use nature photography in business and career prospects.
- Enhance appreciation for the tremendous beauty inherent in plants and gardens/nature.

BOT-GE-8: Agricultural Botany and Weed Science (Semester-II)

After completion of this course the students would be able to understand:

- How the quality of seeds is judged and how are the suitable conditions for the seed germination created.
- How are the growth, flowering and fruiting in plants managed through the applications of hormones.
- How are weeds managed in commercial crops.
- The conditions required for seed germination.
- Growth hormones, plant development and flowering conditions.

Value Addition Course (VAC) (Common Pool)

VAC-I: Science and Society (Semester I)

This paper is interdisciplinary in nature and would provide students with basic exposure to scientific methods, technologies and developments that have played a significant role in the evolution of human society from ancient to modern times. The primary objective of this course is to instill in students an appreciation for science and a scientific outlook and temper. The course further aims to increase awareness about fundamental scientific concepts that play an important role in our daily life using various examples and case studies. Students would also be made aware of the scientific rationale of technological developments that would enable them to make informed decisions about their potential impact on society.

VAC-II: Fit India (Semester II)

The learning outcomes of this course are as follows:

- adopting a healthy lifestyle.
- knowledge of nutrition, diet and psycho-physiological aspects of fitness.
- develop self-esteem, self-confidence, self-discipline and team spirit as indicators of fitness.

Skill Enhancement Course (SEC) (Common Pool)

SEC I: Sustainable Ecotourism and Entrepreneurship (Semester-I)

After studying this course, students will be able to:

- Develop next generation ecological entrepreneurs.

- Evolve eco-literate society by integrating market-based instruments with eco-cultural knowledge of traditional societies.
- Practice ecological knowledge for wealth generation, environmental conservation, and popularization of Indian traditional knowledge.

SEC II: Green Belt Development for Smart Cities (Semester-II)

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

- Measure factors (biotic and abiotic) contributing to sustainable, healthy environment.
- Assess, describe and use the appropriate plants for restoring polluted environment.
- Use their skills enhancing for green infrastructure development (UN-SDG).

4. COURSE: B.SC. (HONS.) CHEMISTRY

DEPARTMENT: CHEMISTRY

Programme Learning Outcomes (POs)

The program outcome for B.Sc. (Hons.) Chemistry from the University of Delhi may include:

PO1: Knowledge and Understanding: Graduates will demonstrate a deep understanding of chemical principles, theories, and concepts, and will be able to apply them to real-world problems.

PO2: Laboratory Skills: Graduates will be proficient in laboratory techniques, including safety protocols, instrumentation, data analysis, and interpretation.

PO3: Critical Thinking: Graduates will be able to analyze and evaluate scientific data and literature, and will be able to develop and implement effective research strategies.

PO4: Communication Skills: Graduates will be able to effectively communicate scientific information, both verbally and in writing, to a variety of audiences.

PO5: Professionalism: Graduates will demonstrate professionalism and ethical behavior in all aspects of their work, including adherence to scientific integrity and responsibility.

PO6: Interdisciplinary Knowledge: Graduates will have a broad understanding of other disciplines related to chemistry, including physics, mathematics, biology, and environmental science.

PO7: Career Readiness: Graduates will be prepared for a wide range of careers in academia, industry, government, and non-profit organizations, as well as for advanced studies in

chemistry or related fields. Pursue advanced studies and careers in chemistry, pharmaceuticals, biotechnology, materials science, environmental science, and other related fields.

PO8: Lifelong Learning: Graduates will have a commitment to ongoing learning and professional development, and will be able to adapt to new technologies and changing scientific paradigms

PO9: Graduates are given the opportunity to opt for skill development course of their choice which will equip the individuals with specialized knowledge and practical skills, enhancing their employability, fostering personal growth, and enabling them to adapt to the ever-evolving demands of the professional world.

Course Outcomes: B.Sc. (Hons.) Chemistry Semester 1 (NEP UGCF-2022)

Core Course(s) (I & IInd Sem)

DSC1: Inorganic Chemistry-1: Atomic Structure & Chemical Bonding (Semester I)

On completion of the course, the student will be able to:

- **CO1:** Solve the conceptual questions using the knowledge gained by studying the quantum mechanical model of the atom, quantum numbers, electronic configuration, radial and angular distribution curves, shapes of s, p, and d orbitals, and periodicity in atomic radii, ionic radii, ionization enthalpy and electron affinity of elements.
- **CO2:** Draw the plausible structures and geometries of molecules using radius ratio rules, VSEPR theory, and MO diagrams (homo- & hetero-nuclear diatomic molecules).
- **CO3:** Understand the concept of lattice energy using Born-Landé and Kapustinskii equation.
- **CO4:** Calibrate the apparatus used in titrimetric analysis and prepare standard solutions for titration.
- **CO5:** Understand the theory and application of various acid-base and redox titrations.
- **CO6:** Comprehend the theory of acid-base indicators.
- **CO7:** Describe covalent, Valence Bond theory (Heitler-London approach), Bent's rule.
- **CO8:** Explain the concepts of Covalent compounds, molecular orbital theory, MOT diagrams, shapes of molecules.
- **CO9:** Describe the Qualitative idea of valence bond and band theories, dipole interactions, and theories of hydrogen bonding.

- **CO10:** Develop an understanding of Titrimetric Analysis & Calibration, Know the Preparation of solutions of titrants of different Molarity/Normality.
- **CO11:** Gains both practical and conceptual knowledge on titrimetric analysis especially on use of various indicators in acid-base titrations and principles of redox titrations

DSC2: Organic Chemistry-1: Basic Concepts and Aliphatic Hydrocarbons (Semester I)

On completion of the course, the student will be able to:

- **CO1:** To understand the types of electronic displacements and their impact on acidity/basicity, course of a reaction, stability of the molecule.
- CO2: To predict the physical and chemical properties of a molecule based on its structure and geometry.
- CO3: To predict the course of the reaction on the basis of reaction condition and ability to write the mechanism by making a proper use of directed-arrow convention.
- CO4: To analyse the formation of reaction intermediate under the given conditions of a chemical reaction
- CO5: To understand the types of intermediate and their stability
- CO6: To have a basic understanding of the arrangement of atoms in space, concept of handedness/ chirality
- CO7: Ability to draw stereoisomers in the standard 3- dimensional conventions, and determine relationships between pairs of stereoisomers (both conformational and configurational)
- CO8: Develop proficiency in performing organic chemistry experiments, including techniques such as synthesis, purification

DSC3: Physical Chemistry-1: Gaseous and Liquid (Semester I)

On completion of the course, the student will be able to:

- CO1: Explain the basic and advanced concepts regarding gaseous and liquid states of matter.
- CO2: Understand the concepts about the basic expressions for determining the physical properties of gases and liquid states.

- CO3: Understand the role of intermolecular forces of interactions in states of existence of matter as well their effects on their properties
- CO4: Understand the significance of various properties related to gaseous and liquid states along with the derivation of their mathematical expressions.
- CO5: Analyze the applications of the concepts of various properties related to gases and liquid states to day-to-day life.
- CO6: Handle laboratory apparatus like stalagmometers and Ostwald viscometers properly for the determination of surface tension and viscosity of liquids.

DSC4: Inorganic Chemistry-2: s- and p-Block Elements (Semester II)

On completion of the course, the student will be able to:

- **CO1:** Describe the fundamental principles of metallurgy as well as the significance of the recovery of by-products during extraction.
- **CO2:** Explain the characteristics of s- and p- block elements and apply them for synthesis.
- **CO3:** Describe about Reactions of alkali and alkaline earth metals
- **CO4:** Apply the concept and use of complexometric titrations.
- **CO5:** Explain the theory and application of complexes
- **CO6:** Explains about Electronic configuration, atomic and ionic size, metallic/non-metallic character.
- **CO7:** Describes about different types of Allotropy of C, P, S; inert pair effect
- **CO8:** Apply the diagonal relationship between B and Si and anomalous behaviour of first member of each group.
- **CO8:** Describes Preparations, structures of Group -13 to 17
- **CO9:** Describes Preparation, properties, structure and uses of the following compounds Borazine, Silicates, silicones, Phosphonitrilic halides {(PNCl2) n where n = 3 and 4}
- **CO10:** Describes Interhalogen and pseudohalogen compounds, Clathrate compounds of noble gases, xenon fluorides (MO treatment of XeF2).

DSC5: Organic Chemistry-2: Haloalkanes, Arenes, Haloarenes, Alcohols, Phenols, Ethers and Epoxides (Semester II)

On completion of the course, the student will be able to:

- **CO1:** Understand about the physical of the functional groups under study based on their electronic/steric structures
- **CO2:** Explain the chemical behaviour of these functional groups based on electronic and steric factors and to carry out transformations.
- **CO3:** Formulate the mechanistic route of organic reactions of arenes, haloalkanes, haloarenes, alcohols, phenols, epoxides and ethers by recalling and correlating the fundamental concepts.
- **CO4:** Understand the concept of organometallic compounds
- **CO5:** Understand the synthetic importance of the organometallic compounds with special reference to Grignard reagent and to carry out chemical transformations.
- **CO6:** Outline a rational synthesis of various organic compounds with different functionalities on the basis of reactions, reaction conditions and mechanisms learned in the course.
- **CO7:** Students will develop proficiency in performing organic chemistry experiments, including techniques such as synthesis, purification

DSC6: Physical Chemistry-2: Thermodynamics and its Applications (Semester II)

By the end of the course, the students will be able to:

- **CO1:** Understand the three laws of thermodynamics, concept of State and Path functions, extensive and intensive properties.
- **CO2:** Derive the expressions of ΔU, ΔH, ΔS, ΔG, ΔA for an ideal gas under different conditions such as, isothermal, adiabatic, free expansion etc.
- **CO3:** Explain the concept of partial molar properties.
- **CO4:** Understand the concepts of thermochemistry and equilibria.
- **CO5:** Use the concepts learnt to predict feasibility of chemical reactions and to study the behaviour of reactions in equilibrium.
- **CO6:** Determine of heat capacity of a calorimeter; enthalpy of neutralization, ionization, hydration and solution
- **CO7:** Correlate the heat capacity data to enthalpy data, Perform temperature corrections and Learn measurements at constant pressure conditions

Generic Elective Course(s) (GE) (I & IInd Sem) (Common Pool)

GE-1: Chemistry: Atomic Structure and Chemical Bonding (Semester I)

On completion of the course, the student will be able to:

CO1: Understands the modern concepts of atomic structure, concept of wave function, and Schrödinger equation for hydrogen atom

CO2: Gain knowledge on significance of quantum numbers, rules for filling electrons in various orbitals, concept of exchange energy and solve related conceptual questions

CO3: Solve conceptual questions on radial and angular distribution curves, and shapes of s, p, and d orbitals

CO4: Gain basic knowledge about ionic and covalent bonding, lattice energy, Born-Landé equation, Born Haber cycle and its applications

CO5: Insight into covalent character in ionic compounds, polarizing power and polarizability, Fajan's rules, dipole moment and percentage ionic character

CO6: Able to draw the structures and geometries of molecules using VBT, VSEPR theory, and MO diagrams (homo- & hetero-nuclear diatomic molecules)

CO7: Understands the rules for the LCAO method, concept of resonance, and idea of s-p mixing

CO8: Gains both practical and conceptual knowledge on titrimetric analysis especially on use of various indicators in acid-base titrations and principles of redox titrations.

CO9: Explain the theory, Estimations and application of iodo and iodometric titrimetric analysis.

CO10: Develop and understand about the Complexometric titrations using disodium salt of EDTA and estimation.

CO11: Paper chromatographic separation of metal ions, Inorganic preparation of Cuprous Chloride, Chromium potassium sulphate

GE-2: Chemistry of Oxygen containing Functional Groups and their Applications to Biology (Semester II)

On completion of the course, the student will be able to:

CO1: Explain the differential behavior of organic compounds based on reaction chemistry.

CO2: Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.

CO3: Exploit the applications of functional group chemistry for biological applications.

Skill Enhancement Course (SEC) (Common Pool)

SEC1: BASIC IT TOOLS (Semester I)

On completion of the course, the student will be able to:

- **CO1:** Use word-processor to generate documents with appropriate formatting, layout, review and referencing.
- **CO2:** Manage data in worksheets and workbooks and analyze it using spreadsheet functions and inbuilt formulas.
- **CO3:** Draw analysis data using spreadsheets to make decisions.
- **CO4:** Make meaningful representations of data in the form of charts and pivot tables.
- **CO5:** Manage data in database tables and use the same for generating queries, forms and reports.

SEC2: FORENSIC CHEMISTRY (SEMESTER II)

On completion of the course, the student will be able to:

- **CO1:** Describe latent fingerprints, various methods of detection of latent fingerprints
- **CO2:** Collection and preservation of evidence from crime scenes.
- **CO3:** Detective dyes, alcohol and explosive analysis in forensic science

Value Addition Course (VAC) (Common Pool)

VAC2: FIT INDIA (SEMESTER-II)

On completion of the course, the student will be able to:

- **CO1:** Adopt a healthy lifestyle.
- **CO2:** Understand the importance of nutrition, diet and psycho-physiological aspects of fitness.
- **CO3:** Do low intensity to high intensity work outs.
- **CO4:** Do work outs with target muscles and benefits.
- **CO5:** Have conciousness about diet and nutirition make them concious about their eating habits.
- **CO6:** Develop Self-esteem, Self-confidence, Self-discipline and team spirit as indicators of fitness.

- **CO7:** Guide others to some extent.

5. COURSE: B.COM. (HONS.)

DEPARTMENT: COMMERCE

Program Outcomes

Programme learning outcomes for B. Com. include various subject specific skills and generic skills like mind management, creativity, and innovation of competencies in diverse areas of Commerce and Business, the achievement of which will be demonstrated by the students of B.Com. Hons. for the award of bachelor degree. The programme learning outcomes of B. Com. also enable a student to prepare for further study, employment, and good citizenship. Further, the difference in the level of achievement of programme outreach provides for comparing of learning levels and standards across different college/institution. The various learning outcomes of the programme are mentioned below:

PO1: Bachelor's Degree in Commerce results in giving comprehensive knowledge of Marketing, Human Resource Management, Business and Corporate Law, Economics, Finance, Accounting, Management, Tax and several other branches of Commerce that includes Investment, Insurance, and Banking. Thus, this programme helps students in building a concrete footing for advanced studies in Commerce and to stand with the requirement of business sector, insurance, banking seeking youth fit for employment.

PO2: Students undergoing this programme will be equipped to the world of work, particularly, work of the future. The student will get a first-hand exposure of working in the real world.

PO3: Students completing this programme will be able to develop managerial knowledge and tactical dexterity, with a broader skill set and encourages them to seek out audacious, innovative solutions for today's business.

PO4: Completion of this programme will also enable the students to formulate business problems and provide innovative solutions thus, moulding them into future visionaries, management leaders that are compassionate yet efficient.

PO5: The course provides an extreme and rigorous base for teaching, research, and allied business administrations.

Course Outcomes: B.Com. (Hons.) (NEP UGCF 2022)

Core Course(s)

DSC-1: Management Principles and Applications (Semester I)

The Learning Outcomes of this course are as follows:

- describe the various levels of management and applicability of management principles.
- evaluate a company's competitive landscape as per Porter's Five-force model.
- demonstrate various types of authority, delegation and decentralization in authority
- demonstrate various types of leadership styles and identify the motivation techniques used by leaders.
- discuss the impact of emerging issues in management.

DSC-2: Business Laws (Semester I)

The Learning Outcomes of this course are as follows:

- examine basic aspects of contracts vis-a-vis agreements and subsequently enter into valid business propositions.
- describe various modes of discharge of contract and remedies available in case of a breach.
- recognize and differentiate between the special contracts.
- analyse the rights and obligations under the Sale of Goods Act.
- apply skills to form and manage entrepreneurial ventures as LLP.

DSC-3: Financial Accounting (Semester I)

The Learning Outcomes of this course are as follows:

- apply the generally accepted accounting principles while recording transactions and preparing financial statements.
- demonstrate the accounting process under a computerised accounting system.
- measure business income applying relevant accounting standards.
- evaluate the impact of depreciation and inventories on Business Income.
- prepare the Financial Statements of sole proprietor firms and Not-For-Profit Organisations.
- prepare the accounts for Inland Branches, Departments and Leases.

BCH: DSC- 2.1: Corporate Accounting (Semester II)

After completion of the course, learners will be able to understand:

- Analyze the matters related to issues of share capital, debentures, bonus shares, redemption of preference shares and debentures of a company.
- Prepare financial statements of companies manually as well as using online software.
- Interpret the valuation of intangible assets and shares.
- Describe accounting for Amalgamation and Internal Reconstruction of Companies.
- Prepare annual reports of companies and analyze the voluntary and mandatory information contained in them.

BCH: DSC- 2.2: Company Law

After completion of the course, learners will be able to:

- Analyze the regulatory aspects and the broader procedural aspects involved in different types of companies covering the Companies Act, 2013 and Rules.
- Prepare the basic legal documents and their usage essential for formation of a company.
- Analyze the process and documents required for raising capital for the company.
- Analyze the managerial composition of companies and examine the process of company meetings.
- Evaluate the framework of dividend distribution and develop understanding of the winding up process including Insolvency Resolution.

BCH: DSC- 2.3: Human Resource Management

After the completion of the course, the learners will be able to:

- Evaluate the importance of contemporary and emerging HR issues.
- Analyze the concept and sources of recruitment and selection process.
- Devise employee training and development programs.
- Design performance appraisal techniques and compensation schemes.
- Design HR policies for employee engagement and experience; grievance redressal, employee health, safety, welfare, and social security, for employees to attain stress-free work life balance.

Generic Elective Course(s) (GE) (Common Pool)

GE-1: BUSINESS ORGANISATION (Semester I)

The Learning Outcomes of this course are as follows:

- examine the dynamics of the most suitable form of business organisation in different situations.
- evaluate the various elements affecting the business environment.
- analyse business models for different organisations.
- record and report emerging issues and challenges of business organisations.
- evaluate changes in the working pattern of modern organisations

GE 2: FINANCE FOR EVERYONE (Semester I)

The Learning Outcomes of this course are as follows:

- explain the importance of financial literacy and the institutions providing financial services.
- prepare a financial plan, and budget and manage personal finances.
- avail and manage services offered by banks.
- avail and manage services offered by post offices.
- plan for life insurance and property insurance.
- choose instruments for investment in shares.

GE 3: Marketing for Beginners (Semester I)

- evaluate the companies following societal marketing concepts and along with their social initiatives.
- judge the segmentation of a product, service, event, or organisation of companies.
- analyse the process of value creation through marketing decisions involving product, pricing and distribution.
- compare the pricing strategies of various companies.
- explain marketing decisions involving product promotion and acquire knowledge about the various developments in the marketing area.

GE 4: Accounting for Everyone (Semester I)

The Learning Outcomes of this course are as follows:

- Analyze various terms used in accounting;
- Make accounting entries and prepare cash books and other accounts necessary while running a business;
- Prepare profit and loss account and balance sheet;
- Prepare accounts based on accounting software;
- Analyze information from the company's annual report.

GE- 5: COMPUTER APPLICATIONS IN BUSINESS (Semester I)

- describe the various concepts and terminologies used in computing, computer networks and the internet.
- examine document creation for report making and communication.
- identify and make good presentations.
- analyse various computations using various functions in the area of accounting and finance and represent the business data using suitable charts. s/he should also be able to manipulate and analyse the business data for a better understanding of the business environment and decision-making.
- identify the spreadsheet knowledge acquired through this paper in solving reallife problems that help in decision making.

GE- 6: Bhartiya Gyan Parampara (Indian Knowledge (Semester I)

The Learning Outcomes of this course are as follows:

- apportion the experience of the Gurukul system of education Indian culture
- explain the concept of oneness (Ekatma Bhav).
- use meditation on Panchkoshas and Chakras for enhancing productivity.
- apply the management principles from the epics and compare them with the policies and schemes of the Government of India.

GE 7: Basic Personal Taxation (Semester I)

The Learning Outcomes of this course are as follows:

- analyse the basic concepts of income tax and determine the residential

status of different persons;

- compute income under the heads salaries and income from house property;
- compute income under the heads Profits and gains of business or profession and capital gains;
- compute income under the head income from other sources and understand the provisions relating to income of other persons included in assesses total income; and
- analyse various deductions and computation of total income and tax liability of individuals.

BCH: GE- 2.1: Communication in Management (Semester II)

After completion of the course, learners will be able to:

- analyse the need of communication in management.
- interpret the need for effective listening.
- examine the concepts of written and spoken communication.
- demonstrate the role of group discussion and interviews.
- summarise business reports and proposals.

BCH: GE- 2.2: Financial Management For Beginners (Semester II)

After completion of the course, learners will be able to:

- understand the overview of finance, the concept of time value of money and risk & return.
- learn financial analysis with the aid of various financial statements & analyse the capital budgeting process and techniques.
- analyse the cost of capital, capital structure and leverage.
- examine dividend & working capital dividend decisions.
- perform valuation of securities.

BCH: GE- 2.3: Sales Promotion (Semester II)

After completion of the course, learners will be able to:

- evaluate the importance of sales promotion in marketing.
- Analyze the different forms of sale promotion.

- Design different tools for sales promotion campaign and analyze the need of a particular tool.
- Develop and evaluate sales promotion campaigns.
- Analyze the ethical and legal aspects of sales promotion.

BCH: GE- 2.4: Computerised Accounting System (Semester II)

After completion of the course, learners will be able to:

- analyze the significance of accounting in an organization.
- prepare and analyze financial statements.
- create a structure of a computerised accounting system for a business firm.
- record day to day business transactions in Computerised Accounting System
- evaluate the necessary adjustments for Goods and Service Tax (GST) while recording business transactions
- generate various accounting reports for analysis and decision making.

Value Addition Courses (VAC) (Common Pool)

VAC 1: FINANCIAL LITERACY (Semester I)

The Learning Objectives of this course are as follows:

- Familiarity with different aspects of financial literacy such as savings, investment, taxation, and insurance.
- Understand the relevance and process of financial planning
- Promote financial well-being

The Learning Outcomes of this course are as follows:

- Develop proficiency for personal and family financial planning
- Apply the concept of investment planning
- Ability to analyse banking and insurance products
- Personal tax planning

VAC 2: ETHICS AND CULTURE (Semester II)

The Learning Objectives of this course are as follows:

- To help students explore ethical and cultural dimensions of their lives.
- To provide a forum for students to pause, revisit their assumptions and beliefs, and become mindful of their thoughts, emotions and actions.

- To give the students an opportunity to express themselves and inquire into their decision-making processes.
- To cultivate ethical values and participate in the creation of a society based on acceptance, compassion, and justice.

The Learning Outcomes of this course are as follows:

- Explore perspectives on ethics in thoughts, words and actions
- Evolve ethical decision making practises
- Understand the need for an ethical society and culture
- Introspect, become conscious of and assess one's stance in life
- Cultivate empathy, tolerance and compassion
- Apply the values learnt in the course to everyday life

Skill Enhancement Course(s) (SEC) (Common Pool)

SEC 1: DIGITAL MARKETING (Semester I)

The Learning Objectives of this course are as follows:

- To acquaint the students with the knowledge of growing integration between the traditional and digital marketing concepts and practices in the digital era.
- To familiarize the students with the tools and techniques used by the digital marketers for driving the marketing decisions to attain marketing objectives.

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to understand the concept of digital marketing and its integration with traditional marketing.
- After studying this course, students will be able to understand customer value journey in digital context and behaviour of online consumers.
- After studying this course, students will be able to understand email, content and social media marketing and apply the learnings to create digital media campaigns.
- After studying this course, students will be able to examine various tactics for enhancing a website’s position and ranking with search engines.
- After studying this course, students will be able to leverage the digital strategies to gain competitive advantage for business and career.

SEC 2: PERSONAL FINANCIAL PLANNING (Semester II)

The Learning Objectives of this course are as follows:

- To familiarize students with different aspects of personal financial planning like savings, investment, taxation, insurance, and retirement planning.
- To develop the necessary knowledge and skills for effective financial planning.

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to understand the meaning and appreciate the relevance of financial planning.
- After studying this course, students will be able to understand the concept of investment planning and its methods.
- After studying this course, students will be able to examine the scope and ways of personal tax planning.
- After studying this course, students will be able to analyse insurance planning and its relevance.
- After studying this course, students will be able to develop insight into retirement planning and its relevance.

6. COURSE: B.A. (HONS.) ECONOMICS

DEPARTMENT: ECONOMICS

Program Outcomes

The courses offered by the Economics Department provide a rigorous basis for much of the advanced thinking in the Economics discipline.

PO1: It provides the student with a logical paradigm for conceptualising and interpreting the behaviour and interactions of households, firms, and government institutions.

PO2: The curriculum allows students to choose elective courses from a set of courses with contemporary relevance, thereby offering students the flexibility to prepare for careers in academia, law, management, journalism, government, and many other fields.

PO3: The programme is consistent with global standards in the Economics discipline.

PO4: It offers training that is comparable to that of an undergraduate student at the world's best universities.

Course Outcomes: B.A. (Hons.) Economics (NEP UGCF 2022)

Core Course(s)

ECON001: Introductory Microeconomics (Semester-I)

This course is designed to expose students to the basic principles of microeconomic theory. The emphasis will be on teaching the fundamental economic trade-offs and allocation problems due to scarcity of resources. This course will use graphical methods to illustrate how microeconomic concepts can be applied to analyse real-life situations. The course learning outcomes are as follows:

- Students will learn to think about economic trade-offs and opportunities.
- They will learn the fundamentals of market mechanisms and government interventions.

ECON002: Introductory Mathematical Methods for Economics (Semester-I)

This is the first of a compulsory three-course sequence. The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The sophistication would be maintained at a standard level to grow in the profession. The course learning outcomes are as follows:

- The course hones and upgrades the mathematical skills acquired in school and paves the way for the second semester course Intermediate Mathematical Methods.
- The analytical tools introduced in this course have applications wherever unconstrained optimisation techniques are used in economics and business decision-making.
- These tools are necessary for anyone seeking employment as an analyst in the corporate world.
- The course additionally makes the student more logical in making or refuting arguments.

ECON003: Introductory Statistics for Economics (Semester-I)

The course familiarizes students with methods of summarizing and describing important features of data. The course teaches students the basics of probability theory and sets a necessary foundation for Inferential Statistical Theory and the Econometrics courses. The familiarity with probability theory will also be valuable for courses in economic theory. The course outcomes are as follows:

- The student would understand the concept of probability, random variables and their distributions and become familiar with some commonly used discrete and continuous distributions of random variables so that they would be able to analyse various real-life data.

ECON004: Core Introductory Macroeconomics (Semester-II)

This course introduces students to the basic concepts of macroeconomics. It discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variables like GDP, savings, investment, money, inflation, unemployment and the balance of payments. It also introduces the simple analytical framework (e.g., the IS-LM model) for analysing the relationships among key macroeconomic variables. The course outcomes are as follows:

- The students would be able to familiarise the broad macroeconomic concepts like GDP, inflation, money supply, interest rate and their inter-linkages and their interrelationships.
- It will also allow them to critically evaluate various macroeconomic policies and their effects on output and interest rate in the economy.

ECON005: Intermediate Mathematical Methods for Economics (Semester-II)

This course is the second part of a compulsory three-course sequence. The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically for the courses on microeconomic theory, macroeconomic theory, statistics and econometrics. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The course outcomes are as follows:

- The course builds the mathematical foundations necessary for further study of a variety of disciplines including postgraduate economics, statistics, computer science, finance and data analytics.
- The analytical tools introduced in this course have applications wherever optimization techniques are used in business decision-making for managers and entrepreneurs alike.
- These tools are necessary for anyone seeking employment as an analyst in the corporate world.

ECON006: Intermediate Statistics for Economics (Semester-II)

This course focuses on techniques for statistical inference. The main objective of the course is to help students understand how to draw inference from samples regarding the underlying populations using point estimation, interval estimation and hypothesis testing. The course outcomes are as follows:

- An important learning outcome of the course will be the capacity to use and analyse statistics in everyday life.

- The course will improve students' ability to analyse data, make decisions, form predictions, and conduct research.

Generic Elective Course(s) (GE) (Common Pool)

ECON025: Principles of Microeconomics I (Semester-I)

This course discusses the basic principles in Microeconomics and their applications. It includes consumer's problem, demand estimation, production function, cost functions and market analysis. It illustrates how the concepts of microeconomics can be applied to analyze real-life economic situations. The course outcomes are as follows:

- The students learn some basic principles of microeconomics of consumer and producers, and interactions of supply and demand, characteristics of perfect competition, efficiency and welfare outcomes.

ECON029: Basic Development Economics (Semester-I)

This course exposes students to some of the key ideas and concepts in the areas of economic growth, human development and globalisation building on the concept of growth and further links it up with alternative conceptions of development. The course outcomes are as follows:

- Students will develop a critical understanding of the contemporary issues in economic growth and development and their paths.
- Students will thus be better prepared to face the professional world and can use this knowledge base in a variety of jobs, including in the corporate, civil service and NGO sectors.

ECON026: Principles of Macroeconomics I (Semester-II)

This course introduces the basic concepts in Macroeconomics both in closed and open economy. It deals with the behaviour and characteristics of aggregate economy. This course introduces the definition, measurement of the macroeconomic variables like GDP, consumption, savings, investment and balance of payments. The course also discusses various theories and approaches of determining GDP. The course outcomes are as follows:

- The students will learn the broad understanding of macroeconomic variables and their measurement issues like GDP, inflation, money supply, interest rate and their interlinkages.
- It will also allow them to critically evaluate various macroeconomic policies and their effects on output and interest rate in the economy.

Skill Enhancement Course(s) (SEC)

Digital Marketing (Semester-I)

This course aims to acquaint the students with the knowledge of growing integration between the traditional and digital marketing, concepts and practises in the digital era. It also familiarises the students with the tools and techniques used by the digital marketers for driving the marketing decisions to attain marketing objectives. The learning outcomes of the course are as follows:

- After studying the course, students will be able to understand the concept of digital marketing and its integration with traditional marketing.
- After studying this course, students will be able to understand customer value journey in digital context and behaviour of online consumers.
- After studying this course, students will be able to understand email, content and social media marketing and apply the learnings to create digital media campaigns.
- After studying this course, students will be able to examine various tactics for enhancing the websites position and the ranking with search engines.
- After studying this course, students will be able to leverage the digital strategies to gain competitive advantage for business and career.

Social Media Marketing (Semester-II)

This course aims to provide basic knowledge of social media marketing concepts and to enhance skills as social media marketer and start a career in social media marketing. After completion of the course, learners will be able to:

- Evaluate the role of social media and marketing, advertising and public relations.
- Assess the optimal use of various social media platforms for social media marketing.
- Analyse the importance of social media for developing an effective marketing plan, and assess ways to measure its performance.
- Describe practical skills required for creating and sharing content through online communities and social networks.
- Demonstrate and appreciate social media ethics to use social media spaces effectively.

Value Addition Course(s) (VAC) (Common Pool)

Financial Literacy (Semester-I)

The course intends to develop familiarity with different aspects of financial literacy, such as savings, investment, taxation and insurance and understand the relevance and process of

financial planning, to promote financial well-being. The course learning outcomes of this course are as follows:

- Develop proficiency for personal and family financial planning.
- Apply the concept of investment planning.
- Ability to analyse banking and insurance products
- Personal tax planning

Digital empowerment (Semester-II)

The course has been designed to understand the digital world and need for digital empowerment and create awareness about digital India. It tries to impart awareness on cyber safety and security. After the completion of this course, students will be able to

- Use ICT and digital services in daily life.
- Communicate and elaborate in cyberspace using social platforms, teaching/learning tools.
- Understand the significance of security and privacy in the digital world.
- Recognise ethical issues in the cyber world.

7. COURSE: B.SC. (HONS.) ELECTRONICS

DEPARTMENT: ELECTRONICS

Program Outcomes

PO1: Ability to apply knowledge of mathematics & science in solving electronics related problems.

PO2: Ability to design and conduct electronics experiments, as well as to analyse and interpret data.

PO3: Ability to design and manage electronic systems or processes that conforms to a given specification within ethical and economic constraints.

PO4: Ability to identify, formulate, solve and analyse the problems in various disciplines of electronics.

PO5: Ability to function as a member of a multidisciplinary team with sense of ethics, integrity and social responsibility.

PO6: Ability to communicate effectively in term of oral and written communication skills.

PO7: Recognize the need for, and be able to engage in lifelong learning PLO8 Ability to use techniques, skills and modern technological /scientific / engineering software/tools for professional practices.

Course Outcomes: B.SC. (Hons.) Electronics (NEP UGCF 2022)

Core Course(s)

ELDSC 1: Programming Fundamentals Using Python (Semester I)

This course aims to introduce the student to the fundamental understanding of the Python programming language. To help students learn to use the Python programming language to solve problems of interest to them. To introduce the core programming basics including data types, operators, input/output, control structures, iterative and recursive constructs, compound data types, and program design with functions. To discuss the fundamental principles of Object-Oriented Programming (OOP), as well as comprehensive data and information processing techniques. After completion of the course, students will be able to

- Read, write and debug Python programs to solve computational problems.
- Select and use a suitable programming construct and data objects like lists, sets, tuples and dictionaries for solving a given problem.
- Be proficient in the handling of strings and functions.
- Use Python libraries.
- Articulate OOP concepts such as encapsulation, inheritance and polymorphism and use them in applications

ELDSC 2: Circuit Theory and Network Analysis (Semester I)

The Learning Objectives of this course are: To study the basic circuit concepts in a systematic manner suitable for analysis and design. To study the steady state analysis of AC Circuits. To study and analyse electric circuits using network theorems. To study and design passive filters using R, L and C. After completion of the course, students will be able to

- Study basic circuit concepts in a systematic manner suitable for analysis and design.
- Determine AC steady state response.
- Analyse the electric circuit using network theorems.
- Determine frequency response of filters.

ELDSC 3: Semiconductor Devices (Semester I)

The Learning Objectives of this course are: To understand the Physics of semiconductor devices. To be able to plot and interpret the current-voltage characteristics for basic

semiconductor devices. The student should be able to understand the behaviour, characteristics and applications of power devices such as SCR, UJT, DIAC, TRIAC, IGBT. After completion of the course, students will be able to:

- Describe the behaviour of semiconductor materials.
- Reproduce the I-V characteristics of diode/BJT/MOSFET Devices.
- Apply standard device models to explain/calculate the critical internal parameters of semiconductor devices.
- Explain the behaviour and characteristics of power devices such as SCR/UJT etc.

ELDSC 4: Basic Instrumentation and Measurement Techniques (Semester II)

The objective of this subject is to provide insight into electronic instruments being used in the industries and labs. It details the basic working and use of different instruments used for measuring various physical quantities. It also, details the identification, classification, construction, working principle and applications of various transducers used for displacement, temperature, pressure and intensity measurement. After completion of the course, students will be able to

- Describe the working principle of different measuring instruments.
- Choose appropriate measuring instruments for measuring various parameters in their laboratory courses.
- Understand the significance of different measuring instruments including oscilloscopes.

ELDSC 5: Digital Electronics (Semester II)

The Learning Objectives of this course are: To represent information in various number systems. To convert data from one number system to another and do various arithmetic operations. To analyze logic systems and to implement optimized combinational circuits using Karnaugh Map. To analyze and implement sequential circuits using state machines.To analyze various memories and programmable logic devices. To analyze and understand the working of data converters. After completion of the course, students will be able to

- Understand the concept of the number system with emphasis on binary numbers, its algebra and minimization techniques.
- Understand basic logic gates, concepts of Boolean algebra and techniques to reduce/simplify Boolean expressions.
- Analyze and design combinational as well as sequential circuits.
- Understand the concepts related to Memories and PLD‘s.

- Understand the working of analog to digital converters, digital to analog converters

ELDSC 6: Analog Electronics-I (Semester II)

The Learning Objectives of this course are: Understand diodes (pn diode and Zener diode) and its applications in clipping and clamping circuits, rectifiers and voltage regulation (using Zener diodes) and concept of Power Supply. Understand frequency response of BJT and MOSFET amplifiers. Understand the concept of feedback and design feedback amplifiers and oscillators. Understand different power amplifiers and single tuned amplifiers. After completion of the course, students will be able to

- Illustrate about rectifiers, transistor and MOSFET amplifiers and its biasing. Also compare the performances of its low frequency models.
- Describe the frequency response of MOSFET and BJT amplifiers.
- Explain the concepts of feedback and construct feedback amplifiers and oscillators.
- Summarizes the performance parameters of amplifiers with and without feedback.

Generic Elective(s) (Common Pool)

GE 1: Data Engineering and Analytics (Semester I)

The objective of this course is to introduce students to data analysis and impart them solve data analytics problem. Data Engineering is basically designing and building pipelines that transform and transport data into a highly usable format before it reaches the data scientists or end users. These pipelines must take data from many disparate sources and collect them into a single warehouse that represents the data uniformly as a single source of truth. After completion of the course, students will be able to:

- Use data analysis tools in the pandas library
- Develop understanding of basic data analysis techniques
- Collect, explore, clean, munge, and manipulate data
- Solve real world data analysis problems
- Build data science applications using python-based toolkits

GE 2: Data Visualization (Semester II)

This course is all about Data Visualization, the art and science of turning data into readable graphics. It enables the students to design and create data visualizations based on data available and tasks to be achieved. This process includes data modeling, data processing (such as aggregation and filtering), mapping data attributes to graphical attributes, and strategic visual encoding based on known properties of visual perception as well as the task(s) at

hand. Students will also learn to evaluate the effectiveness of visualization designs, and think critically about each design decision, such as choice of colour and choice of visual encoding. Students will create their own data visualizations and learn to use Open-Source data visualization tools. After completion of the course, students will be able to:

- Design and create data visualizations.
- Conduct exploratory data analysis using visualization.
- Craft visual presentations of data for effective communication.
- Use knowledge of perception and cognition to evaluate visualization design alternatives.
- Design and evaluate color palettes for visualization based on principles of perception.
- Apply data transformations such as aggregation and filtering for visualization.
- Identify opportunities for application of data visualization in various domains.

Skill Enhancement Course(s) (SEC) (Common Pool)

SEC 1: Analytics/Computing with PYTHON (Semester I)

The Learning Objectives of this course are: To introduce machine learning techniques to students using python programming. To enable students to use various tools and packages for advanced data analysis. The learning outcomes of this course are as follows:

- After studying this course, students will be able to learn about python's main features and how they make python a great tool for financial analysts.
- After studying this course, students will be able to get familiarized with anaconda and Jupiter notebook.
- After studying this course, students will be to learn basics of machine learning
- After studying this course, students will be able to apply these techniques on data.

SEC 2: R Programming for Data Analytics (Semester II)

The Learning Objectives of this course are: To introduce the basic concepts in R programming. To equip the students with the popular statistical programming language R. To familiarize the students with utility of 'R' for managerial decision making. The learning outcomes of this course are as follows:

- Learn Syntax and Semantics of R Programming
- Understand the file system and data handling in R.
- Visualize and analyse the data using statistical methods.

- Apply best practice model design methodologies to real problems using R.

Value Addition Courses (VAC) (Common Pool)

VAC 1: Digital Empowerment (Semester I)

The Learning Objectives of this course are as follows:

- To understand the digital world and need for digital empowerment
- To create awareness about Digital India.
- To explore, communicate and collaborate in cyberspace.
- To build awareness on cyber safety and security.

The learning outcomes of this course are as follows:

- Use ICT and digital services in daily life.
- Develop skills to communicate and collaborate in cyberspace using social platforms, teaching/learning tools.
- Understand the significance of security and privacy in the digital world.
- Evaluate ethical issues in the cyber world

VAC 2: Social and Emotional Learning (Semester II)

The Learning Objectives of this course are as follows:

- To develop social and emotional awareness in students and initiate them towards better personal and social well-being.
- To create an awareness towards self, others, the environment and their harmonious coexistence.

The learning outcomes of this course are as follows:

- Become aware of oneself and the society.
- Make informed lifestyle choices and extend the self in the joy of giving.
- Develop empathy, compassion, connect with nature and evolve emotionally to create a more harmonious society.
- Cultivate sensitivity towards discriminatory practices and explore possible solutions.

8. COURSE: B.A. (HONS.) ENGLISH

DEPARTMENT: ENGLISH

Program Outcomes

PO1: The course develops critical and analytical abilities of learners thorough study of texts from a cross-section of periods, geographies and genres.

PO2: The course introduces students to literary traditions and contemporary literary approaches thereby opening them up to critical questions and social debates.

PO2: The course engenders appreciation of the language among students through aesthetic analysis of a variety of texts.

PO3: The course builds academic and analytical abilities as well as intellectual stamina by introducing them to various ways of analysing a text.

PO4: Through a study of classical texts, the programme connects literature to disciplines like history, sociology, geography and political science.

Program Specific Outcomes (PSO's)

PSO1: To offer students a foundational understanding of the domain of literature, its genres, methods of critique and its distinctive ability to influence and project social and cultural change.

PSO2: To offer students a basic understanding of the mode of thought and understanding in classical Europe and contextualize the western classical texts within literary studies in a scholarly manner.

PSO 3: To offer students a foundational understanding of Indian classical literary tradition and introduces students to a rich and diverse literature from two classical languages of India, Sanskrit and Tamil.

PSO4: To introduce the discipline of literary studies in English in a chronological manner, with specific reference to the social and cultural determinants of the period under review.

PSO5: To illustrate the ability of poetry to articulate the need for social and cultural reform.

PSO6: By studying this course, students will be able to develop a basic sense of the way in which drama works as genre on its own terms.

PSO7: Students' imagination will be stimulated by showing how theatre can analyse and critique political and cultural hierarchies successfully.

PSO8: To offer a continuing sense of the evolution of literary studies in English, so that the quiet revolutions of the eighteenth century in England resonate with significance in contemporary times.

PSO9: To study the period under survey through a combination of genres to focus on movements of empire, capital and emancipation.

Course Outcomes: B.A. (Hons.) English (NEP UGCF 2022)

Core Course(s)

DSC 1: Introduction to Literary Studies (Semester-I)

- CO1: By the end of this course, it is hoped that a basic sense of literature as a discipline of thought and application will be inculcated among students.

DSC 2: European Classical Literature (Semester-I)

- CO1: By the end of this course, students will gain an understanding of the classical, that is valuable in itself and as a frame of reference for subsequent periods of literary studies.

DSC 3: Indian Classical Literature (Semester-I)

- CO1: Students will be able to gain knowledge of the aesthetic and cultural values that serve as the groundwork for later developments in Indian philosophical and social change.

DSC 4: 14th to 17th Century English Poetry (Semester-II)

- CO1: By studying this course, students will be able to develop a basic sense of the tools and methods employed by the poetry of the period to analyse and change social and political hierarchies.
- CO2: Students will inculcate a foundational understanding of the distinctive ways in which poetry works.

DSC 5: 16th & 17th Century English Drama (Semester-II)

- CO1: By studying this course, students will be able to develop a basic sense of the way in which drama works as genre on its own terms.
- CO2: Students' imagination will be stimulated by showing how theatre can analyse and critique political and cultural hierarchies successfully.

DSC 6: 18th Century Literature (Semester-II)

- CO1: By studying this course, students will be able to understand the way in which the 'Age of Reason' shapes contemporary life.
- CO2: Students will be alerted to understanding the ways in which major lines of thought and action may have understated beginnings.

Generic Elective (GE) (Common Pool)

GE1: Indian English Literatures (Semester-I)

- CO1: To introduce literary texts from a range of regional, cultural, social, and political locations within India
- CO2: To inculcate an in-depth understanding of some of the major issues shaping this literary production
- CO3: This course will help students to comprehend regional differences in the issues discussed and in socio-cultural contexts.
- CO4: Students will be enabled to analyze the use of the English language by non-native speakers and writers.

GE2: Individual and Society (Semester-II)

- CO1: To outline the ways in which individual and society engage with each other across socio political and geopolitical contexts.
- CO2: To identify the texts and discuss the contexts that enable such an engagement and continue to shape the world.
- CO3: By studying this course, students will be able to demonstrate an ability to evaluate the continuing significance of identity-construction and aesthetic representation.
- CO4: Students will be able to assess and justify the ways in which different modes of narratives reconfigure the relationships between individual and society.

Skill Enhancement Course (SEC) (Common Pool)

SEC: LIFE SKILL EDUCATION (Semester-I)

- CO1: Focus on development of values in strengthening knowledge and life skills, bringing high quality standards in field work practice-learning.
- CO2: Understand the strength-based life skill development, team work, innovate leadership, design thinking and career building skills
- CO3: Develop universal human values while utilizing life skills in field work.

9. COURSE: B.A. (HONS.) HINDI

DEPARTMENT: HINDI

Program Outcomes

भारतीय संविधान में देवनागरी लिपि में लिखित हिंदी को संघ की राजभाषा घोषित किया गया है । हिंदी पढ़ने वाले छात्र को भाषा की क्षमता से परिचित होना जितना आवश्यक है उतना ही उसे समाज की चुनौतियों के संदर्भ में जोड़ने की योग्यता विकसित करना भी जरूरी है । आज हम भूमंडलीकृत समाज के सदस्य हैं अतः पाठ्यक्रम का उद्देश्य विद्यार्थी को देश-विदेश के साहित्य में हो रहे बदलाव से परिचित कराना भी है और व्यावसायिक योग्यता उत्पन्न करना भी! यह पाठ्यक्रम बाजारवाद और भूमंडलीकरण की वैश्विक गति के बीच से ही हिंदी की राष्ट्रीय प्रगति को भी सुनिश्चित करेगा क्योंकि सशक्त भाषा के बिना किसी राष्ट्र की उन्नति संभव नहीं है ।यह पाठ्यक्रम वर्तमान संदर्भों के अनुकूल है साथ ही इस पाठ्यक्रम का आधुनिक रूप रोजगार परक भी है ।यह पाठ्यक्रम विद्यार्थियों को व्यावहारिक पहलू से अवगत करा सकेगा । हिंदी साहित्य की नई समाज और भाषा की व्यवहारिकता की जानकारी इसका प्रमुख है ।इस पाठ्यक्रम का उद्देश्य भाषा और समाज के जटिल संबंधों की पहचान करना भी है जिससे विद्यार्थी देश ,समाज, राष्ट्र और विश्व के साथ बदलते समय में व्यापक सरोकारों से अपना संबंध जोड़ सकें साथ ही उसके भाषा कौशल , लेखन और संप्रेषण क्षमता का भी विकास हो सके ।

Programme learning outcomes:

इस पाठ्यक्रम को पढ़ने-पढ़ाने के क्रम में निम्नलिखित परिणाम सामने आएंगे : -

1.इस पाठ्यक्रम के माध्यम से सीखने सिखाने की प्रक्रिया में हिंदी भाषा के आरंभिक स्तर से अब तक के बदलते रूपों की विस्तृत जानकारी प्राप्त की जा सकेगी ।

2.भाषा के सैद्धांतिक रूप के साथ-साथ व्यावहारिक पक्ष को भी जाना जा सकेगा ।

3. उच्च शैक्षिक स्तर पर हिंदी भाषा किस प्रकार महत्वपूर्ण भूमिका निभा सकती है इससे संबंधित परिणाम को प्राप्त किया जा सकेगा।

4. छात्र अपनी भाषा को सीखने की प्रक्रिया में भाषागत मूल्यों को व्यावहारिक रूप से भी जान सकेंगे ।

5. व्यावसायिक क्षमता को बढ़ावा देने के लिए भाषा, अनुवाद, कंप्यूटर जैसे विषयों को हिंदी से जोड़कर पढ़ाना जिससे बाजार के लिए आवश्यक योग्यता का भी विकास किया जा सके।

6. हिंदी के अतिरिक्त भारतीय साहित्य का ज्ञान भी अपेक्षित रहेगा जो छात्रों के व्यक्तित्व विकास में सहायक होगा तथा अभिव्यक्ति क्षमता का भी विकास किया जा सके ।

7. साहित्य के सौंदर्य, कला बोध के साथ वैचारिक मूल्यों को बढ़ावा देना ।

8.साहित्यिक विधाओं के माध्यम से विद्यार्थी की रचनात्मकता को दिशा देना I कविता, कहानी और नाटक जैसी विधाओं द्वारा विद्यार्थी की रचनात्मकता को प्रोत्साहित करना।

9. साहित्य के आदिकालीन संदर्भों से लेकर समकालीन रूप से परिचित कराना जिससे विद्यार्थी साहित्यकार और युगबोध के संबंध को परख और पहचान सके ।

10. साहित्य विवेक का निर्माण, मानव मूल्यों की स्थापना तथा सांस्कृतिक पहचान को सशक्त करना।

Course Outcomes: B.A. (Hons.) Hindi (NEP UGCF 2022)

Core Course(s)

B A (HONS) HINDI बी ए (हिंदी) प्रथम वर्ष

पेपर नाम - हिंदी कविता (आदिकाल एवं निर्गुण भक्ति काव्य) – DSC-1(कोर कोर्स1)

Course objective

- हिंदी साहित्य के आदिकालीन एवं भक्तिकालीन साहित्य से परिचय करवाना ।
- आदिकाल के दो प्रमुख कवियों - चंदरबरदाई और विद्यापति की विशिष्ट भूमिका रही है । विद्यार्थी इन साहित्यकारों से परिचित होंगे
- निर्गुण भक्ति काव्य के अन्तर्गत - संतकाव्य एवं प्रेमाख्यानक काव्य के प्रमुख कवियों कबीर , जायसी आदि का अध्ययन करना और हिंदी साहित्य के अन्तर्गत उनके योगदान पर विचार करना।

Course learning outcomes

- आदिकाल के परिवेश - राजनीतिक , सामाजिक , सांस्कृतिक ,धार्मिक परिस्थितियों से अच्छी प्रकार परिचित हो सकेंगे ।
- आदिकाल में चंदरबरदाई के साहित्यिक और संगीत के क्षेत्र में योगदान से परिचित हो सकेंगे

- भक्तिकाल हिंदी साहित्य का स्वर्ण युग है । इसके अध्ययन से मानवीय और नैतिक मूल्यों का' विकास होगा ।
- भक्तिकाल के साहित्य में सामंत व्यवस्था का विरोध हुआ , यह इस काव्य की विशिष्ट उपलब्धि है।

हिंदी साहित्य का इतिहास(आदिकाल एवं मध्यकाल)

Core course – (DSC) 2

Course objective

- हिंदी भाषा में लिखे गए साहित्य के इतिहास का बोध
- प्रमुख रूप से उपलब्ध एवं लिखित इतिहास ग्रंथों की जानकारी
- हिंदी भाषा के साहित्य के आदिकाल, मध्यकाल के कालखंड के इतिहास का ज्ञान

Course Learning outcomes

- हिंदी साहित्य के इतिहास का ज्ञान
- इतिहास ग्रंथों का विश्लेषण
- इतिहास ग्रंथों के निर्माण की पद्धति का ज्ञान

पेपर का नाम - हिंदी कहानी

Core course – (D S C -3)

Course objective

- हिंदी भाषा की कहानी के उद्भव - विकास की जानकारी
- कहानी विश्लेषण की समझ
- कथा साहित्य में कहानी की दशा एवं अवस्था का विवेचन
- प्रमुख कहानीकार और उनके द्वारा लिखी कहानियाँ .

Course Learning outcomes

- हिंदी भाषा के कथा साहित्य से परिचय
- कहानी लेखन और उसके प्रभाव का विश्लेषण

- प्रमुख कहानीकार और उनकी कहानी के द्वारा कहानी की उपादेयता और विश्लेषण की समझ

SEMESTER—2

CORE COURSE (DSC4)

पेपर--- हिंदी कविता : सगुण भक्तिकाव्य एवं रीतिकालीन काव्य

COURSE OBJECTIVE

- सगुण भक्तिकाव्य एवं रीतिकालीन काव्य का अध्ययन समय अवधि की साहित्यिक स्थिति से अवगत कराएगा ।
- सामाजिक राजनीतिक सांस्कृतिक पृष्ठभूमि में कविता के अध्ययन विश्लेषण की जानकारी देना।

COURSE LEARNING OUTCOMES

- हिंदी के मध्यकालीन साहित्य का विशिष्ट परिचय प्राप्त होगा ।
- ब्रजभाषा के समृद्ध साहित्य का रसास्वादन और आलोचनात्मक ज्ञान प्राप्त होगा।

पेपर –हिंदी साहित्य का इतिहास

(आधुनिक काल)

CORE COURSE (DSC 5)

Course objective

- साहित्येतिहास इतिहास की अध्ययन प्रक्रिया में आधुनिक साहित्य के विकास का परिचय।
- साहित्य के स्वरूप और प्रयोजन का ज्ञान ।
- साहित्य और समाज के आपसी रिश्ते और कालजयी कृतियों का परिचय ।

COURSE LEARNING OUTCOMES

- विकास के क्रम में साहित्य के माध्यम से समाज और संस्कृति की पहचान हेतु साहित्येतिहास के अध्ययन का महत्व निर्विवाद है ।
- साहित्य - इतिहास के अध्ययन का एक प्रयोजन साहित्य के विकास की गति और दिशा के साथ-साथ समाज के विकास को भी चिह्नित करना है ।

- साहित्य - इतिहास के बिना साहित्य - विवेक का उचित विकास और निर्माण संभव नहीं ।अतः साहित्य के विवेक के निर्माण के लिए साहित्येतिहास का अध्ययन आवश्यक है]

पेपर -हिंदी निबंध एवं अन्य गद्य विधाएँ

CORE COURSE (DSC 6)

Course objective

- अन्य- गद्य विधाओं की जानकारी ।
- गद्य -विधाओं की विश्लेषण पद्धति ।
- प्रमुख गद्य -विधाओं की चुनी हुई रचनाओं का अवलोकन।

Course learning outcomes

- कथेतर साहित्य का परिचय ।
- विश्लेषण और रचना प्रक्रिया की समझ ।
- प्रमुख रचनाकारों का परिचय ।

Generic Elective (GE) (Common Pool)

पेपर का नाम - हिंदी में व्यावहारिक अनुवाद

Core Course – (GE) 4 credits

Course objective

- अनुवाद की समझ उत्पन्न करना
- व्यावहारिक और क्षेत्र विशेष में अनुवाद गतिविधियों का परिचय देना

Course learning outcomes

- अनुवाद की रोजगारपरक क्षमता विकसित होगी
- क्षेत्र विशेष की मांग से परिचित होंगे

Generic Elective - G E / Language

पेपर नाम - *हिंदी सिनेमा और उसका अध्ययन*

Core course – 4 credits

Course objective

- ' हिंदी सिनेमा संसार की जानकारी
- *सिनेमा के निर्माण , प्रसारण और उपभोग से संबंधित आलोचना तक चिंतन की समझ*

Course Learning Outcomes

- हिंदी सिनेमा , समाज और संस्कृति की समझ
- सिनेमा निर्माण , प्रसार कैमरे की भूमिका आदि की व्यावहारिक समझ ।

10. COURSE: B.A. (HONS.) HISTORY

DEPARTMENT: HISTORY

Program Outcomes

The History Honours curriculum is based on the following programme outcomes:

PO1: The objective of this curriculum is to prepare the students for the society at large.

PO2: This curriculum of B.A History Honours offers students access to cutting edge scholarship organised in a pedagogical form that is accessible and interesting.

PO3: It provides the students with an opportunity to critically analyse the historical processes which have an interminable influence on our society at large.

PO4: It gives requisite information about different aspects of the past to students, to teach them how to deconstruct this information, how to undertake research, frame an argument and debate, a process that has immense significance. The expected outcome is to make students understand the interconnectedness of our present with the past. It provides a mechanism through which students, by acquiring knowledge about the past, also learn the skills to understand the present better.

PO5: On completion of the course students are expected to have acquired the skills of critical thinking, rational enquiry, effective communication, and exploring the relationship between past, present and historiography.

PO6: To acquire knowledge of multiple perspectives through which significant developments in the history of the Indian subcontinent from earliest times up to the period after independence.

PO7: To familiarize them with the significant patterns of development in certain parts of the modern and early modern world as well as certain non-Indian ancient societies.

PO8: To enable them to carefully read a complex historical narrative, evaluate its deployment of evidence, and understand its argument as well as critically analyse the same.

PO9: To be able to identify patterns of change and continuity with regards to issues of contemporary significance over long durations as well as across diverse geo-cultural zones.
PO10: Greater ability to distinguish between a historical phenomenon -- that is time-place-context driven, hence changeable and challengeable -- from that which is not.
PO11: Sensitivity to gender and social inequities as well as acquaintance with the historical trajectories of these issues.
PO12: Greater respect for basic human values and ideals of equality, freedom, respect for diversity, and other constitutional values.
PO13: Skill of picking up disparate sets of information from varied sources and weaving them into a coherent argument with a view to reveal identifiable patterns of development.
PO14: Capability to assume leadership roles and apply the above mentioned analytical ability in various other non-familiar contexts.
PO15: Possess knowledge of the values and beliefs of multiple cultures so as to effectively engage in a multi-cultural society and interact with diverse groups.

Course Outcomes: B.A. (Hons.) History (NEP UGCF 2022)

Core Course(s)

BHH 1.1: History of India I (From the beginning to fourth century BCE) (DSC 01) (Semester-I)

- CO1: To form a foundational basis for understanding early Indian History and to compare the various historiographical trends.
- CO2: To describe, explain and examine the importance of various sources in writing early Indian History.
- CO3: To identify and distinguish between different Prehistoric hunter-gatherers and early food producing societies.
- CO4: To categorise various settlement patterns and explain different aspects of Harappan civilisation (town planning, religion, craft production, trade etc;)
- CO5: To compare and contrast debates on the Aryan question, emergence of various other cultures (PGW, NBPW, Megalithic)
- CO6: To identify Literary and textual traditions and analyse the socio-political institutions and the process of state formation.

BHH 2.1: Social Formations and Cultural Patterns of the Ancient World-1(DSC-2) (Semester-I)

- CO1: The Course aims to introduce students to significant developments in world history that have shaped the complexity of human existence.
- CO2: To offer a historical survey of human evolution.
- CO3: To study the impact of specific ecological conditions on different trajectories of growth, higher population density and social complexity, the emergence of the city and newer crafts.
- CO4: To trace long term changes in the relationship of humans to their landscapes, to resources and to social groups
- CO5: Discuss that human history is the consequence of choices made I=in ecological and biological contexts, and that these choices are not only forced by external forces but are also enabled by changes in technology and systems of cultural cognition.
- CO6: Delineate the significance of early food production and beginning of social complexity.
- CO7: Analyse the process of state formation and urbanism in the early bronze age civilizations.
- CO8: Correlate the ancient past and its connected histories, the ways in which it is reconstructed, and begin to understand the fundamentals of historical methods and approaches.

BHH 3.1: History of the USA: Independence to Civil War (DSC-03) (Semester-I)

- CO1: To explain the emergence of new independent nation in the western hemisphere(USA) At the cost of placing Indigenous tribes behind reserves and introduction of the institution of slavery and racism.
- CO2: To examine the limits of American democracy in its formative stages along with the foundation of the U.S foreign policy.
- CO3: To describe the economics of slavery in the USA along with details of slave culture and forms of resistance.
- CO4: To trace the main issues related to the Civil War and its critical evaluation.

BHH 1.2: History of India-II: c. 300CE-750 CE (DSC 04) (Semester-II)

- CO1: To discuss the ways in which historians have questioned the characterisation of the Mauryan state.
- CO2: To delineate changes in agriculture, technology, craft-production, urban development, trade and use of currency.

- CO3: To analyse critically the changes in the varna caste system and the changing nature of gender relations and property rights.
- CO4: To write and undertake projects related to religious developments, art, architecture and forms of patronage.
- CO5: Appreciate the various sources that help in the reconstruction of our past.
- CO6: Highlight major changes that led to the transition from early historical to the early medieval phase in Indian history (Mauryan to Post-Mauryan period, Tamilakkam

BHH 2.2: Social Formations and Cultural Patterns of the Medieval World-II (DSC: 05) (Semester-II)

- CO1: To identify the main historical developments in Ancient Greece and Rom
- CO2: To gain an understanding of the restructuring of state and society from tribe-based politics to those based on territorial identity and citizenship.
- CO3: To trace the emergence and institutionalization of social hierarchies and marginalisation of dissent.
- CO4: To explain the trends in the medieval economy.
- CO5: To analyse the rise of Islam and the move towards state formation in West Asia.
- CO6: To understand the role of religion and other cultural practices in community organisation.

BHH 3.2: History of the USA: Reconstruction to New Age Politics (DSC-6) (SEM-2) (Semester-II)

- CO1: To explain the reasons for the implementation of Radical Reconstruction and the causes for its limited success.
- CO2: To analyse the growth of capitalism in the USA.
- CO3: To discuss the history of Populist and Progressive Movements.
- CO4: To describe the nature of the Women's liberation Movement and its changing contours from the nineteenth to the twentieth centuries.
- CO5: To trace the significance of the African -American Movement and how it eventually assisted in the emergence of Civil Rights Movement and Martin Luther King Jr.

Generic Elective Course(s) (GE) (Common Pool)

GE 1: Delhi Through the Ages: The Making of its Early Modern History (Semester-I)

- CO1: To acquaint students with the history of Delhi till the early modern period.
- CO2: To analyse the processes of urbanisation as shaped by political, economic and social changes.

GE 2 -Delhi Through the Ages: From Colonial to Contemporary Times (Semester-II)

- **CO1:** To analyse the political developments and their legacy for the shaping of the city.
- **CO2:** To discern the importance of local social, ecological and cultural processes that shape and reshape the city.
- **CO3:** To explain the historical roots of the problems of sustainable urbanisation with regard to Delhi.

Skill Enhancement Course(s) (SEC) (Common Pool)

SEC 1.1: Political Leadership and Communication (Semester-I)

- CO1: To identify the multidisciplinary aspect of Political Leadership and Communication.
- CO2: To explain the meaning of Political Communication and Leadership. Also identify various forms of the same.
- CO3: Developing Communication and Leadership based on research and case studies.
- CO4: Assess various research methodologies in Political communication and leadership and identify issues and challenges.
- CO5: Analysing a political campaign or a leader and to recommend a suitable model based on research.
- CO6: Examining Psephology and exploring various career options.

SEC 1.2: Prospecting e-waste for Sustainability (Semester II)

- CO1: Holistically analyse the environmental as well as health impacts of E-Waste
- CO2: Understand the effective mechanisms to regulate the generation, collection, and storage of E-Waste
- CO3: Develop an understanding of recycling, treatment and disposal of E-Waste and related legislative rules.
- CO4: Apply the skills and various concepts for sustainable management of E-Waste.

- CO5: Decipher the role of various national and international regulations for E-Waste Management.
- CO6: Provide specific recommendations for improved methods of handling E-Waste at different stages such as generation, collection, storage, transport and recycling.

Value Addition Course(s) (VAC) (Common Pool)

VAC 1.1: Constitutional Values and Fundamental Duties (Semester-I)

- CO1: To understand the Constitution and its relevance.
- CO2: To appreciate the values and goals embedded in the Constitution.
- CO3: To recognise the importance of Fundamental Duties enshrined in the Constitution.
- CO4: To apply the spirit of fundamental values and duties in everyday national life.

VAC 1.2: FIT INDIA (Semester-II)

- CO1: Encourage students to adopt a healthy lifestyle.
- CO2: To enable students to understand the benefits of nutrition, diet and psycho-physiological aspects of fitness.
- CO3: To help students to develop self-esteem, self- confidence, self-discipline and team spirits indicators of fitness.
- CO4: Promote fitness as a joyful activity.

11. COURSE: B.SC. (HONS.) MATHEMATICS

DEPARTMENT: MATHEMATICS

Program Outcomes

PO1: The programme covers the full range of courses, from classical Calculus to modern Cryptography, Information Theory, Network Security, Advanced Mechanics and Machine Learning. The course lays a structured foundation of Calculus, Real & Complex Analysis, Abstract Algebra, Differential Equations (including Mathematical Modeling), Geometry of Curves and Surfaces, Linear Analysis and Topology. Courses to be offered during the four-year program and Interdisciplinary programs includes Probability and Statistics, Linear Programming, Numerical Methods, Mathematical Finance, Coding Theory, Mechanics, Biomathematics, Dynamical Systems, Integral Transforms, Mathematical Data Science, Optimization Techniques, Discrete Mathematics, Industrial Mathematics and Machine Learning. Also hand on sessions in Computer Lab using various Computer Algebra Systems

(CAS) soft wares such as SageMath, Mathematica, MATLAB, Maxima and R with Simulation using Spreadsheet and LaTeX to have a deep conceptual understanding of the above tools are carried out to widen the horizon of students' self-experience.

PO2: In order to build strong foundation for research, the curriculum provides opportunity to the students beyond the traditional classroom to explore the area of their specialization in the final semesters VII and VIII. An amalgam of papers having flavour in abstract and applicable mathematics with application-oriented papers in DSC, DSE and SEC pool provides enough tools to take up research projects in the final year thus carving the path towards research.

PO3: Pursuing a degree in mathematics will introduce the students to several interesting and useful ideas in preparations for a number of allied and interdisciplinary careers. The well-structured programme will empower the students better with skills and knowledge leading to enhanced career opportunities across the range of sectors.

Course Outcomes: B.Sc. (Hons.) Mathematics (NEP UGCF 2022)

Core Course(s)

DSC-1: Algebra (Semester I)

The course will enable the students to:

- Determine number of positive/negative real roots of a real polynomial.
- Solve cubic and quartic polynomial equations with special condition on roots and in general.
- Employ De-Moivre's theorem in a number of applications to solve numerical problems.
- Use modular arithmetic and basic properties of congruences.
- Recognize the algebraic structure, namely groups, and classify subgroups of cyclic groups.

DSC-2 Elements of Real Analysis (Semester I)

The course will enable the students to:

- Understand the fundamental properties of the real numbers, including completeness and Archimedean, and density property of rational numbers in **R** .
- Learn to define sequences in terms of functions from **N** to a subset of **R** and find the limit.
- Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate the limit superior and limit inferior of a bounded sequence.

- Apply limit comparison, ratio, root, and alternating series tests for convergence and absolute convergence of infinite series of real numbers.

DSC-3: Probability and Statistics (Semester I)

The course will enable the students to:

- Understand some basic concepts and terminology—population, sample, descriptive and inferential statistics including stem-and-leaf plots, dot plots, histograms and boxplots.
- Learn about probability density functions and various univariate distributions such as binomial, hypergeometric, negative binomial, Poisson, normal, exponential and lognormal.
- Understand the remarkable fact that the empirical frequencies of so many natural populations exhibit bell-shaped (i.e., normal) curves, using the Central Limit Theorem.
- Measure the scale of association between two variables, and to establish a formulation helping to predict one variable in terms of the other, i.e., correlation and linear regression.

DSC-4: Linear Algebra (Semester II)

The course will enable the students to:

- Visualize the space $\mathbb{R}^n$ in terms of vectors and their interrelation with matrices.
- Familiarize with basic concepts in vector spaces, linear independence and span of vectors over a field.
- Learn about the concept of basis and dimension of a vector space.
- Basic concepts of linear transformations, dimension theorem, matrix representation of a linear transformation with application to computer graphics.

DSC-5: Calculus (Semester II)

The course will enable the students to:

- The notion of limits, continuity and uniform continuity of functions.
- Geometrical properties of continuous functions on closed and bounded intervals.
- Applications of derivative, relative extrema and mean value theorems.
- Higher order derivatives, Taylor's theorem, indeterminate forms and tracing of curves.

DSC-6: Ordinary Differential Equations (Semester II)

The course will enable the students to

- Learn the basics of differential equations and compartmental models.

- Formulate differential equations for various mathematical models.
- Apply these techniques to solve and analyze various mathematical models.
- Solve first order nonlinear differential equations, linear differential equations of higher order and system of linear differential equations using various techniques.

Generic Elective Course(s) (GE) Common Pool

GE-1(i) Fundamentals of Calculus (Semester I)

The course will enable the students to:

- Understand continuity and differentiability in terms of limits.
- Describe asymptotic behaviour in terms of limits involving infinity.
- Understand the importance of mean value theorems and its applications.
- Learn about Maclaurin's series expansion of elementary functions.
- Use derivatives to explore the behaviour of a given function, locating and classifying its extrema, and graphing the polynomial and rational functions.

GE-1(ii) Theory of Equations and Symmetries (Semester I)

The course will enable the students to:

- Understand the nature of the roots of polynomial equations and their symmetries.
- Solve cubic and quartic polynomial equations with special condition on roots and in general.
- Find symmetric functions in terms of the elementary symmetric polynomials.

GE-2(i) Analytic Geometry (Semester II)

The course will enable the students to:

- Learn concepts in two-dimensional geometry.
- Identify and sketch conics namely, ellipse, parabola and hyperbola.
- Learn about three-dimensional objects such as straight lines and planes using vectors, spheres, cones and cylinders.

GE-2 (ii) Introduction to Linear Algebra (Semester II)

The course will enable the students to:

- Visualize the space $\mathbb{R}^n$ in terms of vectors and the interrelation of vectors with matrices.
- Understand important uses of eigenvalues and eigenvectors in the diagonalization of matrices.
- Familiarize with concepts of bases, dimension and spanning sets in vector spaces

- Learn about linear transformations and its corresponding matrix.

Skill Enhancement Course(s) (SEC) Common Pool

SEC1: Programming using Python (Semester I)

The course will enable the students

- To provide exposure to basic problem-solving techniques with computers.
- To develop logical thinking abilities and to propose novel solutions for real-world problems through programming language constructs.
- To deepen the empirical knowledge on applying programming in business domain.

SEC2: Document Preparation & Presentation Software (Semester II)

The course will enable the students:

- To develop proficiency in the use of document preparation software such as document LaTeX, LibreOffice.
- To make a presentation using LaTeX, LibreOffice.
- To serve as a tool for conveying/communicating one's ideas, views, and observations.

Value Addition Course(s) (VAC) Common Pool

VAC1: Vedic Mathematics-I (Semester I)

The course will enable the students to:

- Foster love for maths and remove its fear through Vedic Mathematics.
- Enhance computation skills in students through Vedic Mathematics.
- Develop logical and analytical thinking.
- Promote joyful learning of mathematics.
- Discuss the rich heritage of mathematical temper of Ancient India.

VAC2: Vedic Mathematics-II (Semester II)

The course will enable the students to:

- Foster the love for mathematics by creating a positive attitude through Vedic and Ancient Indian Mathematics.
- Help students appreciate ancient Indian Mathematics and its contribution to the world.
- Enhance computational proficiency by involving procedures in Linear and Matrix Algebra.

- Improve geometrical thinking by understanding the basic tenets of geometry such as construction of line segments, angles, triangles and circles as used in Ancient India.
- Develop conceptual knowledge of mathematical concepts.
- Appreciate the need of conceptual knowledge over procedural processes.

12. COURSE: B.SC. (HONS.) PHYSICS

DEPARTMENT: PHYSICS

Program Outcomes

Students graduating with the B.Sc. (Honors) Physics degree should be able to acquire:

PO1: a fundamental/systematic and coherent understanding of the academic field of basic Physics in areas like Mechanics, Electricity and Magnetism, Waves and Optics, Thermal and Statistical Physics, Quantum Mechanics, Mathematical Physics, Classical Dynamics, Field concept of Electromagnetic effect, interaction of Light with Matter, matter properties, Statistical data analysis, relativistic effects, fundamental interactions and their applications to other core subjects in Physics;

PO2: a wide ranging and comprehensive experience in physics laboratory methods in experiments related to mechanics, optics, thermal physics, electricity, magnetism, digital electronics, solid state physics and modern physics. Students should acquire the ability for systematic observations, use of scientific research instruments, analysis of observational data, making suitable error estimates and scientific report writing.

PO3: procedural knowledge that creates different types of professionals related to the disciplinary/subject area of Physics, including professionals engaged in research and development, teaching and government/public service;

PO4: Knowledge and skills in areas related to their specialization area corresponding to elective subjects within the disciplinary/subject area of Physics and current and emerging developments in the field of Physics.

Program Specific Outcomes

Demonstrate the ability to use skills in Physics and its related areas of technology for formulating and tackling Physics-related problems and identifying and applying appropriate physical principles and methodologies to solve a wide range of problems associated with Physics. Recognize the importance of mathematical modeling simulation and computational physics, and the role of approximation and mathematical approaches to describing the physical

world. Plan and execute Physics-related experiments or investigations, analyze and interpret data/information collected using appropriate methods, including the use of appropriate software such as programming languages and purpose-written packages, and report accurately the findings of the experiment/investigations while relating the conclusions/findings to relevant theories of Physics.

Demonstrate relevant generic skills and global competencies such as

(i) problem-solving skills that are required to solve different types of Physics related problems with well-defined solutions, and tackle open-ended problems that belong to the disciplinary area boundaries;

(ii) Investigative skills, including skills of independent investigation of Physics related issues and problems;

(iii) Communication skills involving the ability to listen carefully, to read texts and research papers analytically and to present complex information in a concise manner to different groups/audiences of technical or popular nature;

(iv) analytical skills involving paying attention to detail and ability to construct logical arguments using correct technical language related to Physics and ability to translate them with popular language when needed;

(v) ICT skills;

(vi) Personal skills such as the ability to work both independently and in a group.

Demonstrate professional behaviour such as

(i) being objective, unbiased and truthful in all aspects of work and avoiding unethical, irrational behaviour such as fabricating, falsifying or misrepresenting data or committing plagiarism;

(ii) the ability to identify the potential ethical issues in work-related situations;

(iii) be committed to the free development of scientific knowledge and appreciate its universal appeal for the entire humanity;

(iv) appreciation of intellectual property, environmental and sustainability issues;

(v) promoting safe learning and working environment

Course Outcomes: B.Sc. (Hons.) Mathematics (NEP UGCF 2022)

Core Course(s)

DSC-1: Mathematical Physics-I (Semester-I)

The emphasis of course is to equip students with the mathematical and critical skills required in solving problems of interest to physicists. The course will also expose students to fundamental computational physics skills enabling them to solve a wide range of physics problems. The skills developed during course will prepare them not only for doing fundamental and applied research but also for a wide variety of careers. After completing this course, student will be able to:

- Draw and interpret graphs of various elementary functions and their combinations.
- Understand the vector quantities as entities with Cartesian components which satisfy appropriate rules of transformation under rotation of the axes.
- Use index notation to write the product of vectors in compact form easily applicable in computational work.
- Solve first and second order differential equations and apply these to physics problems.
- Understand the functions of more than one variable and concept of partial derivatives.
- Understand the concept of scalar field, vector field, gradient of scalar field and divergence and curl of vector fields.
- Perform line, surface and volume integration and apply Green's, Stokes' and Gauss's theorems to compute these integrals and apply these to physics problems.
- Understand the properties of discrete and continuous distribution functions.
- In the laboratory course, the students will learn to: Prepare algorithms and flowcharts for solving a problem.
- Learn basic elements of programming language (Python or C++), Control structures of programming language, functional programming scientific libraries (Numpy, Matplotlib or Arrays, Gnuplot) etc. Students will design, code and test simple programs in Python/C++ to solve various problems related to the course.

DSC-2: Mechanics (Semester-I)

This course reviews the concepts of mechanics learned at school from a more advanced perspective and goes on to build new concepts. It begins with Newtonian dynamics in which it introduces the concept dynamics in different systems, work and energy, collision of rigid object, and talks about rotational dynamics, central force motion and ends with Special Theory of Relativity. The students will be able to apply the concepts learned to several real world problems. Upon completion of this course, students are expected to:

- Understand laws of motion and their application to various dynamical situations.

- Learn the concept of inertial reference frames and Galilean transformations. Also, the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.
- Understand translational and rotational dynamics of a system of particles. Apply Kepler's laws to describe the motion of planets and satellite in circular orbit.
- Understand concept of Geosynchronous orbits Explain the phenomenon of simple harmonic motion.
- Understand special theory of relativity – transformation of coordinates in inertial frames, special relativistic effects like time dilation, length contraction and simultaneity etc. and their effects on the mass and energy of a moving object.
- In the laboratory course, the student shall perform experiments related to mechanics: compound pendulum, rotational dynamics (Flywheel), elastic properties (Young Modulus and Modulus of Rigidity), fluid dynamics, estimation of least count, errors in the observations, graph plotting and data analysis, estimation of error etc.

DSC-3: Waves and Oscillations (Semester-I)

This course reviews the concepts of waves and optics learned at school from a more advanced perspective and goes on to build new concepts. It begins with explaining ideas of free oscillation, solving the system, superposition of harmonic oscillations leading to physics of traveling and standing waves. On successfully completing the requirements of this course, the students will have the skill and knowledge to:

- Understand Simple harmonic oscillation and superposition principle, compound pendulum, phase and frequency dependence in superposition, beats and superposition in in waves traveling in perpendicular direction. Understand the damping in oscillatory systems and forced oscillations, resonances, power dissipation. Understand Concept of normal modes in transverse and longitudinal waves: their frequencies and configurations. Understand the motion in waves etc.
- In the laboratory component of the course students will perform experiments that expose them to different aspects of real oscillatory systems, motion of coupled oscillators, study of Lissajous figures and behavior of transverse, longitudinal waves etc.

DSC-4: Mathematical Physics II (Semester-II)

The emphasis of course is on applications in solving problems of interest to physicists. The course will also expose students to fundamental computational physics skills enabling them to

solve a wide range of physics problems. The skills developed during course will prepare them not only for doing fundamental and applied research but also for a wide variety of careers. After completing this course, student will be able to:

- Use curvilinear coordinates to solve problems with spherical and cylindrical symmetries.
- Represent a periodic function by a sum of harmonics using Fourier series.
- Obtain power series solution of differential equation of second order with variable coefficient using Frobenius method.
- Understand the properties and applications of Legendre polynomials.
- Learn about gamma and beta functions and their applications.
- In the laboratory course, the students will learn to: Apply appropriate numerical method to solve selected physics problems both using user defined and in-built functions from Python/C++/Scilab.
- The course will consist of practical sessions and lectures on the related theoretical aspects of the laboratory.
- Students will be able to find the root of a polynomial, Solve non-linear equations.
- Perform least square fitting of the data taken in physics lab by user defined functions.
- Interpolate a data by polynomial approximations. Generate and plot a function by its series representation.
- Generate and plot Legendre polynomials and verify their properties. Integrate a function and solve first order initial value problems numerically.

DSC-5: Electricity and Magnetism (Semester-II)

This course reviews the concepts of electromagnetism learned at school from a more advanced perspective and goes on to build new concepts. The course covers static and dynamic electric and magnetic fields, and the principles of electromagnetic induction. It also includes analysis of electrical circuits and introduction of network theorems. The students will be able to apply the concepts learned to several real-world problems. At the end of this course the student will be able to:

- Demonstrate the application of Coulomb's law for the electric field, and also apply it to systems of point charges as well as line, surface, and volume distributions of charges.
- Demonstrate an understanding of the relation between electric field and potential, exploit the potential to solve a variety of problems, and relate it to the potential energy of a charge distribution.

- Apply Gauss's law of electrostatics to solve a variety of problems.
- Calculate the magnetic forces that act on moving charges and the magnetic fields due to currents (Biot-Savart and Ampere laws).
- Understand the concepts of induction and self-induction, to solve problems using Faraday's and Lenz's laws. Understand the basics of electrical circuits and analyse circuits using Network Theorems.
- In the laboratory course the student will get an opportunity to verify network theorems and study different circuits such as RC circuit, LCR circuit. Also, different methods to measure low and high resistance, capacitance, self-inductance, mutual inductance, strength of a magnetic field and its variation in space will be learned.

DSC-5: Electrical Circuit Analysis (Semester-II)

This course covers the basic circuit concepts in a systematic manner which is suitable for analysis and design. It aims at study and analysis of electric circuits using network theorems and two-port parameters. At the end of the course the student will be able to:

- Understand the basic concepts, basic laws and methods of analysis of DC and AC networks and their difference.
- Solve complex electric circuits using network theorems.
- Discuss resonance in series and parallel circuits and also the importance of initial conditions and their evaluation. Evaluate the performance of two port networks.
- In the laboratory course the student will get an opportunity to verify Kirchhoff's law, Superposition Theorem, Norton's, Thevenin's and Maximum Power Transfer Theorem, measure capacitance of capacitor, time constants and frequency response, resonance, quality factor of different circuits. Also, they will explore above electrical properties using Arduino.

Generic Elective Course(s) (GE) (Common Pool)

GE: Mechanics (Semester-I)

This course begins with the review of Vectors and Differential equations and ends with the Special Theory of Relativity. Students will also appreciate the Fundamentals of dynamics, rotational dynamics and oscillatory systems, Gravitation and Elasticity. The emphasis of this course is to enhance the basic understanding of Newtonian mechanics and relativity. Upon completion of this course, students are expected to:

- Understand the role of vectors and coordinate systems in Physics.

- Learn to solve Ordinary Differential Equations: First order, Second order Differential Equations with constant coefficients. Understand laws of motion and their application to various dynamical situations.
- Learn the concept of inertial reference frames and Galilean transformations.
- Also, the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.
- Understand translational and rotational dynamics of a system of particles, moment of inertia of objects, motion of harmonic systems.
- Newtonian gravitation, Apply Kepler's laws to describe the motion of planets and satellite in circular orbit.
- Understand concept of Geosynchronous orbits. Understand special theory of relativity - special relativistic effects and their effects on the mass and energy of a moving object.
- In the laboratory course, the student shall perform experiments related to mechanics: compound pendulum, rotational dynamics (Flywheel), elastic properties (Young Modulus and Modulus of Rigidity), estimation of random errors in the observations etc.

GE: Electricity and Magnetism (Semester-II)

This course begins with theorems of network analysis which are required to perform the associated experiments in the laboratory. Then course delves into the elementary vector analysis, an essential mathematical tool for understanding static electric field and magnetic field. Introduces concept of electric and magnetic fields in vacuum and matter. By the end of the course, the student should appreciate laws of electrodynamics and Maxwell's equations. At the end of this course, students will be able to gain:

- Understand the basic concepts, basic laws and methods of analysis of DC and AC networks and their difference.
- Solve complex electric circuits using network theorems. Understand the concepts of vector analysis.
- Apply Coulomb's law to line, surface, and volume distributions of charges. Apply Gauss's law of electrostatics to solve a variety of problems.
- Understand the effects of electric polarization and concepts of bound charges in dielectric materials. And Calculate the magnetic forces that act on moving charges and the magnetic fields due to currents (Biot-Savart and Ampere laws).
- Gain brief idea of dia, para and ferromagnetic materials.

- Understand the concepts of induction and self-induction, to solve problems using Faraday's and Lenz's laws. Have an introduction to Maxwell's equations.
- In the laboratory course the student will get an opportunity to understand working of Arduino Micro-controller System, to use Arduino to measure time, count events and time between events, to use Arduino to measure voltage/current/resistance, to use Arduino to measure various physical parameters like magnetic field, to verify network theorems and study different circuits such as RC circuit, LCR circuit and Bridges.

13. COURSE: B.A. (HONS.) POLITICAL SCIENCE

DEPARTMENT: POLITICAL SCIENCE

Program Outcomes

A graduate in Political science is a person who embodies a curiosity towards the political puzzles that confront her and is endowed with the ability to apply various tools to solve them.

PO1: The undergraduate course encourages raising questions and a problem-solving thought process in its students, which it believes is central to the idea of shaping an informed graduate student and an active citizen.

PO2: Political science graduates receive a strong training in foundational concepts enabling them to distinguish and delineate features of each. This level of inquiry is further complicated as they proceed through the curricular semesters; enabling them to engage in systematic reflection of a kind that distinguishes their understanding from that of a lay person.

PO3: The undergraduate course in Political science shapes graduate sensibilities such that students are alert to instances of discrimination and deprivation; difference and diversity which they not only identify but can also persuasively argue about.

PO4: A Political science graduate is privy to the unique location of the discipline within the social sciences and can contextual their learning within the disciplinary boundaries while simultaneously and consciously using inter-disciplinary methods and concepts to understand inter-connected social, economic and political realities.

PO5: Political science graduates go through rigorous training in academic writing which includes writing logical and coherent essays as well as longer research articles in terms of term papers. Classroom debate and discussion encourage them to think on their feet; sharpen their submissions and argue persuasively. They are also introduced to a variety of writing including commentaries and original manuscripts; government reports and alternative assessments as well as visual and print media.

PO6: The discipline teaches students how to distinguish between various ideological orientations; the multiple lenses that may be used to make sense of the same political event or issue and thereby how to side-step biases and partisan positions in presenting their findings.

PO7: The discipline inculcates a culture of academic honesty and investigative rigour to ensure authentic analytical outcomes.

PO8: The syllabus of the undergraduate course on Political science also encourages students to get hands-on experience of how research in the discipline is conducted. They are encouraged to draw up research questionnaires, select the field and decide on sample size and method of selection, conduct interviews with respondents as well as focused group discussions, and finally translate the responses into a coherent write-up.

PO9: These exercises are not limited to election analysis and collecting voter responses but are primarily conducted to teach the student how to transition from the level of policy to the practice of politics.

PO10: Political science graduates are uniquely positioned as the undergraduate course also imparts an extensive understanding of international relations and global politics which allows them to move beyond the traditional area and concerns of the discipline.

PO11: The course not only introduces them to various theories and concepts within international relations but also includes a detailed discussion of contemporary international events and decisions made by state and non-state actors apart from also looking at the functioning of global and multinational organisations and institutions.

PO12: The perspective sharpens their understanding of the national and they can better appreciate the nuances of state policies.

PO13: The comparative perspective which students imbibe through courses in two semesters highlights the differences in states mapped along various indices such as development trajectories and state formation.

PO14: Along with a richer understanding of select areas students are also encouraged to reflect and think critically about Western frameworks of knowledge and understanding and how these may be challenged by alternative frameworks emerging in what is broadly referred to as the 'Global South' Courses on Public administration familiarize the student with the complexities of state and bureaucratic functioning as well as policy-making and advocacy.

PO15: The student learns about the concepts of organization and management and their application which is extremely relevant to unravelling the intricacies of large public organisations and corporate bodies.

PO16: The study of Indian politics provides the student with a means to navigate the labyrinth that politics in India reflects. Students decode this through various categories including gender, caste, class, ethnicity, and others while also effortlessly transiting across various levels of the national, subnational, and local.

PO17: These courses anchor the indispensability of the inter and multi-disciplinary lens and provide a corrective and challenge to the Western frameworks and models of understanding political phenomena.

PO18: On the completion of the six semesters of the undergraduate course in Political Science, a graduate is therefore equipped with an understanding of the six core areas in the discipline of political science namely Political theory, Indian politics, Comparative Politics, Public Administration, International relations, and Indian Political Thought.

PO19: They carry with them an understanding of research methods and investigation as well as field experience in institutional functioning and survey research. Given this diverse skill set and knowledge basket that the graduates have; the learning outcomes enable them to seek gainful employment and engagement in diverse sectors such as academics, journalism, law, social work, government agencies and research organisations, human resource development, management, marketing and also the bureaucracy.

Course Outcomes: B.A. (Hons.) Political Science (NEP UGCF 2022)

Core Course(s)

DSC-1: Understanding Political Theory (Semester-I)

After completion of this course, students will

- Understand the various traditions and approaches of political theory and appreciate how they get reflected in organizing social living
- Understand multiple frames by which the idea of political community is debated
- Understand the significance of theorizing and relating theory to practice
- Acquire critical analytical vocabulary to address political questions in a reflected and theoretically informed way.
- Know how political theory provides a normative framework to resolve various social and political problems and issues.

DSC-2: Ideas and Institutions in Indian Political Thought (Semester-I)

At the end of this course, students would have acquired

- The knowledge of ideas of Indian political thought
- Acquaintance with institutions of Indian political thought
- Comprehensive understanding of Indian political thought
- Challenging the colonial mind set of underestimating India's rich historical past

DSC-3: Colonialism and Nationalism in India (Semester-I)

On successful completion of the course, students would be able to:

- Show an understanding of the nature of colonial rule in India and the various developments through which it consolidated itself.
- Demonstrate awareness of the specific impacts of colonialism on the Indian economy
- Show knowledge of the gradual emergence of the nationalist movement in India in response to the colonial rule
- Demonstrate an understanding of the distinct periods of the nationalist movement and the nature of resistance politics adopted in different phases
- Show awareness of the various social movements, the kind of questions they raised, and their contributions to the nationalist movement

DSC-4: Perspectives on Public Administration (Semester-II)

On completion of this course, the student can be expected to

- Have a comprehensive understanding of the conceptual roots of the discipline of Public Administration
- Understand how theorising is done in this discipline
- Understand how new perspectives like that of gender influence the orientation of both theory and practice in the discipline

DSC-5: Methods and Approaches in Comparative Political Analysis (Semester-II)

On successful completion of the course, students would demonstrate:

- An understanding of the nature, scope, methodology, and legacy of the sub-discipline.
- Awareness of the evolution of the sub-discipline of comparative politics and the challenge of Eurocentrism in the discipline.
- An in-depth understating of various approaches to the study of politics in a comparative framework.
- A basic training in comparative research.

DSC-6: Introduction to International Relations: Theories, Concepts and Debates (Semester-II)

At the end of this course, the students would have acquired:

- Familiarization with key theories, concepts, and debates of International Relations.
- Comprehensive re-reading of the origin of IR and its mainstream theories and concepts, with basic tools to question statist ontology and reification of eurocentrism.
- Appreciation of decolonial accounts that challenge the mainstream and parochial International Relations.
- Understanding of the genealogy and contributions of the IR scholarship in India to the disciplinary debates through a re-reading of its classical texts and, contemporary writings.
- Analysis of the assumptions and key concepts of IR such as power, sovereignty, empire and international order.
- Learning about the new directions in IR via a critical engagement with Global IR and the relational turn in IR.

Generic Elective Course(s) (GE) (Common Pool)

GE-1: Ideas in Indian Political Thought (Semester-I)

After completion of this course, students will be able to

- answer about the nature and form of statecraft that existed in Ancient India.
- explain how the texts in ancient India interpreted Dharma and Danda
- answer what were sources and mechanisms to practice Nyay in ancient India.
- make distinction between Rastra and Rajya.
- explain the meaning and foundations of Varna and how are they different from caste

GE-2: Introduction to the Indian Constitution (Semester-II)

On successful completion of the course, the students will demonstrate

- Knowledge of the origin and contents of the Indian Constitution
- Awareness of the rights and duties of the citizens and the obligations of the state
- Familiarity with the functioning of constitutional governance in India and the division of power between different tiers of the government.

14. COURSE: B.A. (HONS.) SANSKRIT

DEPARTMENT: SANSKRIT

Course Outcomes: B.A. (Hons.) Sanskrit (NEP UGCF 2022)

Core Course(s)

a. DSC-1: Applied Sanskrit

● The students will be able to understand the general structure of Sanskrit language.

● The students will be able to write and communicate in simple Sanskrit.

● Students will become interested in learning the advance form of Sanskrit language.

● Students will be better equipped to handle the other courses of B.A. (Hons) Sanskrit.

b. DSC-2: Classical Sanskrit Literature (Poetry)

This course will help the students develop a fair idea of the works of great Sanskrit poets. Students will be able to appreciate the styles and poetic depictions of individual poets focusing on the poetical, artistic, cultural and historical aspects of their poetry works. The students develop the required skills for translation and interpretation of poetic works.

c. DSC-3: Indian Social Institutions and Polity

• Students will be aware of the forms and aspects of Indian social institutions and Indian polity as depicted and highlighted in Dharma and Shastra Literature.

• Students will understand and appreciate the contributions of ancient India in the academic domain of Social Science.

a. DSC 4: Classical Sanskrit Literature (Prose)

● The course will enable students enable students to familiarize themselves with some

leading classical prose works and individual literary styles of their authors.

● After the completion of this course the learner will be exposed to the socio-cultural

conditions of the Indian society as reflected in the prescribed texts.

● Course will also help students to develop their level of Sanskrit language comprehension.

b. DSC 5: Sanskrit Epics

● The students will be able to understand simple classical Sanskrit.

● The students will build a good vocabulary to write and communicate in Sanskrit.

● Students will become more aware of the impact of the epics on life and literature

in India

● They will get acquainted with Advaita philosophy.

c. DSC 6: Critical Survey of Śāstric Literature

● The students will be able to understand the long history of Indian Śāstric

Tradition.

● The students will be able to exhibit their understanding of the Indian Knowledge

System.

● Students will become more aware of some aspects of Ancient Scientific thoughts

and achievements.

● They will get acquainted with Ancient Scientific texts/writings.

Generic Elective (GE) (Common Pool)

a. <u>GE-4: Sanskrit Narratology (Semester I)</u>

Students will acquire the basic understanding of Sanskrit Narratives. They will be able to appreciate the essence of Sanskrit Narratology. They will develop an interest in Sanskrit Narratives and will be motivated to study the subject further.

a. <u>GE-5: Tools and Techniques for Computing Sanskrit Language (Semester II)</u>

● Learn the basic concept of Sanskrit Phonology, Sanskrit Morphology, Syntax,

Semantics, Lexicon and Corpora.

- Learn the origin and Development of Language Computing.
- Basic Introduction of Computing Sanskrit Language.
- Various methodologies used on Language Technology.
- Various tools developed for Sanskrit Language.
- Survey of Language Computing.

b. GE-6: Machine Translation: Tools and Techniques (Semester II)

- Learn the origin and Development of Machine Translation.
- Basic Introduction of Machine Translation.
- Human vs Machine Translation.
- Concepts to ideal various methodologies used on Machine Translation System

Skill Enhancement Course (SEC) (Common Pool)

a. Yoga In Practice:

- Student will form an understanding of the concept of yoga.
- Students will learn various aspects of the science of yoga.
- Theoretical and practical knowledge of Aasanas and pranayams to lead a balanced life.

Value Addition Course (VAC) (Common Pool)

a. Yoga: Philosophy and Practice:

- Understanding ways to harmonise the body and mind through Yoga.

- Disciplining the mind through practicing Yoga.
- Understanding of consciousness through practical training

15. COURSE: B.A. (HONS.) SOCIOLOGY

DEPARTMENT: SOCIOLOGY

Program Outcomes

The Honours program in Sociology is premised on an axiom that a graduate is not the mere product of a system. On the contrary, the graduate attributes are the most concrete manifestation of the spirit of the entire program, its operationalization through institutions and collective and concerted efforts of all stake holders. Every other feature of the programme is fused into this. Hence graduate attributes, qualification descriptors and programme learning outcomes may not be described separately since they are innately interconnected. A Sociology graduate from University of Delhi would be a person with a thorough grounding in the fundamentals of Sociology and infused with the 'Sociological Imagination'. They can see the connections between biographies and history, personal problems and historical currents, pierce the seamless fabric of common sense that envelopes the everyday life of societies, draw connections between seemingly independent social factors, processes and institutions using observation and analysis. Being trained in a highly context-sensitive discipline, a Sociology graduate is alert to social, cultural and historical context of all issues. In the Indian context, that implies an ingrained post-colonial sensibility that critically engages constitutions of self and engagement with the other. Sociology is a deeply self-reflexive discipline with

an inter-disciplinary orientation. A graduate would be capable of describing and embodying the mandate and perspective of Sociology as a discipline, how it differs from cognate social sciences and be able to engage productively with them without losing disciplinary perspective. A Sociology graduate is exposed to a significant quantum of concepts, conceptual writing, theories and theoretical reasoning throughout the three years across all the courses. Hence she/ he has an ability to grasp and generate a conceptual conversation in general and within the discipline of Sociology in particular. She/he is also familiar with well-defined, critical and evolving multiplicity of theoretical perspectives. A Sociology graduate would be well versed with the basic tenets of these perspectives and capable of generating versions of social world from these perspectives. iv Endowed with this awareness of multiple perspectives on any significant issue a Sociology graduate is able to reason it out and weigh the various operational options in any given context. Rigorous empirical investigation of the social being an inalienable aspect of graduate training, Sociology graduates are well trained to engage in research. They are familiar with the elementary techniques of social investigation via a thorough two semester long training in sociological research methods. A chief graduate attribute of Sociology students is a demonstrable ability to constitute a significant sociological problem to investigate, design research, choose appropriate techniques of social investigation, gather data from a scientifically determined sample, make sense of the data after due analysis, render the

results in appropriate conceptual context and draw viable theoretical conclusions.

Course Outcomes: B.A. (Hons.) Sociology (NEP UGCF 2022)

Core Course(s)

DSC 01: Introduction to Sociology (Semester-I)

The mandate of the course is to introduce the discipline of Sociology to students who may come from diverse academic backgrounds, training and capabilities. The course intends to introduce the students to a sociological way of thinking and to apply sociological concepts to everyday life. Students by the end of the course learn that individual choices are impacted by the social structures of which they are a part. They develop reflexive thinking skills for both self and society. They develop a sense of how common sense is limited to those who share the same spatialgeographical, social and cultural locations. The course also introduces the idea that the various aspects of society are interlinked with each other, thereby orienting them to the sociological relationship between individuals and groups. By understanding these relationships, the student develops a sense of how closely the lives of individuals are intertwined and impact each other. The course also introduces the students to the emergence of Sociology as a systematic and scientific field of study. The emergence of sociology as a discipline enables them to understand the changing conceptualization of what it means to be scientific. Course Learning Outcomes:

- Students learn to apply the sociological perspective in understanding how society shapes our individual lives.
- This provides a foundation for the other more detailed and specialized courses in sociology.
- Students learn how to read texts and to express thoughts and ideas effectively in writing. They also learn how to frame arguments cogently.

DSC 02: Sociology of India I (Semester-I)

Indian society is layered, complex and ever transforming. This course seeks to familiarize the students with this entity through a sociological lens by delineating its historical formations and the kaleidoscopic configuration of its various key elements. The aim here is to render the key sociological elements identified - Caste, Village, Classes, Gender, Family, Religions, Tribes, and Cities – as concrete and tactile. They are treated as relational and interlinked features of

Indian society. The course presents structures and institutions of the society as dynamic and changing over a period; at the same time, it takes cognizance of the dynamism of the interactions between them. The objective is to help students to understand Indian society as a vivid reality even as they acquire elementary sociological categories to grasp it and develop an awareness of the key processes that engender it. The course outcomes are as follows:

- Familiarization with Indian society seen through a sociological lens.
- Understanding of the inter-linkages between various elements of Indian society.
- Ability to enable critical examination of a shared social reality.

DSC 03: Introduction to Sociological Research (Semester-I)

The course is designed as a foundational introduction to sociological research. It will provide the student with an understanding of how the social sciences, mainly sociology and social anthropology comprehend the world. It will begin with basic explanation of the research process and move on to the components of research and enable students to learn best practices. The course learning outcomes are:

- Students are introduced to sociological research both from a theoretical and methodological perspective.
- The course enables students to read and critically evaluate a piece of research and move towards designing a simple research project.
- Students would be able to identify the difference between quantitative and qualitative methods.
- Students will learn about ethical and practical issues in research. 5. Students learn that research methods are universal and not bound by cultural location and that no one research method can adequately explain the world around them.

DSC 04: Sociological Perspectives (Semester-II)

The course aims: To introduce students to how society is studied by sociologists. To inculcate the ability to distinguish between different sociological perspectives. To introduce original sociological writing, to familiarize students with the rich texture of sociological prose and understand the need to engage with complex ideas about society. To make students alive to the productive tension between universal and particular in the development of theoretical approaches in sociology by understanding the social context of different theoretical approaches. The course outcomes are:

- Describe major theoretical perspectives in sociology and the context of their emergence.

- Read and critically engage with the original works of various sociological thinkers and interpret the central argument.
- Distinguish and compare different theoretical perspectives in sociology.
- Use theoretical perspectives to examine social realities.

DSC 05: Social Stratification (Semester-II)

The course intends: To introduce social stratification which is the systematic study of structured social inequalities as a substantive area that lies at the heart of sociology. To introduce students to theoretical perspectives and empirical studies that are integral to the discipline. To teach students how social inequality is constituted as a sociological problematique. To familiarize students with key concepts and theoretical perspectives that inform the study of stratification. To examine key axes of stratification such as caste, class, gender, ethnicity and race and their intersections. To familiarize students with key processes of stratification: social mobility and social reproduction. To appraise students of the multiple operations of social inequalities and the reproduction of inequality in society. The Course learning outcomes are as follows:

- Recognize social inequalities as a multifarious and culturally specific social reality.
- Define the concepts, outline the principal theories and recall the critical debates in the arena of social stratification.
- Appreciate the significance of sociological knowledge of social stratification for public discourse and translate the conceptual learning into well formulated sociological research projects.

DSC 06: Families and Intimacies (Semester-II)

This course seeks to sociologically examine the worlds of family, intimacy and marriage in their diverse forms while understanding changes in its structures and experiences of it. The course will equip students with a critical understanding of basic concepts and sociological explanations of the way in which socially embedded relationships of affect in the family and intimate relationships intersect with economies of power, work, and control over resources in contemporary societies. The course outcomes are:

- Examine the institutions of family and marriage as pivotal social institutions of intimacy from a sociological and socio-anthropological perspective.
- Discuss historical and socio-cultural perspectives on the understanding of marriage, family and intimacy.

- Problematize universality and outline and observe the structural and experiential realities of marriage and family.
- Identify the variations in family structures and experiences using ethnographic accounts from different socio-cultural contexts.
- Describe the critical implications of family change as they are related to social policy and legal issues.

Generic Elective Course(s) (GE) (Common Pool)

BA (H & Prog./MDS) Sociology: Generic Elective (GE) 01: Sociology and Everyday Life (Semester-I)

This course is an invitation to a sociological vision, imagination, and practice - for students who are pursuing disciplines other than sociology. The course seeks to render sociology alive by illuminating its perspective, concepts and practice through a series of interesting sociological studies of everyday life. The course attempts to introduce sociology in an accessible and engaging way. The course begins with an introductory section that speaks of the spirit of sociology, followed by a substantive section where students are familiarized with key concerns and ideas of sociology using empirical studies of relatable aspects of everyday life. The course concludes with a small section that allows students to reflect on what they have learned in the course, and what they could do to put that learning into practice with a primer on the craft of doing sociology. The course outcomes are:

- Inculcating a sociological imagination.
- Familiarity with basic concepts of sociology.
- Grasp social groups, institutions and processes that engender everyday life.
- Preparation for a more enduring engagement with sociology.

BA (H & Prog./MDS) Sociology: Generic Elective (GE) 02: Family and Intimacy (Semester-I)

This course seeks to introduce students to a range of contemporary concerns pertaining to family as a social institution from a sociological viewpoint and with an interdisciplinary orientation. It situates family in its historical, cultural, social and comparative contexts. The course enables students to examine the commonsensical notions of family by making them aware of the diversity of family forms and reconstitute it as a possible arena of justice. It aims to familiarize students with different aspects of family and intimate life using ethnographic

accounts from India. Its objective is to enable students to examine the institution of family and analyse intimacy in a sociological way. The course learning outcomes are:

- An ability to examine the institution of family and realities of intimate experiences from a sociological perspective.
- Knowledge of diverse forms of the family within their appropriate historical contexts and comparative appreciation of their features.
- A disposition to constitute everyday spaces of family and intimacy as an arena of democracy, gender justice and empowerment.
- Making students aware of the symbiotic relationship between conceptual, ethnographic and critical literature in social sciences and demonstrating how they work in close tandem.
- To alert next-generation policymakers to take the questions of the intimacy with seriousness and make them integral to public reason and conversation.

BA (H & Prog./MDS) Sociology: Generic Elective (GE) 03: Understanding Indian Society (Semester-I)

The Course is an interdisciplinary course on Indian society. The course throws light on different dimensions of Indian social life including institutional structures, processes and contemporary issues and challenges. The students will also engage with the historical processes and ideological tensions underlying the diversity and uniqueness of various social formations. Institutions and concepts like village, town, caste structure and politics, class dynamics, religion, tribes, family, gender and political economy in the context of India are also discussed. These building blocks and core processes of Indian Society are considered relationally and as intersecting fields. It will help students enables the capacity to invoke scientific and analytical attitude toward one's own society and its ongoing workings and evolution. It provides the cultural knowledge and research skills that would be necessary for problem-solving in the Indian context. The course outcomes are:

- Develop a reflexive and nuanced understanding of Indian Society
- Enable an understanding and sensitivity towards India's diversity and uniqueness.
- Help to analyse complex social phenomena, their arrangement and processes.
- Provide an intersectional understanding of complex social processes.

BA (H & Prog./MDS) Sociology: Generic Elective (GE) 04: Gender, Power and Violence (Semester-II)

The course aims: To examine the varied expressions and ramifications of gendered violence in a variety of contexts. To understand and analyse gender violence as both routine and spectacular, and structural, symbolic and situated. To explain how gender is socially constructed, and increase awareness of the presence of gender violence on multiple bodies in varied locations and contexts. To identify and analyse social movements and everyday forms of resistance against gender violence. The course learning outcomes are:

- Establish the connections between the social construction of gender across cultures and the forms and experiences of gender violence.
- Describe and debate different theoretical perspectives on the genesis and manifestation of gender violence across societies and cultures and its personal, social, cultural, political and economic consequences.
- Analyse the significance of public discourse in general and the role of the state and public policy in addressing and curbing gender violence.
- Debate individual and collective struggles and strategies used to resist gender violence.

BA (H & Prog./MDS) Sociology: Generic Elective (GE) 05: Sociology of Intimate Life (Semester-II)

The course intends: To introduce students to some of the processes that shape intimate life in contemporary societies. To explore the concept of intimacy and map the historical transformations this phenomenon has undergone. To chart the configuration of intimacy in our times in multiple dimensions such as institutions, gender, sexuality, love and care. To initiate discussion about ideals of equality and compassion in intimate relations. The course outcomes are:

- Outline sociological conceptions of intimacy.
- Describe the historical transformation of intimate relations and their present status.
- Appreciate the significance of intimate relationships in weaving and sustaining the social fabric.
- Apply this understanding of the interconnections between the public and private realms into policy making.

BA (H & Prog./MDS) Sociology: Generic Elective (GE) 06: Invitation to Sociological Theory (Semester-II)

The course aims: To familiarize students with fundamental sociological perspectives. To enable students to analyse social reality on the basis of these perspectives. To help students apply sociological theories to their lifeworld. The course outcomes are:

- Analyse the multiple dimensions of social reality.
- Compare and contrast different sociological perspective on these processes.
- Develop a critical orientation while observing and reviewing social realities.
- Apply various sociological theories to social contexts and thereby assessing the causes and consequences of various social phenomena.

Skill Enhancement Course (SEC) (Common Pool)

SEC 1: Personality Development and Communication (Semester-I)

The course aims: To develop inter-personal and effective communication skills. To develop problem solving skills and understand its influence on behaviour and attitudes of individuals. The course outcomes are:

- After studying this course students will be able to understand the importance of oral and written communication in day-to-day working of the organisation.
- After studying this course students will be able to develop inter-personal skills and problem solving skills.
- After studying this course students will be able to understand the role of body language in effective communication.

SEC 2: Working with People (Semester-II)

The course intends: To inculcate values in strengthening knowledge and skills in field work practice learning. To develop aptitude and attitude to work in the field. To enhance skills of self-awareness, self-development, goal setting and time management. The course outcomes are:

- Develop a practical understanding of using different skills while working with individuals and groups.
- Develop skills and competencies to work effectively in field settings.
- Acquire understanding about self, goal setting, networking, and communication.

Value Addition Course (VAC) (Common Pool)

VAC 1: Ethics and Culture (Semester-I)

The course aims to: To help students explore ethical and cultural dimensions of their lives. To provide a forum for students to pause, revisit their assumptions and beliefs, and become mindful of their thoughts, emotions and actions. To give the students an opportunity to express

themselves and inquire into their decision making processes.To cultivate ethical values and participate in the creation of a society based on acceptance, compassion, and justice. The Course Learning outcomes are:

- Explore perspectives on ethics in thoughts, words and actions.
- Evolve ethical decision making practises.
- Understand the need for an ethical society and culture.
- Introspect, become conscious of and assess one's stance in life.
- Cultivate empathy, tolerance and compassion.
- Apply the values learnt in the course to everyday life.

VAC 2: Emotional Intelligence (Semester-II)

The course aims to: Introduce the concept of emotional intelligence, its models and components. Understand the significance of emotional intelligence in self-growth and building effective relationships. Identify the measures of emotional intelligence. The course outcomes are:

- Self-Awareness, Self-Management, Social Awareness & Relationship Management.
- Discover personal competence and techniques of building emotional intelligence.
- Gain insights into establishing positive relationships.
- Apply the values learnt in the course to everyday life.

16. COURSE: B.SC. (HONS.) STATISTICS

DEPARTMENT: STATISTICS

Program Outcomes

PO1: B.Sc. (Hons.) Statistics programme is designed in such a way that students will be exposed to the real-world data related to industries and society, identifying the problems and working towards their solutions through various analytical and statistical techniques.

PO2: On completion of the programme students are expected to have acquired the skills of effective communication, critical thinking, social research methods and social outreach.

PO3: This course exposes the students to the beautiful world of Statistics and how it affects each and every aspect of our daily life.

PO4: The course is designed to equip students with all the major concepts of Statistics along with the tools required to implement them.

PO5: Introduction to computer software help them in analysis of data by making optimum usage of time and resources. These software give them the necessary support and an edge when progressing to their professional careers.

PO6: Exposure to plethora of real life data helps in honing their analytical skills. Having practical component with every paper invokes their exploratory side and fine-tunes the interpretation abilities. Such a pedagogy goes a long way in giving them the required impetus and confidence for consultancy startups/jobs in near future.

PO7: The structure of the course also motivates/helps the students to pursue careers in related disciplines, especially the data sciences, financial statistics and actuarial sciences.

Course Outcomes: B.A. (Hons.) Sociology (NEP UGCF 2022)

Core Course(s)

DSC-1: DESCRIPTIVE STATISTICS (Semester-I)

The course aims: To tabulate statistical information given in descriptive form and to use graphical techniques to interpret. To understand various measures of central tendency, dispersion, skewness and kurtosis. Moments and its properties. Familiarize with quantitative and qualitative data and available statistical tools to analyse them. Finding linear correlation between two variates using different measures and studying their properties. Least square method of fitting of curves, regression lines and their elementary properties. The Course learning outcomes are as follows:

- Understand concepts of sample vs. population and get acquainted with different types of data /scales. Distinguish between primary and secondary data. Tabulate and plot frequency distribution. Deals with numerical and graphical ways to describe and display data using histograms, stem and leaf plot and box plots.
- Calculate measures of central locations like mean, geometric mean, harmonic mean, median and mode and explain their properties.
- Calculate measures of the spread: variance, standard deviation, range and inter-quartile range and explain their properties.
- Understand the meaning of probability and probabilistic experiment. Familiarize with the four approaches to probability theory and particularly, the axiomatic approach and use and manipulate the four axioms of probability comfortably to derive the results of other set operations
- Understand and exploit Addition and Multiplicative laws of probability

- Understand the meaning of conditional probability, conditioning, and reduced sample space, compute joint and conditional probabilities. independence, total probability, Bayes' rule and applications.
- Understand the concept of a random variable, differentiate between independent and uncorrelated random variables, distinguish between discrete, continuous, random variables and be able to represent them using probability mass, probability density, and cumulative distribution functions, Univariate transformation and its application
- Understand expectation and its properties, Compute variance and covariance in terms of expectation. Solve problems based on expectation and its properties.

DSC-2: INTRODUCTION TO PROBABILITY (Semester-I)

The course intends to: Familiarize students with the mathematical basis of probability theory. Prepare students with important tools for statistical analyses at the undergraduate level. Promote understanding through real-world statistical applications. The Course learning outcomes are as follows:

- Understand the meaning of probability and probabilistic experiment. Familiarize with the four approaches to probability theory and particularly, the axiomatic approach, use and manipulate the four axioms of probability comfortably to derive the results of other set operations.
- Understand and use addition and multiplicative laws of probability, understand the meaning of conditional probability, conditioning, and reduced sample space, compute joint and conditional probabilities. independence, total probability, Bayes' rule and applications.
- Understand the concept of a random variable, differentiate between independent and uncorrelated random variables, distinguish between discrete and continuous, random variables and be able to represent them using probability mass, probability density, and cumulative distribution functions. Acquaint with Univariate transformation and its application.
- Understand expectation and its properties, Compute variance and covariance in terms of expectation. Solve problems based on expectation and its properties.

DSC-3: CALCULUS (Semester-I)

The course aims: To familiarize students with the basic mathematical tools. It helps students to understand the other statistical concepts. The Course learning outcomes are as follows:

- Understand to solve applied problems using differentiation and integration.
- Understand to solve applied problems under integral sign and changes of order of integration.

DSC-4: THEORY OF PROBABILITY DISTRIBUTIONS (Semester-II)

The course aims to: Acquaint students with requisite tools for problem-solving available in statistical methodology. Prepare students to handle two/three-dimensional data and familiarize them with different measures of association as well as regression. Introduction to various discrete and continuous distributions and their properties. The course outcomes are:

- Understand the role of expectation and its usefulness. Get familiar with different kind of generating functions and their strength and weaknesses
- Handle problems based on two-dimensional random variables using Jacobians and bivariate transformations.
- Understand and exploit various measures of correlation and regression for problem solving.
- Familiarize with the concept of partial and multiple correlation coefficients and their properties
- Get acquainted with various discrete and continuous distributions their properties and interrelations and solve problems based on them.

DSC-5: APPLIED STATISTICS I (Semester-II)

The course aims: To know the applications of Statistics and learn and apply these concepts in real life situations. will give exposure to two applied fields of statistics viz. Vital Statistics and Index Numbers. They will be having hands on practice of working on the data related to above mentioned fields. This course will help them understand about the working of the Indian Official Statistical System. The course outcomes are as follows:

- Understanding of the distinction between Vital Statistics and Demography.
- Knowledge of basic measures of Mortality, Fertility, and Population Growth.
- Ability to construct of Life Tables.
- Understanding of fundamental concepts of Index Numbers.
- Ability to construct Price and Quantity Index numbers, Consumer and Wholesale Price Index Numbers.

- Knowledge of Official Statistical System in India, Statistical offices at the Centre and States along with their functions.

DSC-6: ALEGBRA OF STATISTICS (Semester-II)

Algebra serves as a building block that will enable students to learn more advanced techniques that will help them to solve problems more quickly and easily. The course outcomes are:

- Understanding the fundamental concepts of matrices and determinants
- Understanding of partitioning of matrices, Echelon form
- Solving Linear equations
- Knowledge of Vector spaces and Subspaces, Orthonormal Basis
- Identifying rank of a Matrix
- Computing generalized inverse, characteristic roots and vectors, quadratic forms

Generic Elective Course(s)(GE) (Common Pool)

GE1: INTRODUCTION TO STATISTICS (Semester-I)

The course aims at: Acquainting the students with descriptive data analysis. To introduce students to different measurement scales, qualitative and quantitative and discrete and continuous data. To help students to organise data into frequency distribution graphs, including bar graphs, histograms, polygons and ogives. Students should be able to understand the purpose for measuring central tendency, dispersion, skewness and kurtosis and should be able to compute them as well. Students should be able to understand theory of attributes, independence and association of attributes. The course outcomes are as follows:

- Introduction to Statistics, definitions and data classification
- Employ graphical displays of data, frequency distributions, analysing graphs.
- Apply numerical descriptions of data, measures of centre tendency, measures of dispersion, skewness and kurtosis.
- Understand theory of attributes.

GE2: TIME SERIES ANALYSIS AND INDEX NUMBERS (Semester-I)

The course introduces the concept of time series, its components, and their estimation. Also, the application of time series. It also introduces the concept, formulation, and application of index numbers. The course outcomes are as follows:

- Understand the concepts of time series and index numbers.

- Formulate, solve, and analyse the use of time series and index numbers for real-world problems.

GE3: BASIC STATISTICS (Semester-I)

The course aims: To summarize the data and to obtain its salient features from the vast mass of original data. To understand the concepts of probability and its applications. To understand the concept of random variables, probability distributions and expectation. The course outcomes are as follows:

- Apply the concepts of statistical population and sample, variables and attributes.
- Present tabular and graphical representation of data based on variables.
- Measures of central tendency, Dispersion, Skewness and Kurtosis.
- Employ moments and their use in studying various characteristics of data.
- Employ correlation and regression analysis of bivariate data

GE4: INTRODUCTORY PROBABILITY (Semester-II)

The course acquaints the students with the mathematical foundation of probability. It Familiarizes the students with important tools for statistical analyses at introductory level. It also gives an introduction to some common discrete and continuous distributions and their properties. The course outcomes are as follows:

- Understand the meaning of probability and probabilistic experiment. Various approaches to probability theory and in particular the axiomatic approach. Laws of probability, conditional probability, conditioning, and reduced sample space, compute joint and conditional probabilities. Bayes' rule and applications.
- Understand the concept of a random variable, expectation and its properties, Compute variance and covariance in terms of expectation. Moment generating function and its properties.
- Get familiar with some standard discrete and continuous distribution and the usefulness of Central Limit Theorem in daily life.

GE5: APPLICATIONS IN STATISTICS (Semester-II)

The course aims to acquaint students with the current official statistical system in India and also to familiarize students with important concepts of Demand Analysis. It gives an introduction to Utility and Production functions. The course outcomes are as follows:

- Understand the current and prevailing official statistical system in India, role of MoSPI, CSO, NSSO, and their important publication

- Understand the laws of demand and supply, Price and Income elasticity of demand.
- Differentiate between Partial and Cross Elasticities of Demand, Engel's law, Pareto's law, and different curves of concentration.
- Understand theory of utility function, Utility Curve, Marginal rate of substitution, Budget line, and Construction of Utility Curve.

Skill Enhancement Course (SEC) (Common Pool)

SEC1: ADVANCED SPREADSHEETS TOOLS (Semester-I)

The course aims: To enable the students to use excel for advanced data analysis. To make possible to draw graphs with automatic setting on excel. To equip the students to with automation skills on excel. To permit the data on matrix format wise and cross section wise to setup on excel. To enable the students to use excel for informed decision making. To allowing and exporting the data as in easy way on excel. The course outcomes are as follows:

- Students will be able to make meaningful representations of data in the form of charts and pivot tables.
- Students will be able to draw analysis on data using spreadsheets and use interpretation to make decisions.
- Students will be able to generate word documents with appropriate formatting layout, proofing.
- Students will be able to manage data for generating queries, forms and reports in a database.

SEC2: STATISTICAL SOFTWARE PACKAGE (Semester-II)

The course aims: To familiarize students with data analysis using a statistical software package like SPSS or any other equivalent. To provide skills for research analysis and increase employability. To lay a foundation for advance data analysis work and higher education. The course outcomes are as follows:

- Students will be able to understand basic functions of statistical software package for managing variables and generate descriptive statistics to describe the data and analyse data through graphs and charts.
- Students will be able to test differences in sample means.
- Students will be able to identify relationships between variables and develop models for predicting dependent variables on the basis of independent variables.

- Students will be able to understand data structures and identify clusters in data.
- Students will be able to identify principal components that are relevant from a host of variables.

Value Addition Course (VAC) (Common Pool)

VAC1: Financial Literacy

The course develops familiarity with different aspects of financial literacy such as savings, investment, taxation, and insurance. It helps to understand the relevance and process of financial planning. It promotes financial well-being. The course outcomes are as follows:

- Develop proficiency for personal and family financial planning
- Apply the concept of investment planning
- Ability to analyse banking and insurance products
- Personal tax planning

VAC2: Swachh Bharat

The course aims: To understand the developmental challenges with reference to sanitation infrastructure and practices. To build values of cleanliness, hygiene and waste management in diverse socio economic contexts. To understand planning of social policy and programmes. To use waste management techniques at community level. To instil a sense of service towards society and the Nation. The course outcomes are as follows:

- Understanding the significance of the Swachh Bharat Abhiyan.
- Ability to analyse and predict the sanitation challenges of India
- Determine the link between sanitation and development.
- Contribute to the Swachh Bharat Abhiyan through real time projects/fieldwork.

17. COURSE: B.SC. (HONS.) ZOOLOGY

DEPARTMENT: ZOOLOGY

Program Outcomes

PO1: The curriculum of B.Sc. Zoology (Hons.) has been designed in an integrated and cross-disciplinary manner with a comprehensive understanding of all living beings from microscopic to macroscopic, their relationships with the environment and unravelling their application value; their characteristics, economic importance etc. As it covers a fascinating range of topics,

the modern zoologists need to have insight into many disciplines. B.Sc. (Hons.) degree in Zoology caters the needs of students in view of the evolving nature of animal sciences as a subject.

PO2: After Graduation in Zoology, students should gain an expertise which will help them in pursuing higher education from India or abroad; can carry out fieldwork, and seek jobs in academia, research or Industries etc. Students should be able to identify, classify and differentiate diverse chordates and nonchordates based on their morphological, anatomical and systemic organization, this will be mandatory if they want to pursue career in taxonomy.

PO3: They will also be able to describe economic, ecological and medical significance of various animals in human life. This will create a curiosity and awareness among them to explore the animal diversity and take up wild life photography or wild life exploration as a career option.

PO4: They will acquire practical skills in biotechnology, biostatistics, bioinformatics and molecular biology. Our students will be acquiring basic experimental skills in various techniques in the fields of genetics; molecular biology; biotechnology; qualitative and quantitative microscopy; enzymology and analytical biochemistry.

PO5: These methodologies will provide an extra edge to our students, who wish to undertake higher studies.

PO6: In-depth knowledge and understanding about comparative anatomy and developmental biology of various biological systems; and learning about the organisation, functions, strength and weaknesses of various systems will let students critically analyse the way evolution has shaped these traits in the human body.

PO7: Students undertaking skill enhancement courses like aquaculture will inculcate skills involved in rearing fish, set up their own fish farm, which would help them in starting their own ventures as entrepreneur and generating self-employment

PO8: Acquired skills in diagnostic testing, haematology, histopathology, staining procedures etc. used in clinical and research laboratories will provide them opportunity to work in diagnostic or research laboratory.

PO9: Deep understanding of different physiological systems and methods available to measure vital physiological parameters and to comprehend the mechanism behind occurrence of different life threatening disease via laboratory examination, assessment of basic physiological functions by interpreting physiological charts will help to find their career options.

PO10: Students undertaking wild life management courses would gain expertise in identifying key factors of wild life management and be aware about different techniques of estimating, remote sensing and Global positioning of wild life.

PO11: This course will motivate students to pursue a career in the field of wildlife conservation and management.

Program Specific Outcome (PSO)

PSO1: B.Sc. (Hons.) Zoology covers diverse range of topics, is designed to cater to the needs of students in view of the evolving nature of animal sciences as a subject.

PSO2: After completion of this course, the in-depth knowledge about Identifying and classifying animals will provide students professional advantages in teaching, research and taxonomist jobs in various government organizations; including Zoological Survey of India and National Parks/Sanctuaries.

PSO3: Acquired practical skills in biotechnology, biostatistics, bioinformatics and molecular biology can be used to pursue career as a scientist in pharmaceutical and drug development industry in India or abroad.

PSO4: Our students will be acquiring basic experimental skills in various techniques in the fields of genetics; molecular biology; biotechnology; qualitative and quantitative microscopy; enzymology and analytical biochemistry.

PSO5: They can pursue career in genetic counselling, assisted reproductive techniques etc. These methodologies will provide an extra edge to our students, who wish to undertake higher studies.

PSO6: Students undertaking skill enhancement courses like aquaculture will inculcate skills involved in rearing fish, set up their own fish farm, which would help them in starting their own ventures as entrepreneur and generating self-employment

PSO7: Acquired skills in diagnostic testing, haematology, histopathology, staining procedures etc. used in clinical and research laboratories will provide them opportunity to work in diagnostic or research laboratory.

PSO8: Deeper understanding of different physiological systems and methods available to measure vital physiological parameters and to comprehend the mechanism behind occurrence of different life threatening disease via laboratory examination, assessment of basic physiological functions by interpreting physiological charts will help to find their career options.

PSO9: Students can enter into field of wild life management and conservation. They can also join many national and International organisations working for animal conservation and ethical issues.

Course Outcomes: B.A. (Hons.) Sociology (NEP UGCF 2022)

Core Course(s)

DSC 1: Nonchordata-Protists to Pseudocoelomates (Semester-I)

- This subject is aimed at learning about the importance of systematics, taxonomy and structural organization of animals and development of a sense of appreciation for the diversity of non-chordates living in varied habitats.
- The students will understand the evolutionary history and relationships of different non-chordates through functional and structural affinities.
- It will also help them to analyse the organization, complexity and characteristic features of non-chordates, making them familiarize with the morphology and anatomy of representatives of various animal phyla.
- Moreover, students will form a comprehensive understanding of the economic importance of non-chordates, their interaction with the environment and role in the ecosystem.
- Students will have enhanced collaborative learning and communication skills through practical sessions, team work, group discussions, assignments and projects.

DSC 2: Biology of Cell: Structure and Function (Semester-I)

- The objective of this paper is to develop an understanding of a cell as a basic unit of life.
- This course is designed to enable the students to understand the structure and functions of cell organelles that are involved in various cellular processes.
- Students will be able to appreciate how the cells grow, divide, survive, die, and regulate all these processes.
- Students should be able to understand the process of cell signalling and its role in cellular functions.

- Students will have an insight into how defects in cell organelles functioning and regulation of cell processes can develop into various diseases. Students will learn various advancement made in the field of cell biology.

DSC 3: Principles of Ecology (Semester-I)

Upon completion of the course, students are able to:

- Demonstrate an understanding of key concepts in ecology with emphasis on Historical perspective, role of physical factors and concept of limiting factors.
- Comprehend the population characteristics, dynamics, growth models and Interactions. Students will understand the community characteristics, ecosystem development and climax Theories.
- Knowledge about the types of ecosystems, food chains, food webs, energy models, and Ecological efficiencies.
- Application of the basic principles of ecology in wildlife conservation and management.
- Inculcate scientific quantitative skills, evaluate experimental design, read graphs, and analyse and use information available in scientific literature.

DSC 4: Non-Chordates II: Coelomates (Semester-II)

Upon completion of the course, students are able to:

- Learn about the importance of systematics, taxonomy and structural organization of animals.
- Appreciate the diversity of non-chordates living in diverse habit and habitats. Understanding evolutionary history and relationships of different non-chordates through functional and structural affinities.
- Critically think about the organization, complexity and characteristic features of non-chordates.
- Familiarize themselves with the morphology and anatomy of representatives of various animal phyla.
- Students are able to comprehend the economic importance of non-chordates, their interaction with the environment and role in the ecosystem.
- Enhance collaborative learning and communication skills through practical sessions, team work, group discussions, assignments and projects.

DSC 5: Fundamentals of Biomolecules (Semester-II)

Upon completion of the course, the students are able to:

- Gain knowledge and skill in the fundamentals of biochemical sciences, interactions and interdependence of physiological and biochemical processes.
- Get exposure to various processes used in industries and gained skills in techniques of chromatography and spectroscopy.
- Demonstrate foundation knowledge in biochemistry; synthesis of proteins, lipids, nucleic acids, and carbohydrates; and their role in metabolic pathways along with their regulation.
- Knowledge about classical laboratory techniques, use modern instrumentation, design and conduct scientific experiments, and analyze the resulting data. Get trained in proper procedures and regulations in handling and disposal of chemicals.

DSC-6: Human Physiology-Control and Coordination Systems (Semester-II)

Upon completion of the course, the students are able to:

- Knowledge of basic fundamentals and understanding advanced concepts which help them develop a strong foundation that will aid them in acquiring skills and knowledge to pursue advanced degree courses.
- Comprehend and analyze problem-based questions. Recognize and explain how all physiological systems work in unison to maintain homeostasis in the body and use of feedback loops to control the same.
- Learning an integrative approach to understand the interactions of various organ systems resulting in the complex overall functioning of the body. Synthesize ideas to make connections between knowledge of physiology and real-world situations, including healthy lifestyle decisions and homeostatic imbalances.
- Know the role of regulatory systems viz. endocrine and nervous systems and their amalgamation in maintaining various physiological processes.

Generic Elective Course(s) (GE) Common Pool

GE-1 Human Physiology (Semester-I)

- The students will be able to understand the principles of normal biological function in the human body.

- Students will learn basic human physiology and correlate it with histological structures.
- This course deals with structure of major human organs, their physiological functioning, and their roles in the maintenance of healthy individuals also the interplay between different organ systems and how organs and cells interact to maintain biological equilibria in the face of a variable and changing environments.
- After completion of this course the students will be able to understand the homeostasis in animals in response to changes in their external environment.

GE 2: Lifestyle Disorders (Semester-II)

Upon completion of the course, the students are able to:

- Have a better understanding of lifestyle choices and the diseases associated with them. An in-depth understanding of making better lifestyle decisions.
- Students learn about various techniques for preliminary diagnosis of lifestyle disorders. The course aims to introduce the students to the concept of health, nutrition, and the factors affecting it.
- It will apprise students of the prevalence of emerging health issues affecting the quality of life. The course will facilitate the understanding of different physical and psychological associated disorders and their management for a healthy lifestyle.
- It highlights the important lifestyle-related disorders and describes the risks and remedies in relation to adopting a better life.

Skill Enhancement Course (SEC) Common Pool

SEC1: Personality Development and Communication (PDAC) (Semester-I)

The outcome of this paper is to develop an awareness on the skills including different types of communications, and inter and intra cultural communications that are required for one's personal as well as academic upliftment. It also helps to enrich the creativity to establish an individual/ organizational business or trade activities that involve negotiations, communications. This also helps the students for verbal and non- verbal communications, and to prepare any official report preparation. Some extent, it may also be useful to enhance the soft skills through modern computer based technology that are required in the routine personal as well as professional life.

Value Addition Course (VAC) Common Pool

VAC-1 Emotional Intelligence (Semester-I & II)

After completion of course, students will be able to

- Learn Self-Awareness, Self-Management, Social Awareness & Relationship Management. Students will be able to discover personal competence and techniques of building emotional intelligence.
- Students will gain insights into establishing positive relationship.

18. COURSE: B.A. (PROG.) (ALL COMBINATIONS)

1. **Tamil+Political Science/History**
2. **Telugu+Political Science/History**
3. **Hindi+History/Sociology**
4. **Sanskrit+Sociology/History**
5. **English+Sociology/Economics**
6. **History+Political Science**
7. **Economics+ Mathematics/Statistics/Sociology**

I. COURSE: B.A. (PROG.) HINDI

DEPARTMENT: HINDI

Program Outcomes

PO1: हिंदी भाषा और साहित्य का परिचय

PO2: प्रमुख साहित्यकारों का अध्ययन

PO3: हिंदी भाषा के विकास और साहित्य के इतिहास की स्पष्ट समझ विकसित करना ।

PO4: हिंदी साहित्य और भाषा के विकास की स्पष्ट समझ विकसित होगी

PO5: विशिष्ट कविताओं के अध्ययन से साहित्य की समझ विकसित होगी ।

Course Outcomes: B.A. (Prog.) Hindi (NEP UGCF 2022)

Core Course(s)

हिंदी क(12वीं कक्षा तक हिंदी पढ़ी है)

पेपर नाम -हिंदी भाषा और साहित्य का उद्भव और विकास

Course objective

1.हिंदी भाषा में रुचि विभाजित करना

2. हिंदी साहित्य एवं प्रमुख साहित्यकारों का परिचय

3. हिंदी भाषा को समझना और उसके आधुनिक प्रयोग को जानना

हिंदी ख(10 वीं कक्षा तक हिंदी पढ़ी है)

हिंदी भाषा और साहित्य उदभव और विकास

course objective

1. *हिंदी भाषा और साहित्य के इतिहास की समझ विकसित होगी*

2. *प्रमुख कविताओं की आलोचनात्मक समझ विकसित होगी*

हिंदी ग (8 वीं कक्षा तक हिंदी पढ़ी है)

पेपर - हिंदी भाषा और साहित्य का उद्भव और विकास

Course objective

1. *हिंदी भाषा और साहित्य की सामान्य जानकारी विकसित करना*

2. *राष्ट्रभाषा, राजभाषा और संपर्क भाषा के रूप में हिंदी की स्थिति का परिचय देना*

3. *विशिष्ट कविताओं के अध्ययन- विश्लेषण के माध्यम से कविता - संबंधी समझ विकसित करना।*

Generic Elective (GE) (Common Pool)

Refer to Common Pool under Hons. course.

बी. कॉम (प्रोग्राम) पाठ्यक्रम

हिंदी क(12वीं कक्षा तक हिंदी पढ़ी है)

पेपर नाम - हिंदी भाषा और साहित्य का उद्भव और विकास

Course objective

1.हिंदी भाषा में रुचि विभाजित करना

2. हिंदी साहित्य एवं प्रमुख साहित्यकारों का परिचय

3. हिंदी भाषा को समझना और उसके आधुनिक प्रयोग को जानना

Course learning outcomes

1. *हिंदी भाषा और साहित्य का परिचय*

2. *प्रमुख साहित्यकारों का अध्ययन*

हिंदी ख(10वीं कक्षा तक हिंदी पढ़ी है)

हिंदी भाषा और साहित्य उदभव और विकास

Course objective

1. *हिंदी भाषा और साहित्य के इतिहास की समझ विकसित होगी*

2. *प्रमुख कविताओं की आलोचनात्मक समझ विकसित होगी*

Course learning outcomes

हिंदी भाषा के विकास और साहित्य के इतिहास की स्पष्ट समझ विकसित करना ।

हिंदी ग (8वीं कक्षा तक हिंदी पढ़ी है)

पेपर - हिंदी भाषा और साहित्य का उद्भव और विकास

Course objective

1. *हिंदी भाषा और साहित्य की सामान्य जानकारी विकसित करना*

2. *राष्ट्रभाषा, राजभाषा और संपर्क भाषा के रूप में हिंदी की स्थिति का परिचय देना*

3. *विशिष्ट कविताओं के अध्ययन- विश्लेषण के माध्यम से कविता - संबंधी समझ विकसित करना।*

Course Learning outcomes

1. *हिंदी साहित्य और भाषा के विकास की स्पष्ट समझ विकसित होगी*

2. *विशिष्ट कविताओं के अध्ययन से साहित्य की समझ विकसित होगी ।*

II. COURSE: B.A. (PROG.) HISTORY

DEPARTMENT: HISTORY

Program Outcomes

The History curriculum is based on the following programme outcomes:

PO1: The objective of this curriculum is to prepare the students for the society at large.

PO2: This curriculum of B.A History Program offers students access to cutting edge scholarship organised in a pedagogical form that is accessible and interesting.

PO3: It provides the students with an opportunity to critically analyse the historical processes which have an interminable influence on our society at large.

PO4: It gives requisite information about different aspects of the past to students, to teach them how to deconstruct this information, how to undertake research, frame an argument and debate, a process that has immense significance. The expected outcome is to make students understand the interconnectedness of our present with the past. It provides a mechanism through which students, by acquiring knowledge about the past, also learn the skills to understand the present better.

PO5: On completion of the course students are expected to have acquired the skills of critical thinking, rational enquiry, effective communication, and exploring the relationship between past, present and historiography.

PO6: To acquire knowledge of multiple perspectives through which significant developments in the history of the Indian subcontinent from earliest times up to the period after independence.

PO7: To familiarize them with the significant patterns of development in certain parts of the modern and early modern world as well as certain non-Indian ancient societies.

PO8: To enable them to carefully read a complex historical narrative, evaluate its deployment of evidence, and understand its argument as well as critically analyse the same.

PO9: To be able to identify patterns of change and continuity with regards to issues of contemporary significance over long durations as well as across diverse geo-cultural zones.

PO10: Greater ability to distinguish between a historical phenomenon -- that is time-place-context driven, hence changeable and challengeable -- from that which is not.

PO11: Sensitivity to gender and social inequities as well as acquaintance with the historical trajectories of these issues.

PO12: Greater respect for basic human values and ideals of equality, freedom, respect for diversity, and other constitutional values.

PO13: Skill of picking up disparate sets of information from varied sources and weaving them into a coherent argument with a view to reveal identifiable patterns of development.

PO14: Capability to assume leadership roles and apply the above mentioned analytical ability in various other non-familiar contexts.

PO15: Possess knowledge of the values and beliefs of multiple cultures so as to effectively engage in a multi-cultural society and interact with diverse groups.

Course Outcomes: B.A. (Prog.) History (NEP UGCF 2022)

Core Course(s)

Discipline Specific Core Course (DSC – 01): History of India from Earliest Times up to c. 300 CE (Semester-I)

CO1:Explain the significance of the varied sources for studying pre- and proto-history

CO2:Distinguish between culture and civilisation (with specific reference to the Indus-Saraswathi/ Harappan Civilisation)

CO3: Locate cultural, economic, material, and political developments and transformations leading to in early societies urbanisation and then state formation

CO4: Highlight factors leading to the rise of heterodox sects

CO5: Trace the shift of historical focus from the North-West of India to the Gangetic belt (Mauryan Empire) and later to newer areas (Tamilakkam, Post- Mauryan Polities, economies, societies and cultures), while appreciating the process of assimilation.

Discipline Specific Core Course (DSC – 02): History of India, c. 300 CE to 1200 CE (Semester II)

CO1: Develop a better understanding of the importance and interpretations of both literary and archaeological sources related to the period of study

CO2: Identify the significant changes from late historic centuries to the early medieval times that influence the following centuries

CO3: Analyse the ever-fluid political scenario in terms of their spatial context and chronological framework

CO4: Delineate transformations in state formation, administrative framework, social structure, economy and cultural life, with special focus on regional polities

CO5: Contextualize the evolution and growth of regional styles of temple architecture and their role as a hub of socio-economic and political activities.

III. COURSE: B.A. (PROG.) MATHEMATICS

DEPARTMENT: MATHEMATICS

Course Outcomes: B.A (Prog.) Mathematics as Major (NEP UGCF-2022)

Core Course(s) (I & IInd Sem)

DSC 1: ELEMENTS OF DISCRETE MATHEMATIC (I)

This course will enable the students to:

- Understand the basic concepts of sets, relations, functions, and induction.
- Understand mathematical logic and logical operations to various fields.
- Understand the notion of order and maps between partially ordered sets.
- Minimize a Boolean polynomial and apply Boolean algebra techniques to decode switching circuits

DSC 2: TOPICS IN CALCULUS (I)

This course will enable the students to:

- Understand continuity and differentiability in terms of limits and graphs of certain functions.
- Describe asymptotic behaviour in terms of limits involving infinity.
- Use of derivatives to explore the behaviour of a given function locating and classify its extrema and graphing the function.
- Apply the concepts of asymptotes, and inflexion points in tracing of cartesian curves.
- Compute the reduction formulae of standard transcendental functions with applications

DSC 2: ANALYTIC GEOMETRY (II)

This course will enable the students to:

- Learn concepts in two-dimensional geometry.

- Identify and sketch conics namely, ellipse, parabola and hyperbola.
- Learn about three-dimensional objects such as straight lines and planes using vectors, spheres, cones and cylinders

DSC 2 (Discipline A-2): ELEMENTARY LINEAR ALGEBRA (II)

This course will enable the students to:

- Visualize the space R^n in terms of vectors and the interrelation of vectors with matrices.
- Familiarize with concepts of bases, dimension and minimal spanning sets in vector spaces.
- Learn about linear transformation and its corresponding matrix

Course Outcomes: B.A (Prog.) Mathematics as Non-Major (NEP UGCF-2022)

DSC : TOPICS IN CALCULUS (I)

This course will enable the students to:

- Understand continuity and differentiability in terms of limits and graphs of certain functions.
- Describe asymptotic behaviour in terms of limits involving infinity.
- Use of derivatives to explore the behaviour of a given function locating and classify its extrema and graphing the function.
- Apply the concepts of asymptotes, and inflexion points in tracing of cartesian curves.
- Compute the reduction formulae of standard transcendental functions with applications

DSC 2 (Discipline A-2): ELEMENTARY LINEAR ALGEBRA (II)

This course will enable the students to:

- Visualize the space R^n in terms of vectors and the interrelation of vectors with matrices.
- Familiarize with concepts of bases, dimension and minimal spanning sets in vector

spaces.

- Learn about linear transformation and its corresponding matrix.

IV. COURSE: B.A. (PROG.) POLITICAL SCIENCE

DEPARTMENT: POLITICAL SCIENCE

Course Outcomes: B.A. (Prog.) Political Science (NEP UGCF 2022)

Core Course(s)

Discipline-Specific Core Course (DSC-1): Introduction to Political Theory (Sem-I)

After completing this course students will be able to:

- Understand the nature, scope, and relevance of political theory
- Understand the different concepts of political theory such as liberty, equality justice, rights, and fraternity
- Develop a broader historical, normative, and empirical understanding of political theory
- Know and understand ancient Greece and ancient Indian political theory
- Reflect upon the contemporary debates in political theory

Discipline Specific Core Course – 2 (DSC-2): Public Administration in India (Sem-I)

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

- Have a clear picture of the complex institutional structure of Indian administration at present
- Understand the building blocks of local governance, in rural and urban areas
- Explain the processes by which different budgeting systems work for this structure
- Analyse the processes of implementation of different social welfare policies by the administrative institutions.

Discipline Specific Core Course (DSC-2A): Indian Government and Politics (Sem-II)

On successful completion of the course, students would demonstrate:

- Understanding of the Indian Constitution, its basic features and the rights and duties of the citizens as well as the constitutional obligations of the state
- Knowledge of state institutions in India, the constitutional provisions governing them and actual their working

- Understanding into the nature of Indian society and its relationship with politics through the prism of caste, class, gender, religion, etc.
- Knowledge of party system and political parties in India
- Awareness of the development debates in India and its relationship with the social movements

Discipline Specific Core Course (DSC-2B): India's Foreign Policy (Sem-II)

At the end of this course, the students would acquire:

- Basic knowledge of the determinants, principles and key drivers of India's foreign policy.
- Understanding the original rationale of India's non-alignment policy and its relevance in the contemporary context as to how India exercises strategic autonomy in foreign policy choices.
- An insight about India's position in changing global power equations particularly its bilateral ties with powerful nations like the US and Russia along with India's largest neighbour, China.
- Understanding of India's neighbourhood diplomacy in South Asia with regard to important challenges pertaining to border disputes, migration and refuges
- Grasp of India's negotiation strategies in dealing with global challenges in the realm of trade and environmental governance.

V. COURSE: B.A. (PROG.) SANSKRIT

DEPARTMENT: SANSKRIT

Course Outcomes: B.A. (Prog.) Sanskrit (NEP UGCF 2022)

Core Course(s)

i. Major:

a. DSC 1: Sanskrit Grammar (Semester-I)

- Students will understand the basic structural nuances of Panini's grammar.
- They will become familiar with fundamental samadhi and compounding patterns.

- They will also understand some most important primary and secondary suffixes of Sanskrit.
- The practice of the application of the rules learnt from the reading of the texts will further enhance their knowledge of the structural patterns of Sanskrit language.

b. DSC 2: Sanskrit Poetry (Semester-I)

- This course will help the students develop a fair idea of the works of great Sanskrit poets.
- They will be able to appreciate the styles and thoughts of individual poets focusing on the poetical, artistic, cultural and historical aspects of their works.
- This course will enhance competence in chaste classical Sanskrit and give them skills in translation and interpretation of poetic works.

ii. Minor:

a. DSC 1: Sanskrit Grammar (Semester-I)

- Students will understand the basic structural nuances of Panini's grammar.
- They will become familiar with fundamental samadhi and compounding patterns.
- They will also understand some most important primary and secondary suffixes of Sanskrit.

• The practice of the application of the rules learnt from the reading of the texts will further enhance their knowledge of the structural patterns of Sanskrit language.

i. Major:

a. DSC-3: Sanskrit Prose (Semester-II)

● The course will enable students enable students to familiarize themselves with some

leading classical prose works and individual literary styles of their authors.

● After the completion of this course the learner will be exposed to the socio-cultural

conditions of the Indian society as reflected in the prescribed texts.

● Course will also help students to develop their level of Sanskrit language comprehension.

b. DSC - 4: Sanskrit Drama (Semester-II)

● After completion of this course the students will be aware about the beauty and

richness of classical Sanskrit dramatic tradition.

● This course will enhance the ability for critical thinking on issues of culture, polity,

morality, religion etc as reflected in the prescribed texts.

- The course will make the students aware of the formal structures of Sanskrit drama in the tradition of Bharata's natya Shastra.

ii. Minor:

a. DSC - 2: Sanskrit Prose (Semester-II)

- The course will enable students enable students to familiarize themselves with some leading classical prose works and individual literary styles of their authors.
- After the completion of this course the learner will be exposed to the socio-cultural conditions of the Indian society as reflected in the prescribed texts.
- Course will also help students to develop their level of Sanskrit language comprehension.

VI. COURSE: B.A. (PROG.) SOCIOLOGY

DEPARTMENT: SOCIOLOGY

Course Outcomes: B.A. (Prog.) Sociology (NEP UGCF 2022)

Core Course(s)

BA Prog./MDS Sociology: Discipline Specific Core 01: An Invitation to Sociology (Semester I)

Course Objectives:

This course is a broad introduction to the discipline of sociology. It introduces students to understanding the „social" in everyday life. It helps to link the social to the personal and to develop a sociological imagination. It interrogates the taken-for-granted structures in society

and familiarises students with some of the fundamental concepts and concerns of the discipline.

Course Learning Outcomes:

After studying the paper, the students should be able to: 1. Appreciate and adopt a sociological perspective to the understanding of reality 2. Understand the basic concepts in Sociology and relate them to the micro and macro aspects of social life. 3. Develop a sociological way of thinking.

B.A. Prog./MDS Sociology: Discipline Specific Core 02: Family and Marriage (Semester I)

Course Objectives:

1. To introduce various approaches, issues, and debates in the study of family and marriage.
2. To introduce different concepts and theoretical understanding of marriage and family in different societies.
3. To develop critical insights into the changing trends in family and marriage.

Course Learning Outcomes:

1. Understanding the multiple perspectives in the study of the family.
2. Familiarity with the concepts relevant to the study of marriage
3. Developing an understanding of the changing trends in family and marriage.

BA Prog./MDS Sociology (as Major): Discipline Specific Core 03: Sociology of India (Semester II)

Course Objectives:

1. To provide an outline of the institutions and processes of Indian society.
2. To initiate students into viewing Indian society through a sociological lens.
3. To enable students to understand important social structures of Indian society.

Course Learning Outcomes:

1. Recognize the bases of plurality of Indian society.
2. Outline the concepts of caste, tribe, class, village, and religion.
3. Debate the basis of order and dynamics of social change in India.

BA Prog./MDS Sociology (as non-Major): Discipline Specific Core 03: Sociology of India (Semester II)

Course Objectives:

1. This paper aims to provide an outline of the institutions and processes of Indian society.

2. The central objective is to initiate students into studying Indian society through a sociological lens.

3. The students will be able to identify key social structures of Indian society.

Course Learning Outcomes:

1. Recognize the bases of plurality of Indian society.

2. Explain the concepts of caste, tribe, class, village, and religion.

3. Examine the dynamics of social change in India.

BA Prog./MDS Sociology: Discipline Specific Core 04: Religion and Society (Semester II)

Course Objectives:

The course introduces students to a sociological understanding of religion including beliefs, practices, and religious organisations. The three key components of this course are - sociological approaches to the understanding of religion; manifestations of religion in diverse forms and practices; and a focus on contemporary religious practices. The objective of the course is to offer an empirical and comparative view of religion and its role in society.

Course Learning Outcomes:

1. Understanding religion from a cultural, social, symbolic and comparative perspective.

2. Understanding religion as a socially constituted reality.

3. Familiarity with some of the contemporary issues in the sociology of religion.

4. A sociological understanding of the diversity of religious life.

VII. COURSE: B.A. (PROG.) STATISTICS

DEPARTMENT: STATISTICS

Course Outcomes: B.A. (Prog.) Statistics (NEP UGCF 2022)

Core Course(s)

B.A. (Prog.) with Statistics as Minor (Semester 1)

DISCIPLINE SPECIFIC CORE COURSE – 1: DESCRIPTIVE STATISTICS

Learning Objectives

- To motivate students towards intrinsic interest in statistical thinking.
- To analyze and interpret data.

Learning outcomes

- Understand the basic concepts of Statistics.
- Able to employ different types of data.
- Employ the graphical methods of displaying data.
- Use measures of locations.

B.A(P) with Statistics as Minor (Semester II)

DISCIPLINE SPECIFIC CORE COURSE – 2: Statistical Methods

Learning Objectives:

- To know the difference between discrete and continuous random variables.
- To develop the thinking of students so that they can use the concepts of statistical probability distribution in real life.
- To understand the concept of random variables, probability distributions and expectation

Learning Outcomes:

- Concept of random variables.
- Basic concepts of discrete & continuous random variables.
- Distinguish between Moments generating functions & Cumulant generating functions
- Concept of joint, marginal and conditional probability distribution for two dimensional random variables and their independence.
- Discrete probability distributions with their properties.
- Continuous probability distributions with their properties.

VIII. COURSE: B.A. (PROG.) TAMIL

DEPARTMENT: TAMIL

Program Outcomes

The programme is designed to achieve the following outcomes:

PO1:

The Tamil Syllabus for B.A (Prog.) Under Graduate Programme seeks to cover these key areas of study, i.e. historical and descriptive Study of the Language and Literature, study of the language for specific purposes, such as Film Script, Advertisement, Official Writing, Creative Writing, Essay writing, Translation, Journalistic Writing, Writing for New Media etc.;

PO2:

Study of specific areas like Tamil Folk Literature, Comparative studies in Tamil, Manuscriptology, Teaching Methodology etc.; study of the theories of literature and criticism; Specific Literary Terms, Autobiography and study of the history and important literary texts of Tamil Literature.

PO3:

The Programme seeks to develop both theoretical and practical knowledge in these fields in an interdisciplinary manner so as to develop a comprehensive understanding of the complexities of the language and literature in the context of socio-cultural, historical and professional specificities.

Course Outcomes: B.A. (Prog.) Tamil (NEP UGCF 2022)

Generic Elective (GE)

Semester: I-Introduction to Tamil Folklore-A

Program Learning Outcomes (POs)

The intense study will equip the students to understand the particular field of knowledge in Tamil and inculcate an ability to write on these disciplines. This study shall explain the role of literature to understand Folklore and Culture and the need of these disciplines in understanding and production of literary texts.

Semester: I-Basic Tamil-B

Program Learning Outcomes (POs)

The course will enable the students to obtain the basic skills of reading, writing and speaking in Tamil along with building up a primary vocabulary. After the course they can read and write simple Tamil sentences, can figure out words having conjunct character, and can have basic everyday conversation.

GE-2: NAME OF THE COURSE (SEMESTER)…

Semester : II- Introduction to Comparative Studies in Tamil-A

Program Learning Outcomes (POs)

The intense study will equip the students to understand the particular field of knowledge in Tamil and inculcate an ability to write on these disciplines. This study shall explain the role of literature to understand Comparative Literature, Translation and Culture and the need of these disciplines in understanding and production of literary texts.

Semester : II- Pre-Intermediate Tamil-B

Program Learning Outcomes (POs)

The course will facilitate the students to understand the nuances of the language by empowering them with better reading, writing and conversational skills. It will also enable them to translate from Tamil to English and vice versa.

Ability Enhancement Course (AEC)

Semester: I& II- IL.1-Translation and Interpretation in Tamil-A

Program Learning Outcomes (POs)

Students will be able to build various professional, technical, and linguistic skills to take the job of translation and interpretation. Their knowledge in various fields in both the source and the target languages will help them translate in multiple areas and take interpretation jobs for the different target groups; the translator works with the written material/texts; the interpreter will mediate between languages orally. The course will equip the students with the theories of translation as techniques of translation well as practical aspects of translation.

Semester: I& II- IL.1-Basic Tamil- Introduction to Tamil-B

The primary objective of this Course is to facilitate Non-Tamil students to acquire fully well the four skills (speaking, listening, reading & Writing) of the written, spoken & varieties of triglossic Tamil Language for day-to-day conversation and to provide a wider knowledge of Tamil Language, literature and society of Tamil Nadu, India & Abroad.

IX. COURSE: B.A. (PROG.) TELUGU

DEPARTMENT: TELUGU

Program Outcomes

The programme is designed to achieve the following outcomes:

PO1:

The Telugu Syllabus for B.A. (Prog.) Under Graduate programme seeks to cover these key areas of study, i.e. historical and descriptive Study of the Language and Literature, study of the language for specific purposes, such as Film Script, Advertisement, Official Writing, Creative Writing, Essay writing, Translation, Journalistic Writing, Writing for New Media etc.;

PO2:

Telugu literature has more than a thousand year's history, and it is one of the classical languages in India. The course provides students with a substantive understanding of literature and the history of Telugu. This course gives an outline of Telugu literature. The main aim of the course is to introduce the important poets and their wrings to Telugu students from the 11th century to the 15th Century.

PO3:

The Programme seeks to develop both theoretical and practical knowledge in these fields in an interdisciplinary manner so as to develop a comprehensive understanding of the complexities of the language and literature in the context of socio-cultural, historical and professional specificities.

Course Outcomes: B.A. (Prog.) Telugu (NEP UGCF 2022)

Generic Elective (GE)

Semester: I- Telugu Literature and History: An Introduction -A

Program Learning Outcomes (POs)

The course provides students with a substantive understanding of literature and the history of Telugu. This course gives an outline of Telugu literature cultural development of Telugu people as seen through the lens of literature. It will discuss the role of literature in the reconstruction of history from an ancient period to present times and the importance of literature in reflecting the social, political and cultural histories. It mainly focuses on the study of Andhra history through literary works, especially the historical writings by various authors.

Semester: I-Basic Telugu-B

Program Learning Outcomes (POs)

The course will enable the students to obtain the basic skills of reading, writing and speaking in Telugu along with building up a primary vocabulary. After the course they can read and write simple Telugu sentences, can figure out words having conjunct character, and can have basic everyday conversation.

Semester : II- Telugu Shathaka sahithyam **-A**

Program Learning Outcomes (POs)

The course will enable the students to understand the unique features of Shataka, i.e. Shataka Sankhya, Makuta, Metreand the history of Shataka literature in Telugu. After completing the course, Students will be able to understand how to read Telugu verses and remember the verses and develop the Telugu vocabulary.

Semester : II- Pre-Intermediate Telugu -B

Program Learning Outcomes (POs)

The course will facilitate the students to understand the nuances of the language by empowering them with better reading, writing and conversational skills. It will also enable them to translate from Telugu to English and vice versa.

Ability Enhancement Course (AEC)

Semester: I& II- IL.1-Translation and Interpretation in Telugu-A

Program Learning Outcomes (POs)

Students will be able to build various professional, technical, and linguistic skills to take the job of translation and interpretation. Their knowledge in various fields in both the source and the target languages will help them translate in multiple areas and take interpretation jobs for the different target groups; the translator works with the written material/texts; the interpreter will mediate between languages orally. The course will equip the students with the theories of translation as techniques of translation well as practical aspects of translation.

Semester: I& II- IL.1-Basic Telugu- Introduction to Telugu-B

The primary objective of this Course is to facilitate Non-Telugu students to acquire fully well the four skills (speaking, listening, reading & Writing) of the written, spoken & varieties of triglossic Telugu Language for day-to-day conversation and to provide a wider knowledge of Telugu Language, literature and society of Andhra Pradesh, Telangana India & Abroad.

19. COURSE: B.COM.

DEPARTMENT: COMMERCE

Program Outcomes

Programme learning outcomes for B. Com. include various subject specific skills and generic skills like mind management, creativity, and innovation of competencies in diverse areas of Commerce and Business, the achievement of which will be demonstrated by the students of B.

Com. Programme for the award of bachelor degree. The programme learning outcomes of B. Com. also enable a student to prepare for further study, employment, and good citizenship. Further, the difference in the level of achievement of programme outreach provides for comparing of learning levels and standards across different college/institution. The various learning outcomes of the programme are mentioned below:

- **PO1**: Bachelor's Degree in Commerce results in giving comprehensive knowledge of Marketing, Human Resource Management, Business and Corporate Law, Economics, Finance, Accounting, Management, Tax and several other branches of Commerce that includes Investment, Insurance, and Banking. Thus, this programme helps students in building a concrete footing for advanced studies in Commerce and to stand with the requirement of business sector, insurance, banking seeking youth fit for employment.
- **PO2**: Students undergoing this programme will be equipped to the world of work, particularly, work of the future. The student will get a first-hand exposure of working in the real world.
- **PO3**: Students completing this programme will be able to develop managerial knowledge and tactical dexterity, with a broader skill set and encourages them to seek out audacious, innovative solutions for today's business.
- **PO4**: Completion of this programme will also enable the students to formulate business problems and provide innovative solutions thus, molding them into future visionaries, management leaders that are compassionate yet efficient.
- **PO5**: The course provides an extreme and rigorous base for teaching, research, and allied business administrations.
- **PO6**: The focus of UGCF of commerce and business education is aimed at improving the student's abilities and helping them to become a competent business leader who can contribute in nation building. Commerce education is not related only with knowing how to organize and apply skills related to business, industry and economy, but it further accelerates the process of thinking in a pragmatic manner about nation building through effective utilization of skills, resources, manpower and one's abilities.

Course Outcomes: B.Com. (Prog.) Commerce (NEP UGCF 2022)

Core Course(s)

BC: DSC- 1.1: Business Organisation and Management (Semester I)

The course aims to develop an understanding of business organisations, functions and challenges of management and contemporary issues in management. The Learning Outcomes of this course are as follows:

- Explain the dynamics of business organisations and recent management practices.
- Describe varied perspectives related to the business environment and entrepreneurship.
- Analyse how the organisations adapt to an uncertain environment and decipher decision- making techniques.
- Analyse the relationship amongst functions of management i.e. planning, organizing, directing and controlling.
- Analyse the change in the working pattern of modern organisations.

BC: DSC- 1.2: Business Laws (Semester I)

To impart basic knowledge of the important business laws relevant for the inception and conduct of general and business activities with relevant case laws. The Learning Outcomes of this course are as follows:

- Analyse the basic aspects of contracts vis-a-vis agreements and subsequently enter into valid business propositions.
- Describe various modes of discharge of contract and remedies available in case of breach.
- Recognize and differentiate between the special contracts.
- Analyse the rights and obligations under the Sale of Goods Act.
- Attain skills to form and manage entrepreneurial ventures as LLP.

BC: DSC- 1.3: Financial Accounting (Semester I)

The course aims to help learners to acquire conceptual knowledge of financial accounting, to impart skills for recording various kinds of business transactions and to prepare financial statements. The Learning Outcomes of this course are as follows:

- Analyse the generally accepted accounting principles while recording transactions and preparing financial statements.
- demonstrate the accounting process under a computerized accounting system.
- Measure business income applying relevant accounting standards.
- Evaluate the impact of depreciation and inventories on Business Income.
- Prepare the Financial Statements of sole proprietor firms and Not-For-Profit Organisations.

DSC- 2.1: Corporate Accounting (Semester II)

The course aims to help learners to acquire conceptual knowledge of corporate accounting systems and to learn the techniques of preparing the financial statements of companies. After completion of the course, learners will be able to:

- Analyse accounting for share capital, debentures, bonus shares, redemption of preference shares and debentures of a company.
- Prepare financial statements of companies manually as well as using online software.
- Interpret the Valuation of Intangible Assets and Shares.
- Describe accounting for Amalgamation and Internal Reconstruction of Companies.
- Prepare Annual Reports of companies and analyse the voluntary and mandatory information contained in them.

DSC- 2.2: Company Law (Semester II)

The course aims to develop and comprehend business and its processes in accordance with the provisions of the Companies Act, 2013 while analysing case laws. After completion of the course, learners will be able to:

- Analyse the regulatory aspects and the broader procedural aspects involved in different types of companies covering the Companies Act, 2013 and Rules.
- Prepare the basic legal documents required for formation of a company.
- Analyse the process and documents required for raising capital for the company.
- Analyse the managerial composition of companies and examine the process of company meetings.
- Evaluate the framework of dividend distribution and develop understanding of the winding up process including Insolvency Resolution.

DSC- 2.3: Human Resource Management (Semester II)

The course aims to acquaint the learners with the techniques and principles to manage human resources of an organisation.

After completion of the course, learners will be able to:

- Evaluate the importance of contemporary and emerging HR issues.
- Analyse the concept and sources of recruitment and selection process.
- Devise employee training and development programs.
- Design performance appraisal techniques and compensation schemes.

- Design HR policies for grievance redressal, employee health, safety, welfare, social security, and stress-free work life balance.

20. COURSE: B.Sc. (Prog) LIFE SCIENCES

Program Outcomes

Zoology is one of the most fundamental branch of biology to be studied at undergraduate level. It is required to learn and understand about animal diversity and to appreciate their variability in relation to their morphology, anatomy and behaviour. The course will also provide an opportunity to learn and understand about evolution. Students will be able to appreciate evolutionary parameters using various bioinformatics and computational tools used in modern sciences. The course further enhances understanding of classical genetics to comprehend distribution of various traits among populations, their inheritance, ethnicity and students can correlate these aspects with contemporary and modern subjects like genomics, metagenomics and genome editing tools. Skills gained in practical and theory will be helpful in designing holistic public health strategies for social welfare. Studying zoology as a part of life science course, further enhances knowledge of applied subjects to hone students' skills to build a career and become an entrepreneur in the field of aquatic biology, sericulture, apiculture etc. After completion of this course, students could contribute as policy makers in wildlife conservation, and environment protection.

Program Specific Outcomes (PSO)

Students enrolled in B.Sc. (Program) Life Sciences will study and acquire complete knowledge of disciplinary and allied biological sciences. At the end of graduation, they would have expertise which will provide them competitive advantage in pursuing higher studies from India and abroad or seek jobs in academia, research or industries. Students should be able to identify, classify and differentiate in types of chordates and non-chordates based on their morphological, anatomical and systemic organization. This will create a curiosity and awareness among them to explore animal diversity and take up wildlife photography or wildlife exploration as a career option. The procedural knowledge about identifying and classifying animals will help students gain professional advantages in teaching, research and taxonomist jobs in various Government organizations, such as Zoological Survey of India or National Sanctuaries. Acquired practical skills in biochemistry and biotechnology can be used in pursuing a career as a scientist in the

pharmaceutical industry in India or abroad. Students will be gaining basic experimental skills in genetics, biotechnology, qualitative and quantitative microscopy, and also enzymology that will give them an edge to pursue higher studies. The skill enhancement courses will hone skills in rearing fish, bees and silk moths for generating self-employment. Students can acquire expertise to join clinical and research laboratories for diagnostic assays, hematology, histopathology, staining procedures etc. They will be able to examine and assess some basic physiological functions and interpret physiological charts.

Course Outcomes: B.Sc. (Hons.) Life Sciences (NEP UGCF 2022)

Core Course(s)

BOT-DSC-1: Plant Diversity and Systematics (Sem I)

This course will be able to impart basic knowledge and understanding of the diversity of plants and microbes. The general characteristics of plants and microbes and the possible relationships between them. The students will be able to learn approaches used for identification and classification of various groups of plants.

CHEM-DSC-1: Basic Concepts of Organic Chemistry (Sem I)

The students will be able to Understand and explain the differential behavior of organic compounds based on fundamental concepts learnt. The students will understand the fundamental concepts of stereochemistry. Students will be able to formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved. The students will learn and identify many organic reactions and their mechanisms including electrophilic addition, nucleophilic addition, nucleophilic substitution, electrophilic substitution and rearrangement reactions.

ZOO-DSC-1: Diversity of Animals (Sem I)

The students will be able to learn about the diversity of non-chordates and chordates. They will be made familiar with the traits, morphotaxonomy, structural layout, and physiological systems of several animal groupings. After learning they should be able to recognise the economic significance of chordates and non-chordates as well as the role they play in the ecosystem. They should understand the phylogeny and evolutionary links between invertebrates and vertebrates to identify structural and functional similarities.

BOT-DSC-4: Genetics and Molecular Biology (Sem II)

The Students would be able to understand the fundamentals of Mendelian inheritance and non-Mendelian inheritance. They will be able to describe the concepts of linkage and crossing over and their usage in constructing genetic maps. They will gain knowledge about chromosomal aberrations and mutations. They will become familiar with structure and function of nucleic acids with reference to replication, transcription and translation. They will understand the mechanisms of gene regulation.

CHEM-DSC-5: Chemical Bonding and Elements in Biological System (Sem II)

By the end of the course, the students will be able to understand the concept of lattice energy using Born-Landé and Born Haber Cycle and their applications. They will rationalize the conductivity of metals, semiconductors and insulators based on the Band theory. They will understand the importance and application of chemical bonds, inter-molecular and intramolecular weak chemical forces and their effect on melting points, boiling points, solubility and energetics of dissolution. They will know about the essential, non-essential, trace and toxic metal ions and their role in biological system and effects of their deficiency. They will also learn their dose response relationship curves. They will understand active and Passive transport and diagrammatically explain the working of the sodium-potassium pump in organisms and the factors affecting it. They will explain the sources and consequences of excess and deficiency of trace metals and learn about the toxicity of certain metal ions, the reasons for toxicity. They will learn about the storage and transport of iron in bio-systems.

ZOO-LS-DSC-6: Cell and Developmental Biology of Animals (Sem II)

By studying this course, students will be able to explain the structure and functions of cell organelles involved in diverse cellular processes. Students will know the evolution of different concepts in developmental biology. Students will be able to understand the process of gamete formation from stem cell population to mature ova and sperm. The students will know the differences between Spermatogenesis and Oogenesis. Students will be able to comprehend the sequence of steps leading to the fusion of gametes and learn the contribution of sperm and ova to zygote formation. Students will be able to understand how polyspermy is avoided in the animal kingdom. Students will learn the mechanisms underpinning cellular diversity and specificity in animals. Students will learn the methods and tools related to developmental biology to understand different processes of embryogenesis.