

GOVT. (AUTO) COLLEGE PHULBANI
DEPARTMENT OF CHEMISTRY

POST-GRADUATE Course in CHEMISTRY

Programme Outcome:

To make the department a flourishing centre of excellence in teaching, curriculum development, and popularizing Chemistry in society. We shall also endeavour to make international collaborations for students and faculty mobility and research cooperation. The department would like to attain worldwide recognition in Chemistry research and teaching. Additionally, the department also strives to contribute to industry and address problems of societal importance. The department also aims at Chemistry outreach in the form of books, online courses, and other chemistry education activities that showcase the role of "Chemistry as a central science." The department aims to produce high quality M. Sc. students with application-oriented skills in industry and academia.

SEMESTER-I

CC-1.1 Organic Chemistry-I

Course Outcome: This course gives the basics of organic chemistry with an in-depth understanding of a broad range of basic organic reactions such as substitution, addition-elimination reactions, fundamental prospective such as idea of reaction intermediates, drawing reaction mechanism, name reactions-rearrangement, organic photochemistry, understanding stereochemistry with conformations.

CC-1.2 Inorganic Chemistry-I

Course Outcome: This course gives an in-depth understanding of a broad range of basics of inorganic chemistry. The student will learn regarding type of bonding nature in the molecule and metal complex. The course will give an overall understanding of bonding theory such as VBT, MOT; π - acceptor ligands; Rings, Cages and Metal Clusters; Nuclear Chemistry.

CC-1.3 Physical Chemistry-I

Course Outcome: This course will provide the basic concept of the structure, behaviour of molecule and chemical phenomena at the microscopic level.

CC-1.4 Physical Spectroscopy

Course Outcome: This course gives an in-depth understanding of a broad range of basics of molecular spectroscopy. The student will learn about microwave, vibrational, Raman, and photoelectron spectroscopy. In addition, student will learn the application of EPR and Mossbauer spectroscopy.

CC-1.5 Organic Practical

Course Outcome: This is a basic organic chemistry practical course. In this laboratory course, students would be able to use their knowledge of chemical reactivity to plan and execute the preparation of compounds using various C-C and C-hetero bond-forming reactions and various organic transformations from commercially available starting materials. Upon completion of

this laboratory course, the students would also get confidence on working independently and characterize the synthesized compounds using various modern techniques.

SEMESTER-II

CC-2.1 Organic Chemistry-II

Course Outcome: This course gives an in-depth understanding of a broad range of organic reactions from oxidation-reduction mechanism perspectives to use of organometallics, pericyclic. It gives an understanding how the chemical transformations achievable through interaction between light/heat and organic compounds.

CC-2.2 Inorganic Chemistry-II

Course Outcome: The student will learn regarding Bonding in Co-ordination Compounds; Spectral and Magnetic Properties of Transition Metal Complexes, Metal-Ligand Equilibria in Solution; Reaction Mechanism of Transition Metal Complexes

CC-2.3 Physical Chemistry-II

Course Outcome: This course will provide the knowledge of thermodynamics and its relation to microscopic physical laws. The last part of this course gives the understanding of mechanism of chemical processes.

CC-2.4 Organic Spectroscopy

Course Outcome: The student will learn how to identify an organic molecule through organic spectroscopy. The student should be able to know application of spectroscopy for unknown compound identification by Combined UV, IR, Mass and NMR spectroscopy.

CC-2.5 Inorganic Practical

Course Outcome: The student will learn the practical knowledge for Qualitative analysis of mixtures containing not less than six radicals, volumetric estimation of metal including magnetic state determination and preparation of inorganic metal complexes.

SEMESTER-III

CC-3.1 Analytical Chemistry

Course Outcome: The students learn about different types of Chromatography, spectroscopy, Electrical methods of analysis: Voltammetry and polarography, Thermal methods of analysis, Atomic absorption spectroscopy

CE-3.2 Organic Synthesis

Course Outcome: The student will learn about disconnection approach and retrosynthesis, synthesis of heterocycles, natural Product synthesis and use of synthetic reagents in organic synthesis, Organic Polymers. The student can independently plan to synthesize a target molecule.

CE-3.3 Organometallic Chemistry

Course Outcome: The student will learn about Main Group Organometallics; Transition Metal Organometallics and Applications of Organometallics to Organic Synthesis and Catalysis.

CE-3.5 Nano chemistry

Course Outcome: This course will give basic concept of nano particles and nanotechnology and its applications.

CC-3.6 Inorganic Practical

Course Outcome: The student will learn practical knowledge of physical and analytical chemistry

SEMESTER-IV

CC-4.1 Organic Chemistry-III

Course Outcome: This course gives an in-depth understanding of a broad range of organic reactions from physical organic chemistry perspective. The topics include thermodynamic & kinetic control of organic reactions, Curtin-Hammett Principle, probing the reaction mechanisms by kinetic isotope effects, stereoelectronic effects in conformations, allylic strain and various selected reactions. Also, a detailed study and application of the theories/rules governing various cyclic reactions will be carried. A study of asymmetric synthesis is illustrated to achieve enantiopure compounds.

CE-4.2 Physical Chemistry-III

Course Outcome: This course gives an in-depth understanding of various aspects of Electrochemistry, Surfactants, Micelles. In addition, it also gives various aspects of X-ray diffraction studies

CE-4.3 Bio-organic Chemistry

Course Outcome: The student will learn about the real chemistry of life that involve carbohydrates, amino acids, nucleic acids and proteins. They will understand the mechanism going on in biological life (DNA, RNA, NADH).

CE-4.3 Bio-inorganic & Supramolecular chemistry

Course Outcome: The student will learn about Bioinorganic Chemistry of Alkali and Alkaline Earth Metals, Metalloproteins, Metalloenzymes; Supramolecular Chemistry

CE-4.5 Polymer Chemistry

Course Outcome: The student will learn about Structure and Properties, Basics of Polymer; Polymer Characterization; Structure and Properties

CE-4.8 Dissertation

Course Outcome: The student will work in real in laboratory at the college, under the supervision of the faculty members of the department. Each student has to work for at least 300 hours in the laboratory on a specific project under the guidance. a) The dissertation supervisor should be a Professor/Associate Professor/Assistant Professor/ Scientist/ Scientific Officer (Equivalent) (having at least PhD degree). b) The research work will be submitted in the form of a dissertation before one week of last theory examination/as instructed by HOD. The student has to present his work in power point before an External examiner and an internal examiner for evaluation.

Under-Graduate Programme in Science (B.Sc.)

Programme Outcome (PO)

- ❖ To transform curriculum into outcome-oriented scenario.
- ❖ To develop the curriculum for fostering discovery-learning.
- ❖ To equip the students in solving the practical problems pertinent to India.
- ❖ To adopt recent pedagogical trends in education including e-learning, flipped class, hybrid learning and MOOCs.
- ❖ To mould responsible citizen for nation-building and transforming the country towards the future.

UNDER-GRADUATE Course in CHEMISTRY

Programme Specific Outcomes (PSO) of Bachelor's Degree Programme in Chemistry.

The broad aims of bachelor's degree programme in Chemistry are:

- I. Broad and balance knowledge in chemistry in addition to understanding of key chemical concepts, principles, and theories. problems.
- II. To develop students' ability and skill to acquire expertise over solving both theoretical and applied chemistry
- III. To provide knowledge and skill to the students' thus enabling them to undertake further studies in chemistry in related areas or multidisciplinary areas that can be helpful for self-employment/entrepreneurship.
- IV. To provide an environment that ensures cognitive development of students in a holistic manner. A complete dialogue about chemistry, chemical equations and its significance is fostered in this framework, rather than mere theoretical aspects
- V. To provide the latest subject matter, both theoretical as well as practical, such a way to foster their core competency and discovery learning. A chemistry graduate as envisioned in this framework would be sufficiently competent in the field to undertake further discipline-specific studies, as well as to begin domain-related employment.
- VI. To mould a responsible citizen who is aware of most basic domain-independent knowledge, including critical thinking and communication.
- VII. To enable the graduate, prepare for national as well as international competitive examinations, especially UGC-CSIR NET and UPSC Civil Services Examination.

SEMESTER-I

C-1.1: INORGANIC CHEMISTRY-I

Course Outcome

- To study different models of atom and to understand quantum mechanical approach to atom.
- To understand periodic properties of elements with reference to modern periodic table.

➤ To explain different types of bond formation (ionic and covalent).

To predict geometry of covalent molecule based on hybridisation and VSEPR theory.

➤ To understand the nature of bonding in metals

➤ To develop skills in titration and theory behind Acid-Base and Redox titration.

C-1.2: PHYSICAL CHEMISTRY- I

Course Outcome

➤ To understand the properties of gaseous state and liquid state of matter on the basis of Kinetic Theory and to study structure of different types of solid.

➤ To study ionic equilibrium with reference to salt hydrolysis, buffer solution and theories of acid and base, and theories of indicator.

➤ To develop skills for determination of viscosity and surface tension of liquid by using simple equipment.

SEMESTER-II

C-2.1: ORGANIC CHEMISTRY-I

Course Outcome

➤ To understand the basics of organic chemistry and stereochemistry with reference to conformational and configurational isomerism.

➤ To understand the chemistry (preparation and properties) of alkanes, alkenes, alkynes, and cycloalkanes.

➤ To understand aromaticity and peculiar aromatic compounds.

➤ To develop the skills required for separation and purification of compounds.

C-2.2: PHYSICAL CHEMISTRY II

Course Outcome

➤ To understand the concepts of thermodynamics with reference to Enthalpy, Entropy, Free energy, Chemical potential.

➤ To understand the concept of chemical equilibrium and its conditions and characteristics.

➤ To understand the theories relating to dilute solution and colligative properties.

➤ To develop skills for use of equipment like pH meter and conductivity meter and to perform thermal experiments using calorimeter

SEMESTER-III

C-3.1: INORGANIC CHEMISTRY-II

Course Outcome

- To understand the general principles of metallurgy and theories of acid and base.
- To understand chemistry of s and p block elements including noble gases.
- To understand preparation and properties and uses of inorganic polymers.
- To develop skills for preparation of inorganic compounds and their characterization.
- To understand the skills of iodometric/iodometric titrations

C-3.2: ORGANIC CHEMISTRY-II

Course Outcome

- To understand preparation and properties of organic compounds like Alcohols, Phenols, Ethers, Epoxies, Aldehydes, Ketones and Carboxylic acids.
- To understand the preparation properties and synthetic application of active methylene compounds.
- To understand the chemistry Sulphur containing organic compounds.
- To develop the skills for preparation of different organic molecules and their characterization.

C-3.3: PHYSICAL CHEMISTRY-III

Course Outcome

- To understand concepts like phase, component, degrees of freedom and phase rule. Application of phase rule to different types of system.
- To understand Nernst distribution law and its applications.
- To understand speed of reaction and factors influencing speed of reaction and mechanism of reaction with reference to catalysis. ➤ To understand theories of reaction rate.
- To develop the skills to study kinetics of first order reaction and determination of partition coefficient.

SEMESTER-IV

C-4.1: INORGANIC CHEMISTRY-III

Course Outcomes

- To understand the properties of transition and inner transition elements.

- To understand nature of bonding in coordinate compounds (VBT and CFT)
- To understand role of metal ions in biological systems Na/K pump and toxicity of metals.
- To develop the skills for preparation and characterization of some complex compounds.
- To develop the skills of complex- metric titration.

C-4.2: ORGANIC CHEMISTRY-III

Course Outcomes

- To understand the chemistry of organic compounds containing Nitrogen such as: amines, diazonium salt.
- To understand the chemistry of poly nuclear hydrocarbons like naphthalene and anthracene. ➤ To understand the chemistry of Heterocyclic compounds like Furan , Pyrole & Thiophene.
- To understand the chemistry of and alkaloids and terpenoids.
- To develop the skills to identify unknown organic compound.

C-4.3: PHYSICAL CHEMISTRY-IV

Course Outcomes

- To understand concepts like theories of conductance and principles of electrochemistry.
- To understand, how to determine different physical quantities using conductance measurement methods.
- To understand construction and functioning of different types of electro chemical cells.
- To develop the skills to work with conductivity meter and potentiometer.

SEMESTER-V

C-5.1: ORGANIC CHEMISTRY-IV

Course Outcomes

- To understand the basic principles and instrumentation UV-Visible spectroscopy, IR spectroscopy and NMR spectroscopy.
- To understand the interpretation of spectrum in relation to the structure of organic molecule. ➤ To understand the chemistry of carbohydrates in relation to structure and properties.
- To develop the skills to identify organic compounds including carbohydrates and also to estimate organic compounds quantitatively.

C-5.2: PHYSICAL CHEMISTRY-V

Course Outcomes

- To understand the basis of quantum mechanics and its application to simple problems.
- To understand the nature of covalent bond with quantum mechanical approach.
- To understand rotational spectra of linear diatomic and triatomic molecule and its applications. ➤ To explain Hooks law (Harmonic oscillator) and to explain IR spectra of diatomic molecule.
- To explain energy levels and selection rules for vibrating rotator.
- To understand basic principles of photochemistry and photochemical reactions.
- To develop the skill of using UV –Visible spectrophotometer to solve different problems.

DSE-5.3: POLYMER CHEMISTRY

Course Outcomes

- The mechanism of polymer material formation
- Molecular weight and structure property relationship.
- Polymerization procedure and Zeigler Natta Catalyst. ➤ Characterization of polymer.

DSE-5.4: INDUSTRIAL CHEMICALS AND ENVIRONMENT

Course Outcome:

- After completion of this course the learner can able to understand about some hazardous and toxic chemicals used in different industries and how to handle these chemicals.
- Different components of environment and the relationship between them.
- Different types of environmental pollution and remedies.
- Different energy sources and pollution.

SEMESTER-VI

C-6.1: INORGANIC CHEMISTRY-IV

Course Outcomes

- To understand structure and bonding in carbonyls and their reactions.
- To understand structure some organometallic compound and their application as catalysts.
- To understand inorganic reaction mechanism, trans effect and ligand substitution reactions.
- To develop the skills to identify the cations and anions in a salt mixture.

C-6.2: ORGANIC CHEMISTRY-V

Course Outcomes

- To understand the chemistry of amino acids vis-a-vis proteins in relation to the structure, physical, chemical and biological characteristics.
- To understand structure and function of enzymes, nucleic acids and lipids in relation to their biological importance. To understand and appreciate the concepts of bioenergetics.
- To understand and appreciate the applications of chemistry in forms of medicines & dyes.
- To develop the skill of preparation of simple drugs like Paracetamol, Vitamin C, Aspirin etc. and some dyes like methyl orange.

DSE-6.3: INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE

Course Outcome:

- The manufacturing of glasses, Ceramics and cements.
- The manufacturing of fertilizer.
- The components of battery and their role.
- The objective of coating surfaces and classification of surface coatings.
- The manufacturing of Alloys and chemical explosive.

DSE-6.4: GREEN CHEMISTRY

Course Outcomes

- Learn an interdisciplinary approach to the scientific and social issues arising from pollution of environment and green approach for its solution.
- To understand the basic principles of Green Chemistry.
- To understand the green synthetic methods of different compounds
- To understand the scope of green chemistry.

DSE-6.7: DISSERTATION / PROJECT WORK

Course Outcomes

- To get an initial idea about project/dissertation work, how to report a project work in a standard format to be submitted and presented for evaluation under the guidance of the departmental teachers.
- To understand how to identify a problem, review of literature, methodology, findings and analysis of a project work in different fields like Physiochemical studies (pH, Conductivity, turbidity etc) of different wetlands (ponds, river, lake etc.).

➤ To analyse hardness of water samples, detection of adulteration in food stocks and other edible items, extraction and preliminary characterization of useful chemicals from plants, pollution related activities, nutrition related activities and small synthetical work (inorganic/organic and polymeric compounds).

Department of Commerce
Govt. Autonomous College, Phulbani

Details of Course Outcome and Programme outcome of PG Syllabus

SEMESTER-I

CC-1.1 : MANAGEMENT CONCEPT AND ORGANISATIONAL BEHAVIOUR

Programme Outcome:

To help students understand the conceptual framework of Interpersonal and Organizational Behaviour and To familiarize the students with the developments of management principles and practices. The student knowledge gaining about the management and organizational behaviour for how to treat a man in organization what will they need.

Course Outcomes:

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

- CO1: Understand the concepts of organisational behavior and management concept.
- CO2: All function of management are clearly mentioned to people
- CO3: Know the various dimensions of individual behaviour and motivation.
- CO4: Learn about group dynamics, team spirit and organisational conflict

CC-1.2 : BUSINESS ENVIRONMENT

Programme Outcomes:

The Course develops ability to understand and scan business environment analysis opportunity and take decisions under uncertainty. The business environment helps to students for the what will do in a business surroundings and what type of factor are affected that are clear understanding.

Course Outcomes:

- CO1: Understand the business environment concept.
- CO2: Analyze the interaction of economic, political, legal environment.
- CO3: Scan the business environment on international level & can take various business decisions.
- CO4: Understand foreign investment and its mechanism.

CC-1.3 : MANAGERIAL ECONOMICS

Programme Outcome:

The course develops their prospective to economic fundamentals as aids to decision making under given manner. The students have to accumulate various type of economic question to handing for taken a decision and the producer capacity to produce product of equilibrium.

Course Outcomes:

CO1: To Better Understanding Of Managerial Economics

CO2: To Knowledge About Demand Analysis

CO3: To Have An Idea Of Production Theory And Producer Equilibrium and Cost Analysis

CO4: To Acquire A Fire Degree Proficiency Of National Income Of Business Cycle

CO5: Calculating the Elasticity Of Demand And Supply Of The Commodity In The Market.

CC-1.4 ACCOUNTING FOR MANAGERIAL DECISION MAKING

Programme Outcomes:

The objective of this course is to acquaint students with the accounting concepts, tools and techniques for managerial decisions. Completion this course students understand that How to manage the accounting and creating budget and standard Costing applied in business or a profession.

Course Outcomes:

CO1: To know about all the cost accountancy definition and meaning

CO2: In this course student saluted various problem in managerial

decision**CO3:** And also financial statement analysis using various methods.

CC- 1.5 ADVANCED FINANCIAL MANAGEMENT

Programme Outcome:

The objective of this course is to enable the students to understand the Fundamentals of financial management in the context of a corporate entity. It Attempts to acquaint them with different dimensions of financial management With a focus on the application of the relevant tools and techniques of financial Decision-making aimed at shareholder's wealth maximization.

Advanced Financial management provide additional knowledge and information for the students in detail analysis to know which project they take over help it.

Course Outcomes:

CO1: Understand the foundations of financial management and role of a finance manager.

CO2: Evaluate capital projects under different situations using appropriate capital budgeting techniques.

CO3: Determine cost of capital and examine the capital structure decisions.

CO4: Understand various issues and theories of dividend policy and management of working capital.

SEMESTER- II

CC-2.1: MARKETING MANAGEMENT

Programme Outcome:

The objective of this course is to facilitate understanding of the conceptual framework of marketing and its applications in decision making under various environmental constraints. After the completion of this paper, the students will be able to have confidence in managing market decision making under various environmental constraints.

Course Outcomes:

CO1: Familiarize themselves with the fundamentals of marketing and take better marketing decisions.

CO2: Understand the nuances and complexities involved in various products and pricing decisions.

CO3: Take effective distribution decisions for products and services.

CO4: Know the recent trend in marketing and ethical issues involved in marketing.

CC-2.2: FINANCIAL INSTITUTION AND MARKETS

Programme Outcomes:

Introduced in this course for the student to world of financial service understanding of fundamental concept, working of financial services institution, skill necessary to become employable in the financial service. To differentiate between fund based and fee based financial activity of Indian financial system and acquire understanding of various concept related to leasing, hire purchasing, factoring etc.

Course Outcomes:

CO1: This course provide an insight to student into the function and role of varied and multiple constitute of Indian financial System.

CC-2.3 ADVANCE STATISTICAL ANALYSIS

Programme Outcome:

The objective of this course is to make the students learn the application of statistical tools and techniques for decision making. The student have learn this course structure communicated to statistical tools and formulated real data and apply statistical methods and hypothesis testing to business problem.

Course Outcomes:

CO1: Upon learning in this course student knowledge about how to use Statistics and how to manage it.

CO2: It is analysis of probability theory for general knowledge gained by student.

CO3: It has basic analysis the regression and correlation analysis for relationship measure in two variables.

CC-2.4 HUMAN RESOURCES MANAGEMENT

Programme Outcomes:

The objective of this course helps to student understanding the concept of human capital management and measurement of value addition to the organization. The students to helps to basic knowledge about human resources and they apply in future as human resources officer or manager.

Course Outcomes:

CO1: Understand the importance of Human resource and its development for an organization.

CO2: Know the importance of Strategic Human Resource Management & planning for the organization.

CO3: Explain the importance of Human Resource Training & Development. **CO4:** Appraise the Human Resource Accounting and its measurement.

CC- 2.5 COMPUTER APPLICATION IN BUSINESS

Programme Outcome:

This course helps to student for applying the computer application in business and how to decision making in various sector. The gain familiarity with the concepts and application of various technologies used in the development, implementation and operation of business application system.

Course Outcomes:

CO1: This course is help to business for recording all type of data.

CO2: To know about the theoretical knowledge of MS office package.

CO3: To applying practical knowledge of tally in business.

SEMESTER-III

CC- 3.1 PERSONAL FINANCIAL PLANNING

Programme Outcome:

To enable the student to manage their wealth effectively through proper personal financial planning. Students would be able to make use of different types of financial plans in the course of decision making in different forms of business organizations.

Course Outcomes:

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

CO1: Understand the importance and process of financial planning.

CO2: Know various investment avenues available for individuals.

CO3: Manage both personal and financial risk of individuals.

CO4: Know the tax implication on personal financial planning.

CC –3.2 BUSINESS RESEARCH AND COMMUNICATION

Programme Outcomes:

To familiarize the students with the progress and techniques of scientific research and its relevance in the managerial decision making. Another objective of this course is to provide a broad view of communication skill to the students. The student has been able to communicate to people efficiently and interpersonal skill and research process always improved.

Course Outcomes:

After completion of this course the student

CO1: To knowledge about research process defining this problem of research.

CO2: To evaluate the research hypothesis to accumulation the assumption.

CO3: To help effectively communicated to people.

CC– 3.3 INTERNATIONAL BUSINESSES

Programme Outcome:

The objective of this course is to acquaint the students with international business operations and familiarize them with trends and developments in international business environment. Student will understand the ethical implication of business decision making and recognize ethical dilemmas and the student demonstrate the ability to communicate effectively. The outcome of the course is to help students understand the conceptual framework of international business and thereof make financial decisions.

Course Outcomes:

CO1: Understand the concept of international business and identify the drivers of its expansion.

CO2: Assess the approaches, theories and modes of international business.

CO3: Know the regulatory mechanism of international trade and the levels of regional integrations.

CO4: Examine theories of international investment and the role of international economic institutions.

CE- 3.4 ACCOUNTING SPECIALISATION

(A) CORPORATE FINANCIAL ACCOUNTING

Programme Outcomes:

The objective of this course is to expose students to advanced accounting issues and practices such as maintenance of company accounts, valuation of goodwill and shares, and handling accounting adjustments. In this Course the student have to learn about the basic fundamentals of accounting and its share valuation of the company treatment and formulating the knowledge of human resources accounting.

Course Outcomes:

CO1: This Course Studies for the purpose of basic knowledge gained by student of the company.

CO2: How to evaluate the Share and Goodwill Valuation methods using.

CO3: What is CSR report that have to know and how it is use that are describe.

CE- 3.4 ACCOUNTING SPECIALIZATION

(B)ACCOUNTING STANDARD AND CORPORATE REPORTING

Programme Outcome:

To expose students to the prevailing Accounting Systems and to increase the employability of students in MNCs. To provide an understanding of the accounting standards of ASB and IASB, and to study the corporate reporting practices in India.

Course Outcomes:

CO1; Develop Insights on the different dimensions of the accounting.

CO2: Know the country differences and harmonization of accounting practices.

CO3: Understand the operations of Accounting Standard Committee.

CO4: Know the major accounting issues.

CE-3.5 SPECIALISATIONMARKETING

(A) CONSUMER BEHAVIOR

Programme Outcome:

The basic objective of this course is to develop an understanding about the consumer decision making procedure and its application in marketing of firms. The Student in depth knowledge about how to buy a product and quality choice, and its has issue in daily life to use its statement

Course Outcomes:

CO1: Understand consumer behaviour and consumer decision making process.

CO2: Describe the underlying variables resulting into differences in consumer decision making.

CO3: Know the socio-cultural factors affecting consumer decision making. **CO4:** Understand the models of consumer behaviour.

CE-3.5 SPECIALISATION MARKETING

(B) MARKET RESEARCH

Programme Outcome:

To acquaint the student with basic concept of marketing research and understanding of consumer choice and various sample use to again research. Upon completion this course student will have the knowledge and skill for identifying marketing problem to assist in decision making and choose the methodologies to acquire evidence in an ethical manner to address the marketing problems.

SEMESTER- IV

CC-4.1: MANAGEMENT INFORMATION SYSTEM

Programme Outcome:

The objective of the course is to help students integrate their learning from functional areas, decision making process in an organization and role of Information Systems to have a vintage point in this competitive world. Information Systems (IS) enables new approaches to improve efficiency and efficacy of business models. This course will equip the students with understanding of role, advantages and components of an Information system. Students would be armed with the knowledge of using different statistical tools very much required in the decision making processing any business as well as business research.

Course Outcomes:

CO1: Describe the meaning and concept of MIS and its resources component.

CO2; The MIs use in Computer based information are collected and use it in any activity

CO3: Student also a knowledgeable for the computer but they also learning computer software for new innovative idea accumulated for the business.

CC-4.2: E-COMMERCE

Programme Outcomes:

To objective of this course build up basic knowledge on electronic business. And to educate students on online marketing to make e commerce and internet marketing familiar with students. Students shall understand the fundamental principles of e-business and e-commerce. The learners shall understand the impact of information and communication technologies on business.

Course Outcomes:

CO1: To make the students to devise marketing strategies for concerns engaged in ecommerce.

CO2: To understand the current status of e-business.

CO3: Students shall understand the tools and services used by virtual e-commerce sites.

CC-4.3: DISSERTATION AND VIVA-VOCE & PRESENTATION

Programme Outcome:

To make the students well versed with current businesses practices and inculcate the spirit of research among them. Every student shall have an appropriate topic selected for doing Dissertation at the beginning of the third semester and shall submit the same and face a viva-voce at the end of the fourth semester for evaluation.

CE – 4.4 SPECIALISATION ACCOUNTING

(A) SPECIALISED ACCOUNTING

Programme Outcomes:

To provide the opportunity understanding the peculiarities of each such special accounts like HR Accounts, Environmental Account, Inflation Account, and Government Account. Student has to learning this course it will helpful in future as a HR manager Accounting concept are knowledge

Course Outcomes:

CO1: This course helps to student for future as a HR accountant

CO2: Students studying the government audited accounts and environmental accounts.

CE – 4.4 SPECIALISATION ACCOUNTING

(B) COST AND MANAGEMENT AUDIT

Programme Outcomes:

To provide in-depth knowledge of cost and management audit to the students and auditing principle, Procedure and Techniques in accordance with the current legal requirements and Professional Standard. At the end of the Paper student will have details knowledge about cost and audit principal, methods legal requirements.

Course Outcomes:

CO1: The Student has learning also and gaining a basic knowledge about cost audit.

CO2: To acquiring the principles, rules and regulations of Cost of Companies Management Audit.

CO3: To Help in Planning is thinking before doing of proper Cost are mentioned.

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CE- 4.5 SPECIALIZATION MARKETING

(A) INTERNATINAL MARKETING MANAGEMENT

Programme Outcome:

To enable the students to learn the concept and issues of international marketing, analyze foreign market environment and develop international marketing strategies. The Student has learning this course after completion they have various knowledge gained about international business or marketing.

Course Outcomes:

CO1: Understand international marketing environment and the process of international marketing.

CO2: Understand decisions related to international product planning and pricing.

CO3: Explain methods of promoting a product in foreign markets and understand issues involved it. **CO4:** Know the channels of distribution and the emerging trends in international marketing.

CE-4.5: SPECIALIZATION MARKETING

(B) ADVERTISING

Programme Outcome:

To help the students for it aim to orient learners towards the practical aspects and Techniques of advertising. To highlight the role of advertising for success of brands and its importance within the marketing function of a company. It aims to orient learners towards the practical aspects and techniques of advertising.

Course Outcomes:

CO1: This course helps to students for How to Advertise.

CO2: Identify and understand the various advertising media.

CO3: Demonstrate an understanding of how an advertising agency operates.

Department of Mathematics
Govt. Autonomous College, Phulbani

Details of Course Outcome and Programme outcome of UG Syllabus

SEMESTER-I

C-1.1 : CALCULUS

Programme Outcome:

The main emphasis of this course is to equip the student with necessary analytic and technical skills to handle problems of mathematical nature as well as practical problems. More precisely, main target of this course is to explore the different tools for higher order derivatives, to plot the various curves and to solve the problems associated with differentiation and integration of vector functions.

Course Outcomes:

After completing the course, students are expected to be able to use Leibnitz's rule to evaluate derivatives of higher order, able to study the geometry of various types of functions, evaluate the area, volume using the techniques of integrations, able to identify the difference between scalar and vector, acquired knowledge on some the basic properties of vector functions.

C-1.2 : DISCRETE MATHEMATICS

Programme Outcomes:

This is a preliminary course for the basic courses in mathematics and all its applications. The objective is to acquaint students with basic counting principles, set theory and logic, matrix theory and graph theory.

Course Outcomes:

The acquired knowledge will help students in simple mathematical modeling. They can study advance courses in mathematical modeling, computer science, statistics, physics, chemistry etc.

SEMESTER-II

C-2.1 : REAL ANALYSIS

Programme Outcomes:

The objective of the course is to have the knowledge on basic properties of the field of real numbers, studying Bolzano-Weierstrass Theorem, sequences and convergence of sequences, series of real numbers and its convergence etc. This is one of the core courses essential to start doing mathematics.

Course Outcomes:

On the completion of the course, students will have working knowledge on the concepts and theorems of the elementary calculus of functions of one real variable. They will work out problems involving derivatives of function and their applications. They can use derivatives to analyse and sketch the graph of a function of one variable, can also obtain absolute value and relative extrema of functions. This knowledge is basic and students can take all other analysis courses after learning this course.

C-2.2 : DIFFERENTIAL EQUATIONS

Programme Outcomes:

Differential Equations introduced by Leibnitz in 1676 models almost all Physical, Biological, Chemical systems in nature. The objective of this course is to familiarize the students with various methods of solving differential equations and to have a qualitative application through models. The students have to solve problems to understand the methods.

Course Outcomes:

A student completing the course is able to solve differential equations and is able to model problems in nature using Ordinary Differential Equations. This is also prerequisite for studying the course in Partial Differential Equations and models dealing with Partial Differential Equations.

GE-2.3 : CALCULUS AND DIFFERENTIAL EQUATIONS

Programme Outcomes:

Calculus invented by Newton and Leibnitz is powerful analytical tool to solve mathematical problems which arise in all branches of science and engineering. The main emphasis of this course is to equip the student with necessary analytic and technical skills to handle problems of a mathematical nature as well as practical problems using calculus and differential equation. The aim should be to expose the students to basic ideas quickly without much theoretical emphasis with importance on applications.

Course Outcomes:

After completing the course, students are expected to be able to apply knowledge of calculus and differential equations in the areas of their own interest.

SEMESTER-III

C-3.1 : THEORY OF REAL FUNCTIONS

Programme Outcome:

The objective of the course is to have knowledge on limit theorems on functions, limits of functions, continuity of functions and its properties, uniform continuity, differentiability of functions, algebra of functions and Taylor's theorem and, its applications. The student how to deal with real functions and understands uniform continuity, mean value theorems.

Improper integrals: Convergence of Beta and Gamma functions. Pointwise and uniform convergence of sequence of functions, uniform convergence, Theorems on continuity, derivability and integrability of the limit function of a sequence of functions.

Course Outcomes:

On the completion of the course, students will have working knowledge on the concepts and theorems of the elementary calculus of functions of one real variable. They will work out problems involving derivatives of function and their applications. They can use derivatives to analyse and sketch the graph of a function of one variable, can also obtain absolute value and relative extrema of functions. This knowledge is basic and students can take all other analysis courses after learning this course.

C-3.2 : GROUP THEORY-I

Programme Outcomes:

Group theory is one of the building blocks of modern algebra. Objective of this course is to introduce students to basic concepts of group theory and examples of groups and their properties. This course will lead to future basic courses in advanced mathematics, such as Group theory-II and ring theory.

Course Outcomes:

A student learning this course gets idea on concept and examples of groups and their properties. He understands cyclic groups, permutation groups, normal subgroups and related results. After this course he can opt for courses in ring theory, field theory, commutative algebras, linear classical groups etc. and can be apply this knowledge to problems in physics, computer science, economics and engineering.

C-3.3 : PARTIAL DIFFERENTIAL EQUATIONS AND SYSTEM OF ODES

Programme Outcomes:

The objective of this course is to understand basic methods for solving Partial Differential Equations of first order and second order. In the process, students will be exposed to Charpit's Method, Jacobi Method and solve wave equation, heat equation, Laplace Equation etc. They

will also learn classification of Partial Differential Equations and system of ordinary differential equations.

Course Outcomes:

After completing this course, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non linear evolution equations etc. All these courses are important in engineering and industrial applications for solving boundary value problem.

SEMESTER-IV

C-4.1 : NUMERICAL METHODS AND SCIENTIFIC COMPUTING

Programme Outcomes:

Calculation of error and approximation is a necessity in all real life, industrial and scientific computing. The objective of this course is to acquaint students with various numerical methods of finding solution of different type of problems, which arises in different branches of science such as locating roots of equations, finding solution of systems of linear equations and differential equations, interpolation, differentiation, evaluating integration.

Course Outcomes:

Students can handle physical problems to find an approximate solution. After getting trained a student can opt for advance courses in numerical analysis in higher mathematics. Use of good mathematical software will help in getting the accuracy one need from the computer and can assess the reliability of the numerical results, and determine the effect of round off error or loss of significance.

C-4.2 : TOPOLOGY OF METRIC SPACES

Programme Outcomes:

This is an introductory course in topology of metric spaces. The objective of this course is to impart knowledge on open sets, closed sets, continuous functions, connectedness and compactness in metric spaces.

Course Outcomes:

On successful completion of the course students will learn to work with abstract topological spaces. This is a foundation course for all analysis courses in future.

C-4.3 : RING THEORY

Programme Outcomes:

This is a second course in modern algebra which deals with ring theory. Some basics of ring theory like rings, subrings, ideals, ring homomorphism's and their properties and. This course is an integral part of any course on Modern algebra the others being Group theory and Field Theory.

Course Outcomes:

After completing this course, this will help students to continue more courses in advanced Ring theory modules, Galois groups.

GE-4.4 : ALGEBRA

Programme Outcomes:

This is a preliminary course for the basic courses in mathematics like, abstract algebra and linear algebra. The objective is to acquaint students with the properties of natural numbers i.e. Euclidean algorithm, congruence relation, fundamental theorem of arithmetic, etc. The basics of linear algebra i.e. vector spaces, matrices are introduced here.

Course Outcomes:

The acquired knowledge will help students to study further courses in mathematics like, group theory, ring theory and field theory and linear algebra. It has applications not only in higher mathematics but also in other science subjects like computer science, statistics, physics, chemistry etc.

SEMESTER-V

C-5.1 : MULTIVARIATE CALCULUS

Programme Outcomes:

The objective of this course to introduce functions of several variable to a student after he has taken a course in one variable calculus. The course will introduce partial derivatives and several of its consequences and will introduce double and triple integrals along with line integrals which are fundamental to all streams where calculus can be used.

Course Outcomes:

After reading this course a student will be able to calculate partial derivatives, directional derivatives, extreme values and can calculate double, triple and line integrals. He will have idea of basic vector calculus including green's theorem, divergence theorem and stokes theorem. He can take courses in calculus on manifolds, Differential geometry and can help in numerical computations involving several variables.

C-5.2 : LINEAR ALGEBRA

Programme Outcomes:

Linear algebra is a basic course in almost all branches of science. A full course in undergraduate program will help students in finding real life applications later. The objective of this course is to introduce a student the basics of linear algebra and some of its application

Course Outcomes:

The student will use this knowledge wherever he/she goes after undergraduate program. It has applications in computer science, finance mathematics, industrial mathematics, bio mathematics and what not.

DSE-5.3 : LINEAR PROGRAMMING

Programme Outcomes:

The objective of this course is to familiarize industrial problems to students with various methods of solving Linear Programming Problems, Transportation Problems, Assignment Problems and their applications. Also, students will know the application of linear Programming method in Game Theory.

Course Outcomes:

More knowledge on this topic in higher studies will help students to deal industrial models. This is also prerequisite for studying advanced courses in Nonlinear Programming Problems, Inventory Control Problem and Queuing Theory etc.

DSE-5.4 : PROBABILITY AND STATISTICS***Programme Outcomes:***

The objective of the course is to expertise the student to the extensive role of statistics in everyday life and computation, which has made this course a core course in all branches of mathematical and engineering sciences.

Course Outcomes:

The students shall learn probability and statistics for various random variables, multivariate distributions, correlations and relations. He shall learn law of large numbers and shall be able to do basic numerical calculations.

SEMESTER-VI**C-6.1 : COMPLEX ANALYSIS*****Programme Outcomes:***

The objective of the course is aimed to provide an introduction to the theories for functions of a complex variable. The concepts of analyticity and complex integration are presented. The Cauchy's theorem and its applications, the calculus of residues and its applications are discussed in detail.

Course Outcomes:

Students will be able to handle certain integrals not evaluated earlier and will know a technique for counting the zeros of polynomials. This course is prerequisite to many other advance analysis courses.

C-6.2 : GROUP-THEORY-II***Programme Outcomes:***

The objective of this course is to be exposed to more advanced results in group theory after completing a basic course. The course introduces results on auto morphism, commutator subgroup, group action Sylow theorems etc.

Course Outcomes:

The knowledge of auto morphism helps to study more on field theory. Students learn on direct products, group actions, class equations and their applications with proof of all results . This course helps to opt for more advanced courses in algebra and linear classical groups.

DSE-6.3 : DIFFERENTIAL GEOMETRY

Programme Outcomes:

After learning methods on curve tracing and Analytic Geometry, the objective of this course is to teach Differential geometry of curves and surfaces which trains a student using tools in calculus to derive intrinsic properties of plain curves and space curves.

Course Outcomes:

After completing this course a student will learn on Serret-Frenet formulae, relation between tangent, normal and bi normal, first and second fundamental forms and ideas on various curvatures. He has scope to take more advanced courses in surface theory and geometry.

DSE-6.4 : NUMBER THEORY

Programme Outcomes:

The main objective of this course is to build up the basic theory of the integers, prime numbers and their primitive roots, the theory of congruence, quadratic reciprocity law and number theoretic functions, Fermat's last theorem, to acquire knowledge in cryptography specially in RSA encryption and decryption.

Course Outcomes:

Upon successful completion of this course students will be able to know the basic definitions and theorems in number theory, to identify order of an integer, primitive roots, Euler's criterion, the Legendre symbol, Jacobi symbol and their properties, to understand modular arithmetic number-theoretic functions and apply them to cryptography.

Program Outcomes

Students taking admission to this program of B.Sc. in Physics are expected to get equipped with following outcomes:

PO-1	Explaining the basic scientific principles and methods.
PO-2	Inculcating scientific thinking and awareness among the student
PO-3	Ability to handle the situation by critically analyzing the problem.
PO-4	Understanding the natural and environmental issues as well as threats.
PO-5	To contribute to solve various problems faced by our society Build moral and ethical values

Program Specific Outcome:

After completing BSc Physics course students will be able to:

PSO-1	To apply the theories learnt and the skills acquired through laboratory experiment to solve real time problems.
PSO-2	Acquire adequate knowledge in Physics to pursue higher studies and build carrier in various scientific fields. .
PSO-3	Use computers and software for programming skill and numerical analysis.
PSO-4	. Acquire team spirit for development of the organization through working in groups for scientific projects.
PSO-5	. Face the challenges of various social as well as global problems

COURSE OUTCOMES

C-1.1- MATHEMATICAL PHYSICS-I

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

CO-1	Plot curves of different functions and expands functions in binomial and Taylor series.
CO-2	Solve differential equations of different nature.
CO-3	Represent differential operators and physical variable in different curvilinear coordinate system.
CO-4	Apply Dirac-delta function in various physical problems.
CO-5	Perform line, surface and volume integrations for scalar and vector fields.
CO-6	Perform basic scientific computing using C and C++programming

C-1.2 MECHANICS

After completion of the course the students will be able to learn and apply:

CO-1	Linear and rotational dynamics of bodies and system of bodies.
CO-2	Kinematics of moving fluids and dynamics of oscillatory motion under action of central force field
CO-3	Planetary motion and concept of special theory of relativistic motion.
CO-4	Experimental methods to measure elastic constants and gravitational constant.

C-2.1 ELECTRICITY AND MAGNETISM

After completion of the course the students will learn;

CO-1	The fundamental laws and concepts of electricity and magnetism.
CO-2	Properties of electric and magnetic field and the energy they carry at different physical situation.
CO-3	To calculate electric and magnetic field for different charge and current distributions.
CO-4	Polarization and magnetization and induction under various conditions.
CO-5	Complex electrical circuit and can compute current, voltage and power transfer using circuit theorems.
CO-6	Practical use of multimeter for measuring various electrical components.
CO-7	Experimental measurement and analysis of magnetic field and electrical circuit response at unknown resistance and capacitance in a network

C-2.2 WAVES AND OPTICS

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

CO-1	Understand reflection, refraction and optical lens system and their applications.
CO-2	Use the principles of wave motion and superposition to explain physics of polarization, interference and diffraction.
CO-3	Solve problems of optics by appropriate equations and can perform numerical and analytical calculation.
CO-4	Perform, analyze and interpret results of laboratory experiment related to reflection, refraction, interference, diffraction and polarization.

C-3.1 MATHEMATICAL PHYSICS-II

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

CO-1	Solve problems on Fourier series expansion of periodic and non-periodic functions.
CO-2	Solve different types of 2nd order differential equations of polynomials with variable coefficients using power series technique.
CO-3	Perform special integration using Gamma and Beta functions.
CO-4	Find the solutions of partial differential equations for physical problems like electric field of dielectric sphere and vibrational modes of strings etc.
CO-5	Use Scilab programming for curve fitting and solving differential equations.

C-3.2 THERMAL PHYSICS

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

CO-1	State and illustrate laws of thermodynamics and its applications to various systems.
CO-2	Understand energy equation and its applications by using thermodynamic variables.
CO-3	Explain entropy and its applications and determine phase transitions.
CO-4	Quantify the transport behavior of gas using ideal gas and real gas equation of state under different thermodynamic conditions.
CO-5	Understand and apply the concept of reversible and irreversible process and can determine the efficiency of heat engine, refrigerators and heat pumps.
CO-6	Perform experiment on heat exchange, expansion of perfect gas and can determine thermodynamical constants.

C-3.3 ANALOG SYSTEMS AND APPLICATIONS

At the end of the course the students will gain knowledge on:

CO-1	Semiconductor and PN junction technology and their applications in two terminal devices like diode, rectifier, voltage regulator, LED and Solar Cells etc.
CO-2	Physics of Bipolar junction transistors and its various applications like amplifier and oscillator.
CO-3	Feedback amplifier, and RC-coupled amplifier and its response for different input signal at different frequency range.
CO-4	Complete theory of OP-Amps and its applications for various applications like adder, subtractor, integrator, differentiator, and timer etc.
CO-5	Experimental study and analysis of Diode, Solar cell, BJT, OP-AMP and Oscillators.

C-4.1 MATHEMATICAL PHYSICS-III

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

CO-1	Understand complex numbers and variables and can solve problems on it.
CO-2	Solve definite integrals using complex theorems.
CO-3	Perform Fourier transform and inverse transform of different types of functions and their derivatives.
CO-4	Solve Laplace transform and inverse transform of different types of functions and their derivatives.
CO-5	Find solutions of differential equations and related physical problems using Fourier and Laplace transforms.
CO-6	Use Scilab programming for solving integration and problems related to matrix method

C-4.2 ELEMENTS OF MODERN PHYSICS

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

CO-1	The transition of Classical mechanics to Quantum mechanics.
CO-2	The particle properties of wave and wave nature of particle and can explain photo electric effect and Compton Effect.
CO-3	Explain hydrogen atomic spectra.
CO-4	Concept of wave packet and experimental verification of particle diffraction.
CO-5	Uncertainty principle and its consequences.
CO-6	Nuclear structure, nuclear force, stability of nucleus and radioactive decay.
CO-7	Physics of nuclear fission, fusion and construction and working of nuclear reactors.
CO-8	Experimental study and analysis of Planck's constant and tunnel diode and diffraction using lasers.

C-4.3 DIGITAL SYSTEMS AND APPLICATIONS

At the end of the course students will be able to:

1	Understand the components of Integrated Circuits (IC) and its use.
2	Differentiate between Analog and Digital circuit and can design different types of logic circuits.
3	Simplify logic circuits using Boolean algebra.
4	Understand the design and working of cathode ray oscilloscope (CRO) and can use it for measuring and analyzing various electrical circuit and signals.
5	Use different data processing circuits, arithmetic circuits and timer IC 555.
6	Understand the basics of data storage in computer and its working.

C-5.1 QUANTUM MECHANICS AND APPLICATIONS

After completion of the course students will be able to:

CO-1	Understand the key concepts and principles of quantum mechanics and mathematical methods to solve quantum mechanical problems.
CO-2	Solve Schrodinger equation for standard systems and use of operators, commutation principle, and compatible observables and then interpret the results.
CO-3	Deal with Fourier transform and momentum space wave function and uncertainty.
CO-4	Solve problems on Hermitian operators, expectation value, and eigen value and eigen functions.
CO-5	Apply of Schrodinger equation to one-dimensional problems like harmonic oscillator, step potential and rectangular barrier etc.
CO-6	Understand space quantization, Zeeman effect, Stark effect and Paschenback effect.
CO-7	Work independently with key questions and problems in quantum mechanics.

C-5.2 SOLID STATE PHYSICS

After completion of the course students will be able to:

CO-1	Understand the crystal structure and concept of Brillouin zone and use of X-ray diffraction to obtain lattice structure.
CO-2	Explain elementary ideas on lattice dynamics and concept of phonon spectrum in solids and its contribution to specific heat of solids.
CO-3	Quantify magnetic properties of solid using B-H curve.
CO-4	Know the concept of dielectric properties of matter and classical and quantum mechanical treatment of lasers.
CO-5	Understand the band theory of solids using quantum mechanics and can measure conductivity of semiconductor using Hall effect.
CO-6	Know the concept of superconductivity and its theory of development.
CO-7	Experimental measurement and analysis of susceptibility, bandgap, Hall coefficient and hysteresis loss of ferromagnetic materials.

C-6.1 ELECTROMAGNETIC THEORY

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

CO-1	Understand Maxwell's equation and its use in different media.
CO-2	Define electromagnetic wave concept and its propagation through different medium.
CO-3	Understand the laws of reflection, refraction, polarization and transmission and can calculate their coefficients.
CO-4	Understand the creation of different polarization of electromagnetic wave using various crystals.
CO-5	Use quarter wave-plate, half-plate and Babinet compensator for analyzing polarized light.
CO-6	Understand theory of Optical rotation and use of polarimeter.
CO-7	Perform experimental measurement and analysis of polarized light, Stefan's constant, Boltzmann's constant and velocity of ultrasonic wave.

C-6.2 STATISTICAL MECHANICS

At the end of the course students will be able to:

CO-1	Understand elementary concepts and applications of classical statistics like micro- and macro- states, distribution laws, and thermodynamic functions.
CO-2	Understand Gibb's paradox and apply law of equi-partition of energy for calculating thermo dynamical problems.
CO-3	Understand the concept of quantum statistical distribution functions, Bose distribution function and Fermi-Dirac distribution function and its applications.
CO-4	Understand the thermodynamics of black body radiation and its theoretical explanation using classical and quantum approach.
CO-5	Use Scilab programming for plotting the distribution functions.

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DEPARTMENT OF GEOGRAPHY, GOVERNMENT AUTONOMOUS COLLEGE, PHULBANI

UG. Learning Objective and Course Outcomes:

Year	Sl.No.	Paper Name	Code	Learning Objectives	Course Outcomes
1ST	01	Geomorphology	C-1.1	<p>1.To provide knowledge on the processes going on the surface of the Earth.</p> <p>2.To enable students for analytical thinking on Geomorphology</p>	<p>1. Understand the functioning of Earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms</p> <p>2. Distinguish between the mechanisms that control these processes</p> <p>Assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research</p>
	02	Cartography	C-1.2	<p>1. involve students with practical understanding on cartography.</p>	<p>1. Read and prepare maps.</p> <p>2. Comprehend locational and spatial aspects of the earth surface.</p> <p>Use and importance of maps for regional development and decision making</p>
	03	Human Geography	C-2.1	<p>1.To recognize various aspects of human life and interrelation with geography</p>	<p>1. Know the changing human and cultural landscape at different levels.</p> <p>2. Understand patterns and processes of population growth and its implications.</p> <p>Appreciate the nature and quality of human Landscapes</p>
	04	Climatology	C-2.2	<p>1.To establish a strong foundation on climatology with focusing on</p>	<p>1. Understand the elements of weather and climate and its impacts at different</p>

				all the elements of atmosphere and resultant processes.	<p>scales.</p> <ol style="list-style-type: none"> 2. Comprehend the climatic aspects and its bearing on planet earth. 3. Understand the mechanisms and genesis of various climatological disasters
	05	Geography of India	GE-2.3	1.To teach the students about the geography of India about the physical, climatological,demography and mineral reserves and utilities for sustainable development	<ol style="list-style-type: none"> 1. Understand the physical profile of the country 2. Study the resource endowment and its spatial distribution and utilization for sustainable development <p>Synthesise and develop the idea of regional dimensions</p>
2ND	06	Oceanography	C-3.1	1.To create a deeper understanding on oceanic landforms and processes with their global distribution keeping challenges encountered in the past and future scenario of the ocean lives	<ol style="list-style-type: none"> 1. Understand the oceanic process and availability of resources 2. Understand the evolution of various oceanic topography and features. <p>Know various process related to oceanic circulation and effect on globe</p>
	07	Statistical Methods in Geography	C-3.2	1.To introduce inferential and descriptive statistics with uses in research methodology	<ol style="list-style-type: none"> 1. Understand the basics of data collection and processing for the meaningful outcomes. 2. Comprehend the representation and interpretation of the results. 3. Put into practice results obtained in representation as well as day-to-day life.
	08	Geography of Odisha	C-3.3	1.To study the physical, economical and social geography of Odisha. .	<ol style="list-style-type: none"> 1. Students will lean in to the physiography, drainage, climate

					<p>and agricultural scenario of Odisha</p> <ol style="list-style-type: none"> 2. Know the industrial and mineral availability in Odisha with knowing the natural vegetation intensity. 3. Students will understand the natural hazards and vulnerability of Odisha against the multi-hazards (Covid-19 included) <p>Understand the demography and spatial distribution of various tribes in Odisha</p>
	09	Evolution of Geographical Thought	C-4.1	1.To make students to understand about the past, present and future of Geography.	<ol style="list-style-type: none"> 1. Distinguish the paradigms in geography discipline through time 2. Understand the geographical thinking in different regions of world 3. Appreciate the past and future trends of world geography in general and Indian geography in particular
	10	Economic Geography	C-4.2	1.To introduce various dimensions of economic geography with respect to global record	<ol style="list-style-type: none"> 1. The students will be acquainted with various dimension of economic geography. Students will dig into resource geography, agricultural geography, industrial geography and transport geography
	11	Environmental Geography	C-4.3	<p>1. Various dimensions of the ecosystems, their spatial distribution.</p> <ol style="list-style-type: none"> 1) Anthropogenic interventions and resultant 	<ol style="list-style-type: none"> 1) Detailed exposure to the concept of ecosystem, processes, theories and concepts. 2) In-depth knowledge of

				<p>impacts on various ecosystems.</p> <p>2. Understanding of environmental governance</p>	<p>anthropogenic interventions and impacts, conservation strategies and planning.</p> <p>Evaluation and achievement of different environmental programs, policies and legislations</p>
	12	Human Geography	GE-4.4	1.To recognize various aspects of human life and interrelation with geography	<p>1. Know the changing human and cultural landscape at different levels.</p> <p>2. Understand patterns and processes of population growth and its implications.</p> <p>Appreciate the nature and quality of human Landscapes</p>
3RD	13	Regional Planning and Development	C-5.1	1.The objective of the course is to develop the knowledge about regional attributes, classification and approaches and theories involved in regional planning and development	<p>1. Identify completion of course, the students will have the ability to</p> <p>notable lagging regions and solutions for their overall development</p> <p>2. Have comprehensive understanding regarding the different regions and application of different models and theories for integrated regional development</p> <p>3. Select appropriate indicators for the measurement of socio-economic and regional development.</p>

	14	Remote sensing and GIS	C-5.2	<p>The objective of the course is to align the students with the modern ways of capturing remotely sensed data and techniques to use in real life.</p> <p>The objective of the course is to familiarize students with the GIS and its application in Geographical analysis.</p>	<ol style="list-style-type: none"> 1 Know about various remote sensing platforms, sensors, satellites and data products Know the fundamental concept remote sensing technology and physics of Electro Magnetic Radiation (EMR) &EM 2 Understand the aspects related to satellites and digital image processing (image enhancement, contrast manipulation, image classification) with the application of RADAR and LIDAR 3. Understand various components and principles of GIS 4..Learn GIS data types and acquisition to construct the thematic maps using different digital layers 4. Have comprehensive understand application of GIS for the construction of maps and their use in development planning
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	15	Population Geography	DSE-5.3	1.To enhance the knowledge regarding population and population related problems of World and India	Students understand the population growth and pattern of World and India. Understand the various problems and analyse problems. Suggest the measures for eradication of the problems.
	16	Resource Geography	DSE-5.4	1.To acquire the knowledge of Resource ,resource problems and sustainability of the resource.	Understand the utility, functionability and Applicability of resources. Understand the theories of Resources.
	17	Geography of India	C-6.1	1.To teach the students about the geography of India about the physical, climatological,demography and mineral reserves and utilities for sustainable development	<ul style="list-style-type: none"> 3 Understand the physical profile of the country 4 Study the resource endowment and its spatial distribution and utilization for sustainable development 5.Synthesise and develop the idea of regional dimensions
	18	Disaster Management	C-6.2	1.Making students to understand all the dimensions of natural and man-made disasters and disaster management framework	<ul style="list-style-type: none"> 1. Understand processes and impact of disaster 2. Understand both the natural and man-made disaster and human negligence in context of environment 3. Gain a perspective of disasters and various dimensions of disaster management 4. Have comprehensive knowledge of various natural and manmade disasters in India 5. Examine the response and mitigation measures of disasters

	19	Urban Geography	DSE-6.3	<p>1.The objective of the course is to provide an understanding of the planning of settlements and communities. Urban planners are also responsible for planning the efficient transportation of goods, resources, people and waste; the distribution of basic necessities such as water and electricity.</p>	<p>1.Understand the concept of urban hierarchies, the patterns of urbanization in developed and developing countries, the ecological processes of urban growth; urban fringe; city- region.</p> <p>2.Analyse the models on city structure and identify and analyze the problems of housing, slums and civic activities</p>
	20	Project Work/FW/RM	DSE-6.4	<p>1) This course attempts to introduce the students to the basic knowledge related to geographical field research design.</p> <p>2) The course examines the questions related to data collection, methods and its analysis.</p> <p>3.It also critically evaluates the dissertation based on field survey/ To encourage students for pursuing research in the post-Graduation level.</p>	<p>1) The students will be able to understand basic concepts of field research methods and research design in geography.</p> <p>2) The students will be able to do field work through practical experience and get skills of data collection methods and processing and analysis of obtained data.</p> <p>1.The students will be able to write dissertation based on field work on given topic./ .While preparing their dissertation students will be advised regularly by the Guides andwill be submitting their collected data and analysis.</p> <p>2.This dissertation will show a student's knowledge on research</p>

					methodology and application of remote sensing and GIS in real world.
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PROGRAMME OUTCOMES(Pos)

After completion of the Bachelor Degree in Geography, the course is geared to cater the following objectives:

- PO1.** Students will understand the spatio-temporal interactions of the physical, human and environmental components, which are often complex and dynamic.
- PO2.** Students will learn socio-cultural, political, economic and physical characteristics at global, regional and local level.
- PO3.** Students will be enhanced with skill and application in various disciplinary theories, methodologies
- PO4.** Students will develop their analytical and critical thinking that leads to develop their scientific attitude ..
- PO5.** Students will be ensured that the geographical knowledge is essential and it is self-directed .

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Programme specific Outcomes of the Bachelor Degree in Geography are:

- PSO1.** Develop the leadership attitude to work both as an individual and also in team in identifying problems and challenges, and find out possible solutions.
- PSO2.** In the field surveys, students are exposed to a detailed understanding of socio- economic, geo-economic and cultural dimensions of the people .

PSO3. Students are trained in handling modern computer based technologies such as RS and GIS. So that they can apply their knowledge.

PSO4. Students development courses and research shall develop the ability of the students to analyse and develop the critical thinking .

PSO5. The syllabus is oriented towards job opportunities and future prospects for the students, through which, the students can be guided to various competitive exams like NET-JRF, Civil service exams .

PG. Course Objectives and Course Learning Outcomes:

Year	Sl.No.	Paper Name	Code	Course Objectives	Course Learning Outcomes
1ST	01	Geomorphology	CC 1.1	1.To provide knowledge on the processes going on the surface of the Earth. 2.To enable students for analytical thinking on Geomorphology	1. Understand the functioning of Earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms 2. Distinguish between the mechanisms that control these processes 3. Assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research.
	02	Human and Settlement Geography	CC 1.2	To recognize various aspects of human life and interrelation with geography.	1. Know the changing human and cultural landscape at different levels. 2. Understand patterns and processes of population growth and its implications. 3. Appreciate the nature and quality of human landscapes.
	03	Geographical Thought	CC 1.3	To make students to understand about the past, present and future of Geography	1. Distinguish the paradigms in geography discipline through time 2. Understand the geographical thinking in

					different regions of world 3. Appreciate the past and future trends of world geography in general and Indian geography in particular
	04	Geography Of India	CC 1.4	To teach the students about the geography of India about the physical, climatological, demography and mineral reserves and utilities for sustainable development.	<ol style="list-style-type: none"> 1. Understand the physical profile of the country 2. Study the resource endowment and its spatial distribution and utilization for sustainable development 3. Synthesise and develop the idea of regional dimensions.
	05	Cartography (P)	CC 1.5	To involve students with practical understanding on cartography.	<ol style="list-style-type: none"> 1. Read and prepare maps. 2. Comprehend locational and spatial aspects of the earth surface. 3. Use and importance of maps for regional development and decision making.
	06	Climatology	CC 2.1	1.To establish a strong foundation on climatology with focusing on all the elements of atmosphere and resultant processes.	<ol style="list-style-type: none"> 1. Understand the elements of weather and climate and its impacts at different scales. 2. Comprehend the climatic aspects and its bearing on planet earth. 3. Understand the mechanisms and genesis of various climatological disasters
	07	Economic Geography	CC 2.2	To introduce various dimensions of economic geography with respect to global record.	<ol style="list-style-type: none"> 1. The students will be acquainted with various dimension of economic geography. 2. Students will dig into resource geography, agricultural geography, industrial geography and transport geography.
	08	Environment and Ecology	CC 2.3	<ol style="list-style-type: none"> 1) Various dimensions of the ecosystems, their spatial distribution. 2) Anthropogenic interventions and resultant impacts on various ecosystems. 	<ol style="list-style-type: none"> 1) Detailed exposure to the concept of ecosystem, processes, theories and concepts. 2) In-depth knowledge of anthropogenic interventions and impacts, conservation strategies and planning.

				3) Understanding of environmental governance.	3) Evaluation and achievement of different environmental programs, policies and legislations.
	09	Geography of Odisha	CC 2.4	To study the physical, economical and social geography of Odisha.	<ol style="list-style-type: none"> 1. Students will lean in to the physiography, drainage, climate and agricultural scenario of Odisha 2. Know the industrial and mineral availability in Odisha with knowing the natural vegetation intensity. 3. Students will understand the natural hazards and vulnerability of Odisha against the multi- hazards (Covid-19 included) 4. Understand the demography and spatial distribution of various tribes in Odisha.
	10	Quantitative and Spatial Models in Geography	CC 2.5	To orient students with quantitative and spatial models used in Geographical analysis.	<ol style="list-style-type: none"> 1. Have sound knowledge regarding the classification and elements of maps. 2. Have proper utilization of maps for the development. 3. Appreciate the preparation of various thematic maps with the application of various techniques. 4. Put into practice the results obtained for spatial analysis of results and to apply various statistical software for the study.
2ND	11	Research Methodology	CC 3.1	<ol style="list-style-type: none"> 1) This course attempts to introduce the students to the basic knowledge related to geographical field research design. 2) The course examines the questions related to data collection, methods and its analysis. 3) It also critically evaluates the dissertation based on field survey. 	<ol style="list-style-type: none"> 1) The students will be able to understand basic concepts of field research methods and research design in geography. 2) The students will be able to do field work through practical experience and get skills of data collection methods and processing and analysis of obtained data. 3) The students will be able to write dissertation based on field work on given topic.

	12	Statistical Methods and Techniques	CC 3.2	To introduce inferential and descriptive statistics with uses in research methodology.	<ol style="list-style-type: none"> 1. Understand the basics of data collection and processing for the meaningful outcomes. 2. Comprehend the representation and interpretation of the results. 3. Put into practice results obtained in representation as well as day-to-day life.
	13	Field Study-P	CC 3.3	The main objective of field studies is to provide the students with the understanding of ground reality of a chosen village/Town by observation, conducting socio-economic survey of the urban house hold/village with the help of questionnaire, mapping of data, land use and cropping pattern.	This course helps to develop the understanding about theoretical notions of socio-economic development/condition of sampled rural/urban households and also expected to prepare a survey report on socio-economic attributes.
	14	Remote Sensing	CE 3.1 a	The objective of the course is to align the students with the modern ways of capturing remotely sensed data and techniques to use in real life.	<ol style="list-style-type: none"> 1 Know about various remote sensing platforms, sensors, satellites and data products Know the fundamental concept remote sensing technology and physics of Electro Magnetic Radiation (EMR) &EM 2 Understand the aspects related to satellites and digital image processing (image enhancement, contrast manipulation, image classification) with the application of RADAR and LIDAR
	15	Regional Planning	CE 3.2 a	The objective of the course is to develop the knowledge about regional attributes, classification and approaches and theories involved in regional planning and development.	<ol style="list-style-type: none"> 1. Identify completion of course, the students will have the ability to notable lagging regions and solutions for their overall development. 2. Have comprehensive understanding regarding the different regions and application of different models and theories for integrated regional development 3. Select appropriate indicators for the measurement of socio-economic regional development

	16	Geographic Information System	CE 3.1 b	The objective of the course is to familiarize students with the GIS and its application in Geographical analysis	<ol style="list-style-type: none"> 1. Understand various components and principles of GIS 2. Learn GIS data types and acquisition to construct the thematic maps using different digital layers 3. Have comprehensive understand application of GIS for the construction of maps and their use the development planning.
	17	Urban Planning	CE 3.2 b	The objective of the course is to provide an understanding of the planning of settlements and communities. Urban planners are also responsible for planning the efficient transportation of goods, resources, people and waste; the distribution of basic necessities such as water and electricity.	<ol style="list-style-type: none"> 1. Understand the concept of urban hierarchies, the patterns of urbanization in developed and developing countries, the ecological processes of urban growth; urban fringe; city- region. 2. Analyse the models on city structure and identify and analyze the problems of housing, slums and civic activities.
	18	Oceanography	CC 4.1	To create a deeper understanding on oceanic landforms and processes with their global distribution keeping challenges encountered in the past and future scenario of the ocean lives.	<ol style="list-style-type: none"> 1. Understand the oceanic process and availability of resources 2. Understand the evolution of various oceanic topography and features. 3. Know various process related to oceanic circulation and effect on globe.
	19	Natural Hazards and Disaster Management	CC 4.2	Making students to understand all the dimensions of natural and man-made disasters and disaster management framework.	<ol style="list-style-type: none"> 1. Understand processes and impact of disaster 2. Understand both the natural and man-made disaster and human negligence in context of environment 3. Gain a perspective of disasters and various dimensions of disaster management 4. Have comprehensive knowledge of various natural and manmade disasters in India 5. Examine the response and mitigation measures of disasters

	20	Application of Remote Sensing and Gis	CE 4.1 C	The objective of the course is to orient students with the GIS and Remote Sensing and its application in Geographical analysis.	Apply their knowledge of GIS and Remote Sensing for the construction of maps and their use in planning ,sensing the objects and digital image processing.
	21	Rural Development Planning	CE 4.2 C	1.To familiarize the students about general concepts, nature and issues of rural Geography. 2.To acquaint the students about nature of rural settlement, infrastructure, morphology, infrastructure and challenges for rural development	Students will be able to efficiently formulate the issues and challenges of rural settlement and critically evaluate the suitability of different plan adapted for rural development in varying spatial context.
	22	Remote Sensing & Gis (P)	CC 4.3	To encourage students to understand and carryout practical applications of GIS, remote sensing.	<ol style="list-style-type: none"> 1. Appreciate the strength and application of remote sensing 2. Map the resources, their location and availability 3. Develop the skill so as to use digital satellite data using software 4. Prepare the maps based with satellite data to compare with the ground realities. 5. Classify digital data for the land use/land cover and urban studies 6. Apply GIS in various geographical studies
	23	Regional and Urban Planning (P)	CC 4.4	To make students acquainted with the practical aspect of regional planning.	<ol style="list-style-type: none"> 1. Understand the basics of data collection and, processing for the meaningful outcomes 2. Understand the selection of proper sampling techniques for the collection of data
	24	Dissertation and Viva-Voce	CC 4.5	To encourage students for pursuing research in the post-Graduation level.	<ol style="list-style-type: none"> 1.While preparing their dissertation students will be advised regularly by the Guides and will be submitting their collected data and analysis. 2.This dissertation will show a student's knowledge on research methodology and application of remote sensing and GIS in real world.

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PROGRAMME OUTCOMES(Pos)

After completion of the Bachelor Degree in Geography, the course is geared to cater the following objectives:

- PO1.** Students will understand the patio-temporal interactions of the physical, human and environmental components, which are often complex and dynamic.
- PO2.** Students will learn socio-cultural, political, economic and physical characteristics at global, regional and locallevel.
- PO3.** Students will be enhanced with skill and application in various disciplinary theories, methodologies
- PO4.** Students will develop their analytical and critical thinking that leads to develop their scientific attitude ..
- PO5.** Students will be ensured that the geographical knowledge is essential and it is self-directed .

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Programme specific Outcomes of the Bachelor Degree in Geography are:

- PSO1.** Develop the leadership attitude to work both as an individual and also in team in identifying problems and challenges, and find out possible solutions.
- PSO2.** In the field surveys, students are exposed to a detailed understanding of socio- economic, geo-economic and cultural dimensions of the people .
- PSO3.** Students are trained in handling modern computer based technologies such as RS and GIS. So that they can apply their knowledge.
- PSO4.** Students development courses and research shall develop the ability of the students to analyse and develop the critical thinking .

PSO5. The syllabus is oriented towards job opportunities and future prospects for the students, through which, the students can be guided to various competitive exams like NET-JRF, Civil service exams .

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Department of History
Government Autonomous College, Phulbani
Pos, Cos, PSOs

Year	Sl No	Paper Name	Code	Course Outcomes
1 ST	01	History of India –I	C-1.1	<ol style="list-style-type: none"> 1. The student will learn reconstructing of Ancient Indian history through various sources and the historical geography of India. 2. pre-historic and proto-historic cultures and their importance in Historical point of view. 3. How the aspects of the Harappan civilization influence with present time. 4. The Aryan problem: political relations, cultural achievements, religious and philosophical developments. 5. Technological and economic developments of particular period. 6. How social stratification came into vogue.
	02	Social Formations and Cultural Patterns of the Ancient World	C-1.2	<ol style="list-style-type: none"> 1. The student will know the evolution of humankind. 2. To know Paleolithic, Mesolithic and Neolithic cultures of world and their importance to shape the history. 3. To gain insight knowledge on Bronze Age civilization in Mesopotamia and their importance in the history. 4. Know the advent of Iron and how iron shape the life and culture of people. 5. Understand the development of the Greek civilization and their role in the shaping of the constitution
	03	History of India-I (Early time to 1750)	G.E-1.3	<ol style="list-style-type: none"> 1. The student will learn reconstructing of Ancient Indian history through various sources and the historical geography of India. 2. The Aryan problem: political relations, cultural achievements, religious and philosophical developments in the period 3. Technological and economic developments of particular period. 4. Economy, socio-cultural and religious life in the Mauryan,

				<p>Gupta and early Medieval period.</p> <ol style="list-style-type: none"> Religion and cultural patterns in Medieval India. Contribution of Mughal in the field of Indian polity, society, economy and religion
	04	History of India–II (300 BCE- 750 CE)	C-2.1	<ol style="list-style-type: none"> Changing political formations from time to time. Economy, socio-cultural and religious life in the Mauryan period. Economy, socio-cultural and religious life in the post-Mauryan Economy, socio-cultural and religious life in the early Medieval India. Development of art and architecture in India Principle of Jainism and Buddhism.
	05	Social Formations and Cultural Patterns of the Medieval World	C-2.2	<p>The student will learn various aspects like</p> <ol style="list-style-type: none"> The Roman Republic and Empire Economic development in medieval European society Religion and culture in medieval Europe. Societies of central Islamic lands.
2 ND	06	History of India-III (c. 750-1206)	C-3.1	<ol style="list-style-type: none"> The student will know the sources of studying early Medieval India. The debate on Indian feudalism. The evolution of political structures in early medieval India. Arab and Turkish conquests. Economic structures and social changes, religious and cultural developments, evolution of regional literature, art and architecture.
	07	Rise of the Modern West-I	C-3.2	<ol style="list-style-type: none"> The student will get to know the issues related to transition from feudalism to capitalism Early colonial expansion. Economic developments and crises.

				4. Emergence of European state system and 5. The facets of the Renaissance and Reformation
	08	History of India- IV (c. 1206-1526)	C-3.3	1. The students will learn the different sources for the study of the Delhi Sultanate 2. Political structure, society, and economy of the Delhi Sultanate. 3. Regional political structures. 4. Regional and cultural patterns in medieval India 5. Religious reform movement in the form of Bhakti movement and sufism.
	09	History of India- II (1750-1950)	G.E.- 3.4	1. Students will acquire knowledge about the British rule in India. 2. They can understand how the society, politics, religion and economy was affected by British administration. 3. It also educates the students about growth of education under British rule. 4. It also makes the student aware about the anti-resistance movements and freedom struggle in India.
	10	Rise of the Modern West-II	C-4.1	1. The student will get to know the evolution of 17 th and 18 th century European economic, social and political scenario. 2. Intellectual currents. 3. Emergence of modern science. 4. Rise and growth of mercantilism. 5. The issues involved in the American Revolution

	11	History of India-V (c. 1526-1750)	C-4.2	<ol style="list-style-type: none"> 1. The student will know the sources of studying Mughal India. 2. Political structure, society and economy of the Mughal period 3. Regional political structures in Medieval India. 4. Religion and cultural achievements in Medieval India
	12	Historical theories and methods	C-4.3	<ol style="list-style-type: none"> 1. Students will learn the meaning, objective, nature and scope of history. 2. Tradition of history writing in Greek, Rome and Western World. 3. History and its relationship with other discipline. 4. Historical methods
3 RD	13	History of Modern Europe-I (c. 1780-1880)	C-5.1	<ol style="list-style-type: none"> 1. The student will get to know the French revolution and rise of Napoleon Bonaparte. 2. The revolutions of 1830 and 1848 and its impact over world. 3. Industrialization and socio-economic transformation. 4. Rise of national identities in Germany, Italy and Ireland
	14	History of India-VII (c. 1750-1857)	C-5.2	<ol style="list-style-type: none"> 1. The student will learn the process of the establishment of the British colonial Rule in India. 2. Colonial state and their ideology. 3. Changes in the Indian economy and society under the colonial rule. 4. Various popular resistance movements against the British rule

	15	History and culture of Odisha-I	DSE-5.3	<ol style="list-style-type: none"> 1. The students will understand the historical geography of Odisha. 2. Importance of Kalinga war and achievement of Kharavela. 3. Dynastic history of Sailodbhava, Bhaumakara, Somavamsis, Gangas and Gajapati. 4. Socio-economic and Cultural Life in Early and Medieval Odisha
	16	History and culture of Odisha-II	DSE-5.4	<ol style="list-style-type: none"> 1. The student will understand the administration process of Mughal and Maratha in pre-British rule. 2. British occupation of Odisha and their rule 3. Rise of nationalism in Odisha. 4. Creation of separate province of Odisha and merger of princely state
	17	History of India-VIII (c. 1857-1950)	C-6.1	<ol style="list-style-type: none"> 1. The student will learn the political, socio-cultural developments in the aftermath of 1857. 2. Early phase of Indian nationalism. 3. The Gandhian era 4. Emergence of various sections of population in political movements. 5. Communal politics and Partition of India
	18	History of modern Europe- II (c. 1880-1939)	C-6.2	<ol style="list-style-type: none"> 1. Liberal Democracy, Working Class Movements and Socialism in the 19th and 20th Centuries 2. The Crisis of Feudalism in Russia and Experiments in Socialism. 3. Nationalism and imperialism in the 19th centuries 4. The First World War and aftermath. 5. Intellectual Developments since circa 1850:

				Major Intellectual Trends
	19	History and culture of Odisha-III	DSE-6.3	<ol style="list-style-type: none"> 1. The students will understand the rise and growth of Buddhism, Jainism, Saivism, Shaktism and Tantricism in Odisha 2. Emergence of Jagannath cult 3. Role of Mahima dharma in medieval Odisha 4. Art and architecture of Buddhism and Jainism in Odisha 5. Evolution of temple architecture in Odisha.
	20	History of Contemporary Odisha (1947-1980) Or Project Work/ Dissertation	DSE-6.4	<ol style="list-style-type: none"> 1. The students will understand the political development of Odisha from 1946-1980. 2. Rise of Panchayatraj system in Odisha 3. Economic development of Odisha. 4. Social development and problem related to it. 5. The student will understand how to design the project work. 6. Able to find out local archaeology, Manuscript, community documents, oral traditions, oral narratives, local biographies. 7. Local History and Culture, local personalities.

PROGRAMME OUTCOMES (Pos):

After successful completion of B.A. three-year-degree course (honours) in History, a student is expected to achieve the following outcomes.

- a) Critical approach to the study of history as a discipline by acquiring ability to distinguish between fact and fiction with the understanding that there is no one historical truth.
- b) Understanding the theories and history of historical writing.

- c) Developing perspectives on historical inquiry to understand different values and beliefs that shaped and affected the lives of the multiple cultures in the past.
- d) Recognition of continuity and change, sequence of historical events across every civilization and any given period of time.
- e) Understanding the concept of cause and effect to identify chains of events and developments, both in short term and long term. This concept aims to identify, examine and analyse the reasons why events have occurred and the resulting consequences or outcomes.
- f) Developing a range of historical skills, essential for the process of historical inquiry.
- g) Understanding the origin and purpose or usefulness of primary and secondary sources and production of well researched work using both sources.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

1. To provide the students with an insight to some current problems and to give an understanding of various issues relating to history.
2. To help develop a positive attitude to challenges arising in life and help adapt oneself to the changes taking place in all walks of life.
3. To imbibe awareness to the students to help out challenges with the problems faced by individuals or community and make the world a better place to live in.
4. Develop an understanding of the process of conducting a research project in the field of history.

The Department conducts seminars regularly and encourages student participation in it. It helps the students in developing their communication skills and understanding of the subject. Study tours to different places of Historical importance are organized by the Department. In addition to these, Ganesh Puja, Saraswati Puja, Welcome Ceremony, Farewell Ceremony, and other history related days are celebrated by the Department.

UG PROGRAMME IN ANTHROPOLOGY GOVT. AUTONOMOUS COLLEGE, PHULBANI

Aims of Bachelor Degree Programme in Anthropology

The overall aims of Anthropology at UG level are to:

- ☐ help formulate graduate attributes, qualification descriptors, programme learning outcomes and course-level learning outcomes that are expected to be demonstrated by a graduate;
- ☐ enable prospective students, parents, employers and others to understand the nature and level of learning outcomes (knowledge, skills, attitudes and values) or attributes a graduate student should be capable of demonstrating on successful completion of study;
- ☐ maintain national standards and international comparability of standards to ensure global competitiveness, and to facilitate graduate mobility; and
- ☐ provide higher education institutions and their external examiners an important point of reference for setting and assessing standards.

Programme Objectives

As the study of humankind, anthropology seeks to produce useful generalizations about people and their behaviour to arrive at the fullest possible understanding of human diversity. Anthropologists try to seek answers to an enormous variety of questions about humans. They are interested in discovering when, where and why humans first appeared on the earth; how and why they have changed since then; how and why modern human populations vary/overlap in certain physical features. They are also interested in knowing how and why societies in the past and present have similar/different norms, values, customs, beliefs and practices.

Anthropologists not only study all varieties of people, they also study all aspects of human population. For example, when describing a group of people, an anthropologist might discuss the history of the area in which the people live, the physical environment, the organisation of family life, the general features of their language, the group's settlement patterns, political and economic systems, religion, styles of art and dress. Some are of course concerned primarily with biological or physical

characteristics of human populations; others are interested principally in what we call cultural characteristics. There are also some who study the prehistoric cultures and still others who study the human languages in order to understand their culture and society.

Anthropology is the study of humanity. The subject focuses on the study of the origin and development of human societies and cultures. Culture is the learned behaviour of people, including their languages, belief systems, social structures, institutions, and material goods. Anthropologists study the characteristics of past and present human communities through a variety of techniques. In doing so, they investigate and describe how different people of our world lived throughout the history. Anthropologists aim to study and present their human subjects in a clear and unbiased way. They attempt to achieve this by observing subjects in their local environment. Anthropologists then describe interactions and customs, a process known as ethnography. By participating in the everyday life of their subjects, anthropologists can better understand and explain the purpose of local institutions, culture and practices. This process is known as participant-observation. Taken as a whole, these steps enable anthropologists to describe people through the people's own terms. Toward the goal of Anthropology, anthropologists explore aspects of human biology, evolutionary biology, linguistics, cultural studies, history, economics, and other social sciences. Anthropology emerged out of the New Imperialism. In the twentieth century, anthropology became increasingly specialized and professionalized as a social science. Modern anthropology is often divided into four distinct sub disciplines: Biological Anthropology, Cultural Anthropology, Linguistic Anthropology and archaeology. Anthropologists from different fields also commonly collaborate using their different skills to create a more comprehensive understanding of a particular group.

The Department of Anthropology offers the B.A.(Anthropology Honours) and M.A.(Anthropology) course with an outcome based curriculum. Students gain insights and knowledge not only from our own nationally recognized faculty members, but also from eminent scholars visiting from other institutions. The Department of Anthropology's focuses on the development of scholars who will contribute original and rigorous intellectual evaluation to the field of study.

Learning Programme outcome (PO)

Our Bachelor and Masters program's greatest strengths are its flexibility in meeting the intellectual needs of individual students, the high level of cooperation and collaboration that exists within the student community and interdisciplinary approaches to scholarship.

- Our end semester dissertation presentation enables students to present their research to faculty and other students.
- Students will demonstrate an understanding of an anthropological perspective built upon a holistic understanding of cultural and biological systems.
- Students will develop an understanding of local and global processes and social complexity through space and time.
- Students will develop basic knowledge of data collection methods and the analytic techniques that anthropologists use to evaluate these data.
- Students will develop the ability to critically evaluate anthropological data.

Knowledge:

- Learn how to ask questions, develop explanations, and analyse data from an anthropological perspective
- Learn to use your “anthropological imagination” as you come to understand the world and your place in it
- Coursework on topics such as: families, racial and ethnic identity, organizations, work, social inequality, sex and gender, sexuality, the welfare system, health and medicine, human rights, social movements and social justice.

Skills:

- How to interpret and analyze data
- Ability to design and conduct a research project
- Written communication and presentation skills
- Solving problems and identifying solutions
- Navigating issues of global diversity.

Students in anthropology gain valuable competencies.

- Describe how evolutionary and historical processes have shaped primates and human ancestors and lead to the biological, behavioural, and cultural diversity seen in the present.
- Describe how cultural systems construct reality differently for various human groups.
- Describe how varying types of data are collected, analyzed, synthesized and interpreted to achieve these first two goals.
- Communicate anthropological knowledge effectively through written, oral and data presentation in varying formats for diverse audiences.
- Discuss human diversity and how knowledge about human diversity should lead to a better understanding of and therefore respect for people whose culture differs from ours.

Program Objectives:

- The students of Anthropology will learn the history, branches and scope of anthropology.
- They will comprehensively understand the concepts and theories of major branches of anthropology i.e. Biological, Social, Archaeological anthropology and linguistic anthropology.
- Students will be familiar with approaches, techniques, methodologies and study designs commonly used in anthropological research.
- They will understand the distinction of conducting population based fieldwork independently and collecting useful qualitative and quantitative data pertaining to their research work.
- A student of anthropology will be able to relate all the core papers, GE and SEC papers with social and political environment of communities.

They should achieve the efficiency in detecting the major health or social problems of society/populations and they should themselves give research based feasible solutions related any aspect of human life.

- Students should finally understand the importance of anthropological research in policy making and improving human life.

Contents for BA (Honours) Papers in Anthropology

I. Core Course

First Year

I Semester

ANTH-C-1.1: Introduction to Biological Anthropology

ANTH-C-1.2: Introduction to Social-Cultural Anthropology

II Semester

ANTH-C-2.1: Introduction to Archaeological Anthropology

ANTH-C-2.2: Fundamentals of Human Origin & Evolution

Second Year

III Semester

ANTH-C-3.1: Tribes and Peasants in India

ANTH-C-3.2: Human Ecology: Biological & Cultural Dimensions

ANTH-C-3.3: Biological Diversity in Human Populations

IV Semester

ANTH-C-4.1: Theories of Culture and Society

ANTH-C-4.2: Human Growth and Development

ANTH-C-4.3: Research Methods

Third Year

V Semester

ANTH-C-5.1: Prehistoric Archaeology of India

ANTH-C-5.2: Anthropology in Practice

ANTH DSE-5.3: Anthropology of Religion, Politics and Economy

ANTH DSE-5.4: Tribal Culture of India

VI Semester

ANTH-C-6.1: Forensic Anthropology

ANTH-C-6.2: Field work and Dissertation

ANTH-DSE-6.3(A): Anthropology of India

ANTH-DSE-6.3(B): Human Genetics

ANTH-DSE-6.4: Museum and Museology

Course Objectives-

To provide basic skills and concepts in Socio-cultural, Biological and Archeological Anthropology. To provide basic concepts, methods and skills in Biological Anthropology, Forensic Anthropology and Criminology, Medical Anthropology and Demographic Anthropology, Human Biology, Medical genetics and principles in Human Genomics.

To provide basic knowledge and concepts on anthropological theories of culture, theories of society, Indian Society, Applied Anthropology, Linguistic Anthropology and skills in Ecological Anthropology, knowledge about thinkers and theoretical debates in Anthropology. To provide basic concepts, methods and skills in Prehistoric Archaeology, skills in Paleoanthropology of Africa and Europe, Odisha Archaeology and different prehistoric sites of Odisha. To provide basic knowledge about the indigenous communities in India, their problems and development perspectives, of gender and Anthropological perspectives of gender and its significance, on Culture and Development, tribes of India and their problems and development.

To demonstrate basic trainings and skills for collection of anthropological data and use statistics, anthropological tools and methods used for Biological and forensic anthropology Prehistoric Archaeology and Museology and culture resource management. To provide basic skill and training on research methods and exposure to established ethnographic works and training to collect primary data in demography and human genetics methods, tools and techniques.

SEMESTER-I

C-1.1: Introduction to Biological Anthropology

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about various theories related to human evolution and variation.
2. They will learn about history of Physical Anthropology and how it is related to other disciplines.
3. They will also learn about the relationship between non-human and human primates.
4. From the practical component they will learn about how to measure and study various parts of the human body.

C-1.2: Introduction to Social-Cultural Anthropology

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the scope and relevance of Social-Cultural Anthropology and its relationship with other branches of anthropology.
2. They will learn about concepts of society, culture, social stratification, etc.
3. They will also learn about important institutions like family, marriage and kinship.
4. From the practical component they will learn how to follow up some of the commonly used techniques of data collection in Social-Cultural Anthropology.

SEMESTER-II

C-2.1: Introduction to Archaeological Anthropology

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about archaeological anthropology and its relationship with other sciences.
2. They will learn about how the past is reconstructed.

3. They will also learn about the method of understanding the prehistoric culture on the basis of archaeological finds.
4. From the practical component they will learn about identification and interpretation of prehistoric tools.

C-2.2: Fundamentals of Human Origin & Evolution

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the origin of hominoid group in the primates.
2. They will learn about the origin, distribution and characteristics of extinct hominids and the process of hominization.
3. The components of the Practical paper will help students to understand how craniometric measurements and derived indices are useful in studying evolutionary changes in modern humans.

SEMESTER-III

C-3.1: Tribes and Peasants in India

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the concepts of tribes, their classification and distribution.
2. They will learn about how tribes are linked with the wider world.
3. They will also learn about peasantry and how it is related to tribes.
4. From the practical component they will learn to read original ethnographies and extract relevant information from the same.

C-3.2: Human Ecology

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about biological aspects of ecology and adaptation.
2. They will learn about cultural aspects of ecology and adaptation.
3. They will also learn about the relationship between ecology and state formation.

4. From the practical component they will learn about measurement of various parts of the human body and about preparing a research design on study of any environmental problem.

C-3.3: Biological Diversity in Human Populations

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the use of various markers of biological variation.
2. They will learn about the mechanisms of human adaptability.
3. They will also learn about the contribution of some anthropologists towards understanding the population diversity in India.
4. From the practical component they will learn about the use of blood group antigens and dermatoglyphic traits in measuring biological diversity.

SEMESTER- IV

C-4.1: Theories of Culture and Society

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the classical theories of culture like evolutionism, diffusionism and culture area.
2. They will learn about historical particularism and neo-evolutionism.
3. They will also learn about functionalism, structuralism and other more recent theories.
4. From the practical component they will learn about formulation of research questions and hypotheses, testing of hypotheses, etc.

C-4-2: Human Growth and Development

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the concepts and indicators of human growth and development.
2. They will learn about pre-natal and post-natal growth.
3. They will also learn about various bio-cultural factors that influence growth.

4. From the practical component they will learn about how to assess growth, obesity and nutritional status.

C-4.3: Research Methods

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the similarities and differences between technique, method and methodology.
2. They will learn about fieldwork traditions in Anthropology.
3. They will also learn about tools and techniques of data collection.
4. From the practical component they will learn about how to construct tables, make observations and conduct interviews.

SEMESTER-V

C-5.1: Prehistoric Archaeology of India

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about prehistoric culture through the technique of manufacturing tools.
2. They will learn about the methods of climatic reconstruction.
3. They will also learn about Pleistocene chronology of India.
4. From the practical component they will learn about identification of tools and lithic technology.

C-5.2: Anthropology in Practice

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about various applications of anthropological knowledge and techniques.
2. They will learn about the role of anthropology in development practices.
3. They will also learn about various constitutional provisions that protect human rights.

4. From the practical component they will learn about how to prepare report on an NGO or a project on tourism.

DSE-5.3: Anthropology of Religion ,Politics and Economy

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about anthropological approach to understanding religion, economy and politics of simple societies.
2. They will also learn about how religion, economy and politics interface with each other.
3. From the practical component they will learn how to conduct a case study of one of the religious, economic or political institutions of a given society.

DSE-5.4: Tribal Culture of India

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about various concepts of tribes and the importance of studying them.
2. They will learn about the difficulties of differentiating between tribe and caste in India.
3. They will also learn about classification of tribes based on religion, economy, occupation, race, etc.
4. From the practical component they will learn about distribution of various categories of tribes in India and how to write an annotated bibliography and social structure of one of them.

SEMESTER-VI

C-6.1: Forensic Anthropology

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the aims and scope of forensic anthropology.
2. They will learn about identification of skeletal and non-skeletal human remains.
3. They will also learn about various methods of identifying living persons.

4. From the practical component they will learn about identification of individuals on the basis of bones, blood, urine, semen, saliva, fingerprint and handwriting.

C-6.2: Field work and Dissertation

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about how to do fieldwork.
2. They will learn about use of various techniques of data collection.
3. They will learn about classification, interpretation and presentation of data.
4. They will also learn about writing a dissertation, selecting chapter headings and subheadings, writing references, footnotes, endnotes, etc.

C-6.3(A): Anthropology of India

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about how anthropology originated and evolved in India.
2. They will learn about Indian society on the basis of some key concepts developed by various anthropologists and sociologists.
3. They will also learn about the contributions of some western anthropologists to understanding Indian society and culture.
4. From the practical component they will learn about diversities in Indian society on the basis of biological and cultural traits

C-6.3(B): Human Genetics

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about human genes, their structure, replication and function.
2. They will learn about how genetic information is expressed.
3. They will also learn about the methods of studying human genes.
4. From the practical component they will learn about DNA extraction, quantification, gel documentation, etc.

C-6.4: Museum and Museology

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about history of museums in India and the relationship between museums and anthropology.
2. They will learn about museum collection, documentation and display.
3. They will also learn about security, storage and marketing.
4. From the practical component they will learn about how to document, conserve and prepare a profile of a museum.

PG PROGRAMME IN ANTHROPOLOGY
GOVT. AUTONOMOUS COLLEGE, PHULBANI

Aims of Master Degree Programme in Anthropology

The overall aims of Anthropology at PG level are to:

- help formulate Post graduate attributes, qualification descriptors, programme learning outcomes and course-level learning outcomes that are expected to be demonstrated by a graduate;
- enable prospective students, parents, employers and others to understand the nature and level of learning outcomes (knowledge, skills, attitudes and values) or attributes a graduate student should be capable of demonstrating on successful completion of study;
- maintain national standards and international comparability of standards to ensure global competitiveness, and to facilitate graduate mobility; and
- provide higher education institutions and their external examiners an important point of reference for setting and assessing standards.

Programme Objectives

As the study of humankind, anthropology seeks to produce useful generalizations about people and their behaviour to arrive at the fullest possible understanding of human diversity. Anthropologists try to seek answers to an enormous variety of questions about humans. They are interested in discovering when, where and why humans first appeared on the earth; how and why they have changed since then; how and why modern human populations vary/overlap in certain physical features. They are also interested in knowing how and why societies in the past and present have similar/different norms, values, customs, beliefs and practices.

Anthropologists not only study all varieties of people, they also study all aspects of human population. For example, when describing a group of people, an anthropologist might discuss the history of the area in which the people live, the physical environment, the organisation of family life, the general features of their language, the group's settlement patterns, political and economic systems, religion, styles of art and dress. Some are of course concerned primarily with biological or physical

characteristics of human populations; others are interested principally in what we call cultural characteristics. There are also some who study the prehistoric cultures and still others who study the human languages in order to understand their culture and society.

Anthropology is the study of humanity. The subject focuses on the study of the origin and development of human societies and cultures. Culture is the learned behaviour of people, including their languages, belief systems, social structures, institutions, and material goods. Anthropologists study the characteristics of past and present human communities through a variety of techniques. In doing so, they investigate and describe how different people of our world lived throughout the history. Anthropologists aim to study and present their human subjects in a clear and unbiased way. They attempt to achieve this by observing subjects in their local environment. Anthropologists then describe interactions and customs, a process known as ethnography. By participating in the everyday life of their subjects, anthropologists can better understand and explain the purpose of local institutions, culture and practices. This process is known as participant-observation. Taken as a whole, these steps enable anthropologists to describe people through the people's own terms. Toward the goal of Anthropology, anthropologists explore aspects of human biology, evolutionary biology, linguistics, cultural studies, history, economics, and other social sciences. Anthropology emerged out of the New Imperialism. In the twentieth century, anthropology became increasingly specialized and professionalized as a social science. Modern anthropology is often divided into four distinct sub disciplines: Biological Anthropology, Cultural Anthropology, Linguistic Anthropology and archaeology. Anthropologists from different fields also commonly collaborate using their different skills to create a more comprehensive understanding of a particular group.

The Department of Anthropology offers the M.A.(Anthropology) and B.A.(Anthropology Honours) course with an outcome based curriculum. Students gain insights and knowledge not only from our own nationally recognized faculty members, but also from eminent scholars visiting from other institutions. The Department of Anthropology's focuses on the development of scholars who will contribute original and rigorous intellectual evaluation to the field of study.

Learning Programme outcome (PO)

Our Masters program's greatest strengths are its flexibility in meeting the intellectual needs of individual students, the high level of cooperation and collaboration that exists within the student community and interdisciplinary approaches to scholarship.

- Our end semester dissertation presentation enables students to present their research to faculty and other students.
- Students will demonstrate an understanding of an anthropological perspective built upon a holistic understanding of cultural and biological systems.
- Students will develop an understanding of local and global processes and social complexity through space and time.
- Students will develop basic knowledge of data collection methods and the analytic techniques that anthropologists use to evaluate these data.
- Students will develop the ability to critically evaluate anthropological data.

Knowledge:

- Learn how to ask questions, develop explanations, and analyse data from an anthropological perspective
- Learn to use your “anthropological imagination” as you come to understand the world and your place in it
- Coursework on topics such as: families, racial and ethnic identity, organizations, work, social inequality, sex and gender, sexuality, the welfare system, health and medicine, human rights, social movements and social justice.

Skills:

- How to interpret and analyze data
- Ability to design and conduct a research project
- Written communication and presentation skills
- Solving problems and identifying solutions
- Navigating issues of global diversity.

Students in anthropology gain valuable competencies.

- Describe how evolutionary and historical processes have shaped primates and human ancestors and lead to the biological, behavioural, and cultural diversity seen in the present.
- Describe how cultural systems construct reality differently for various human groups.
- Describe how varying types of data are collected, analyzed, synthesized and interpreted to achieve these first two goals.
- Communicate anthropological knowledge effectively through written, oral and data presentation in varying formats for diverse audiences.
- Discuss human diversity and how knowledge about human diversity should lead to a better understanding of and therefore respect for people whose culture differs from ours.

Program Objectives:

- The students of Anthropology will learn the history, branches and scope of anthropology.
- They will comprehensively understand the concepts and theories of major branches of anthropology i.e. Biological, Social, Archaeological anthropology and linguistic anthropology.
- Students will be familiar with approaches, techniques, methodologies and study designs commonly used in anthropological research.
- They will understand the distinction of conducting population based fieldwork independently and collecting useful qualitative and quantitative data pertaining to their research work.
- A student of anthropology will be able to relate all the core papers, GE and SEC papers with social and political environment of communities.

They should achieve the efficiency in detecting the major health or social problems of society/populations and they should themselves give research based feasible solutions related any aspect of human life.

- Students should finally understand the importance of anthropological research in policy making and improving human life.

Contents for MA(Anthropology) Papers in Anthropology

I. Core Course

First Year

I Semester

ANTH-C-1.1: Socio-cultural Anthropology

ANTH-C-1.2: Biological Anthropology– I

ANTH-C-1.3: Prehistoric Archaeology– I

ANTH-C-1.4: Tribes of India

ANTH-C-1.5: Practical– Biological and Forensic Science:– (Cranimetry, Mandibulometry, Somatometry and Somatoscopy, Dermatoglyphics)

II Semester

ANTH-C-2.1: Indian Society & Culture

ANTH-C-2.2: Biological Anthropology– II

ANTH-C-2.3: Prehistoric Archaeology –II & Museology

ANTH-C-2.4: Ecological Anthropology

ANTH-C-2.5: Practical– (Prehistoric Tools, Museology and Museum management, Demographic data collection, Construction of Genealogy)

Second Year

III Semester

ANTH-C-3.1: Research Methodology

ANTH-C-3.2A: Advanced Socio– Cultural Anthropology

ANTH-C-3.3A: Theories and Methods In Socio– Cultural Anthropology–I

ANTH-C-3.4A: Practical– Tools and Techniques of data collection, Ethnographic report on any tribe

ANTH-C-3.2B: Fundamentals of Human Genetics

ANTH-C-3.3B: Human Population Genetics

ANTH-C-3.4B: Practical– Nutritional Assessment

ANTH-C-3.2C: Principles and Methods in Prehistoric Archaeology

ANTH-C-3.3C: Prehistoric Archaeology and Palaeoanthropology of Africa and Europe

ANTH-C-3.4C: Practical

IV Semester

ANTH-C-4.1: Forensic Anthropology

ANTH-C-4.2A: Linguistic Anthropology

ANTH-C-4.3A: Theories and Methods In Socio–Cultural Anthropology–II

ANTH-C-4.4A: Fieldwork and Dissertation

ANTH-C-4.2B: Medical Genetics

ANTH-C-4.3B: Advanced Biological Anthropology

ANTH-C-4.4B: Fieldwork and Dissertation

ANTH-C-4.2C: Field Techniques and Methods in Archaeology

ANTH-C-4.3C: Prehistory and Protohistory of Eastern India

ANTH-C-4.4C: Fieldwork and Dissertation

CC- Core courses

CE- Core Elective

Specialization: Any One group

Gr A- Socio-cultural Anthropology

Gr B- Biological Anthropology

Gr C- Archaeological and Paleocultural Anthropology

Course Objectives-

To provide basic skills and concepts in Socio-cultural, Biological and Archeological Anthropology. To provide basic concepts, methods and skills in Biological Anthropology, Forensic Anthropology and Criminology, Medical Anthropology and Demographic Anthropology, Human Biology, Medical genetics and principles in Human Genomics.

To provide basic knowledge and concepts on anthropological theories of culture, theories of society, Indian Society, Applied Anthropology, Linguistic Anthropology and skills in Ecological Anthropology, knowledge about thinkers and theoretical debates in Anthropology. To provide basic concepts, methods and skills in Prehistoric Archaeology, skills in Paleoanthropology of Africa and Europe, Odisha Archaeology and different prehistoric sites of Odisha. To provide basic knowledge about the indigenous communities in India, their problems and development perspectives, of gender and Anthropological perspectives of gender and its significance, on Culture and Development, tribes of India and their problems and development.

To demonstrate basic trainings and skills for collection of anthropological data and use statistics, anthropological tools and methods used for Biological and forensic anthropology Prehistoric Archaeology and Museology and culture resource management. To provide basic skill and training on research methods and exposure to established ethnographic works and training to collect primary data in demography and human genetics methods, tools and techniques.

SEMESTER-I

C-1.1: Introduction to Social-Cultural Anthropology

Learning Course Outcomes (CO)

The expected learning outcomes of this paper are as follows:

1. The students will learn about the scope and relevance of Social-Cultural Anthropology and its relationship with other branches of anthropology.
2. They will learn about concepts of society, culture, social stratification, etc.
3. They will also learn about important institutions like family, marriage and kinship.

4. From the practical component they will learn how to follow up some of the commonly used techniques of data collection in Social-Cultural Anthropology.

C-1.2: Biological Anthropology-I

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about various theories related to human evolution and variation.
2. They will learn about history of Biological Anthropology and how it is related to other disciplines.
3. They will also learn about the relationship between non-human and human primates.
4. From the practical component they will learn about how to measure and study various parts of the human body.

C-1.3: Introduction to Prehistoric Archaeology-I

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about archaeological anthropology and its relationship with other sciences.
2. They will learn about how the past is reconstructed.
3. They will also learn about the method of understanding the prehistoric culture on the basis of archaeological finds.
4. From the practical component they will learn about identification and interpretation of prehistoric tools.
5. They will learn about the techniques of dating prehistoric finds.
6. They will also learn about geological timescale and cultural expressions of each epoch.

C-1.4: Tribal culture of India

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the concepts of tribes, their classification and distribution.

2. They will learn about how tribes are linked with the wider world.
3. They will also learn about peasantry and how it is related to tribes.
4. From the practical component they will learn to read original ethnographies and extract relevant information from the same.

C-1.5: Practical– Biological and Forensic Science:– (Cranimetry, Mandibulometry, Somatometry and Somatoscopy, Dermatoglyphics)

Learning Course Outcomes (CO)

1. The students will learn about hands on training on collection of demographic data and its analysis
2. They will learn about basics of human Osteology and craniometry, determination of age and sex from dry bones as well as analysis of fingerprints.
3. They will also learn about various methods and techniques of nutritional anthropometric data collection and its analysis.
4. The students will also learn about how to use the various methods and techniques of physiological data collection and its interpretation.

SEMESTER-II

C-2.1: Indian Society & Culture

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the classical theories of culture like evolutionism, diffusionism and culture area.
2. They will learn about historical particularism and neo-evolutionism.
3. They will also learn about functionalism, structuralism and other more recent theories.
4. From the practical component they will learn about formulation of research questions and hypotheses, testing of hypotheses, etc.

ANTH-C-2.2: Biological Anthropology– II

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about various theories related to human evolution and variation.
2. They will learn about history of Biological Anthropology and how it is related to other disciplines.
3. They will also learn about the relationship between non-human and human primates.
4. From the practical component they will learn about how to measure and study various parts of the human body.
5. Concept of Race, UNESCO definition and various classification made by Indian Scholar among people of India
6. They will learn about the basic concepts of human genetics, population genetics and genetic variation.
7. Meaning and Concept of Demography, Sources of data collection etc.
8. Genetic variation concept and its sources. Exapalnation through hardy-Weinberg Law.
- 9.concept of Nutrition and various assessment of for nutritional status.

C-2.3: Prehistoric Archaeology –II & Museology Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about archaeological anthropology and its relationship with other sciences.
2. They will learn about how the past is reconstructed.
3. They will also learn about the method of understanding the prehistoric culture on the basis of archaeological finds.
4. From the practical component they will learn about identification and interpretation of prehistoric tools.
- 5 Prehistoric culture of Europe,Africa and India,Mesolithic culture
- 6 Museum study, classification, preservation of museum specimens

C-2.4: Ecological Anthropology Learning Course Outcomes (CO)

The learning outcomes of this paper are:

- 1.The students will learn about the conceptual aspects of ecological anthropology and adaptation.
- 2.They will learn about various components of ecology and human Bio-Cultural adaptation.
- 3.They will also learn about how human body adapts to various ecological conditions.
- 4.The students will also learn about environmentally sustainable development as well as environment policy in India.

C-2.5: Practical– (Prehistoric Tools, Museology and Museum management, Demographic data collection, Construction of Genealogy

Learning Outcomes

The learning outcomes of this paper are:

- 1.The students will learn about the skill to scientifically identifying the prehistoric tools and artefacts.
- 2.The will learn about basic principles of museum and identification and use of museum specimens..
- 3.They will also learn about prehistoric techniques and tool typology.
- 4.The students will learn about analysis of lithic artefacts using the attribute analysis form.

SEMESTER-III

C-3.1: Research Methodology

Learning Course Outcomes (CO)

1. The students will learn about methodological perspective in anthropology.
2. They will learn about empiricism, methods of comparison, hypothesis testing, monitoring and evaluation in anthropological research.
3. They will also learn about various methods and techniques of data collection.
4. The students will also learn various tools of qualitative and quantitative data collection and its analysis.

C-3.2A: Advanced Socio– Cultural Anthropology

Learning Course Outcomes (CO)

The expected learning outcomes of this paper are as follows:

- 1.The students will learn what is Social and Cultural Anthropology and how it is related to other branches of Anthropology as well as its relationship with other disciplines.
- 2.They will learn about the key concepts in Social and Cultural Anthropology like social structure, social change, culture, cultural change, socialization, and the like.
- 3.The students will also learn about social institutions like family, marriage, kinship and religion.
- 4.They will also learn about the economic and political organization of traditional societies.

C-3.3A: Theories and Methods In Socio– Cultural Anthropology–I

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

- 1.The students will learn about the emergence of anthropology as an empirical discipline and the theatrical debates in the discipline.
- 2.The students will learn about the important classical theories of anthropology.
- 3.Evolution and Diffusion as the culture change, contribution of various scholars.
- 4.The students will learn about the theories of personality and culture.
5. Emergence of Field work tradition in Anthropology, Civilization study and contribution of scholars.

C-3.4A: Practical– Tools and Techniques of data collection,Ethnographic report on any tribe

Learning Course Outcomes (CO)

1. The learners will be able to acquaint with various tools and techniques of data collection
2. Observation methods like participants and non participant observation, interview and case study methods.
- 3 learn wrting techniques of ethnographic report

C-3.2B: Fundamentals of Human Genetics

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about human genes, their structure, replication and function.

2. They will learn about how genetic information is expressed.
3. They will also learn about the methods of studying human genes.
4. From the practical component they will learn about DNA extraction, quantification, gel documentation, etc.

C-3.3B: Human Population Genetics

Learning Course Outcomes (CO)

- 1.They will learn about the basic concepts of human genetics, population genetics and genetic variation.
- 2.Hardy-weinberg principle, Gene and allele frequency estimation, Gene flow,selection procedure etc
- 3.concept of gentic polymorphism, henotype,phenotype.heritability estimation.
- 4 concept of random and selective mating, genetic markers in disease study.

C-3.4B: Practical– Nutritional Assessment

Learning Course Outcomes (CO)

1. They will also learn about various methods and techniques of nutritional anthropometric data collection and its analysis.
2. The learners will acquaint with dietary record of household of ICMR
- 3 Able to estimate the nutrional status through Anthropometry ,clinical signs etc
- 4.Learners will able to measure the height, weight,skin fold thickness for estimation of nutritional status.

SEMESTER- IV

C-4.1: Forensic Anthropology

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about the aims and scope of forensic anthropology.
2. They will learn about identification of skeletal and non-skeletal human remains.
3. They will also learn about various methods of identifying living persons.

4. From the practical component they will learn about identification of individuals on the basis of bones, blood, urine, semen, saliva, fingerprint and handwriting.

C-4.2A: Linguistic Anthropology

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about what language and what its place in anthropology.
2. They will learn about classification of language and the influence of language and linguistics on culture.
3. They will also learn about how language makes sense only in its social context.
4. They will also learn about how to conduct a language survey and prepare a report on the same.

C-4.3A: Theories and Methods In Socio–Cultural Anthropology–II

Learning Course Outcomes (CO)

1. The students will learn about the emergence of anthropology as an empirical discipline and the theatrical debates in the discipline.
2. The students will learn about the important classical theories of anthropology.
3. They will learn about theories of language and culture.
4. The students will learn about the theories of personality and culture.

C-4.4A: Fieldwork and Dissertation

Learning Course Outcomes (CO)

The learning outcomes of this paper are:

1. The students will learn about how to do fieldwork.
2. They will learn about use of various techniques of data collection.
3. They will learn about classification, interpretation and presentation of data.
4. They will also learn about writing a dissertation, selecting chapter headings and subheadings, writing references, footnotes, endnotes, etc.

C-4.2B: Medical Genetics

Learning Course Outcomes (CO)

1. The students will learn about meaning and scope of medical genetics.
2. They will learn about biochemical genetics and haemoglobinopathies.
3. They will also learn about applications of medical genetics.
4. They will learn about population screening, ethical issues and challenges

C-4.3B: Advanced Biological Anthropology

Learning course Outcomes (CO)

- 1.The students will learn about the meaning and concepts of biological anthropology and its development.
- 2.They will learn about various theories of organic evolution.
- 3.They will also learn about primatology, primate evolution and stages of human evolution, the humanization processes and human diversity.
- 4.They will learn about the basic concepts of human genetics, population genetics and genetic variation

C-4.4B: Fieldwork and Dissertation

Learning Course Outcomes

The learning outcomes of this paper are:

- 1.The students will learn how to collect primary data in natural settings.
- 2.They will also learn about data analysis and field dairy writing.
- 3.They will also learn about drawing inferences from the data and seminar presentation.
- 4.The students will also learn about dissertation writing, submission and defence

Government Autonomous College, Phulbani

Department of Economics

Programme Specific Outcomes

After completion of B.A. Economics Honors Course, the students will have knowledge about the following:

- Understand how different degrees of competition operate in a market that affects pricing and output.
- Understand the efficiency and equity implications of market interference, including government policy.
- Develop research knowledge in economics.
- Develop the skill of data collection & use of sampling techniques in research.
- Develop the knowledge about theories of economic growth & development and issues of economic planning.
- Create awareness about changing macro-economic policies and theories.
- Enable a student to analyze the current economic scenario of India and the world.

Course Outcome

C-1.1: Introductory Micro-Economics: This paper is developed to create an understanding of different concepts of microeconomics. Some of these concepts are: the economic problem, scarcity and choice, the role of assumptions, gains from trade, Supply and Demand, elasticity and its application, controls on prices, consumer surplus, producer surplus, budget constraint and equilibrium of consumer, labour supply and savings decision, perfect competition, Production, imperfect markets, income distribution between factors of production. The paper helps students in understanding different market structures that exist in an economy. Also, after studying the paper, they are able to understand how production and consumption decisions are taken. This is the foundation of economics.

C-1.2/2.2: Mathematical Methods for Economics I and II: This course aims to provide a hands-on training in basic mathematics used in any standard undergraduate honours course in Economics. The course aligns with the requirement of mathematical knowledge across a host of sub-discipline courses. A basic understanding of this course is essential for solving problems pertaining to economic theory where mathematics is used as a tool. It helps students in understanding economic modelling, Solve optimisation problems in Economics and policy-making and Improved analytical and reasoning skills.

C-2.1: Introductory Macroeconomics: This paper helps them understand the basic concepts in macroeconomics. Some of these concepts are as follows: National Income Accounting, balance of payments accounts, current and capital accounts. Money and Functions of money,

tools of monetary policy, The Closed Economy in the Short Run Classical and Keynesian systems, IS-LM model, fiscal and monetary multipliers. After reading the course the students get a better understanding of how the national income is counted, how money supply is responsible for inflation and also the students understand the difference in different schools of economics, like, the Keynesians and the classical economist along with their theories.

C-3.1: Microeconomics-I: This paper is prepared and designed in order to provide training in microeconomic theory. The training will enable the learners to analyse the behaviour of individual agents (consumers and producers). The paper also utilises the previous knowledge of the students with respect to quantitative techniques which they learn in the previous semesters. After going through this paper, the students will be able to discuss the basic elements of consumer theory and production theory involving household decisions, inter-temporal decisions, and cost structure and production dynamics of a producer. They can also explain the functioning of perfectly competitive market under different situations like profit and loss. Also, can apply their knowledge of mathematical methods in solving the problems of microeconomic theory.

C-3.2: Macroeconomics-II: students are introduced to long run issues like growth, technical progress, economics of ideas, R&D, innovation, and knowledge creation. This course also provides insights into modern business cycle analysis. Finally, it introduces students to open economy macroeconomics issues. At the end, it provides a long run perspective to policymaking by framing policies in a dynamic context. It will also enable students to understand business cycles and the concomitant role of policies. Students will understand the fluctuations happening in economy due to economic activity along with their causes.

C-3.3: Statistical Methods for Economics: This course is to train students in elementary probability theory, distributions of random variables, sampling, estimation and statistical inference. Knowledge of statistical methods is essential for advanced courses such as Game Theory, Econometrics and Applied Economic theory. This course will help students in identifying random variables and probabilistic outcomes in economic theory, and study the nature and behaviour of any economic variable based on its moments also how to utilise sampling techniques for estimation and make inferences about any data.

C-4.1: Microeconomics-II: This paper is a sequel to Microeconomics here students will learn Morden theories. The paper emphasises on providing more clarity on concepts like imperfect markets and market failure. This paper also utilises the mathematical tools and reasoning. It covers general equilibrium and welfare, imperfect markets and topics under information economics like signalling, moral hazard and game theory. After going through this paper, the students will be able to recognise the consequences of inefficient market mechanism and propose solutions to the inefficiently working markets; they can solve the problems through the application of game theoretic approach and also can explain the issues of market imperfection and market failures.

C-4.2: Macroeconomics-II: This paper is a Sequel to Macroeconomics I. This course will enable the students to understand different economic growth model, open economy and macroeconomic policies, classical and Keynesian Macroeconomic thoughts and application of different expectation hypothesis. Students will get a better understanding about how monetary policy and fiscal policies works in an economy.

C-4.3: Research Methodology: The course focuses on social science research methods. In this paper, they will learn Basics of Research, Research problems and issues etc. By the end of the subject students should be able to demonstrate the ability to choose methods appropriate to research aims and objectives, understand the limitations of particular research methods, develop skills in qualitative and quantitative data analysis and presentation, develop advanced critical thinking skills and demonstrate enhanced writing skills.

C-5.1: Indian Economy-I: Using appropriate analytical frameworks, this course reviews major trends in economic indicators and policy debates in India in the post-Independence period, with particular emphasis on paradigm shifts and turning points. At the end of the course, a student should be able to understand the development paradigm adopted in India since independence and evaluate its impact on economic as well as social indicators of progress and wellbeing. Issues to be covered are economic development since independence, Human Capital: Demography, health and education. Growth and Distribution: Poverty, inequality, unemployment and policy interventions, International comparisons.

C-5.2: Development Economics-I: This course aims to introduce students to the multidimensional concept of development, To understand economic growth models and cross-national comparisons of the growth experience that can help evaluate these models. To analyse relationship between inequality and growth, to analyse determinants of democracy; alternative institutional trajectories and their relationship with economic performance; within-country differences in the functioning of state institutions; state ownership and regulation; government failures and corruption.

DSE-5.3: Public Economics: This paper will help students understanding public finance and public budget along with concepts related to Expenditure, Revenue and Debt. It provides a wider scope to students for studying the implications of macroeconomic policies on the Economy, It provides a framework about the role of Government sector in providing public goods for welfare and also It helps to build on theory of social welfare and can be used as a tool to improve the same.

DSE-5.4(A): Basic and applied Econometrics: Students will learn to estimate linear models using ordinary least squares and make inferences about population parameters. They will also understand the biases created through miss-specified models, such as those that occur when variables are omitted. Broad areas to be covered: Nature and scope of econometrics, Simple linear regression model: Two variable case, multiple linear regression, Violations of classical assumptions: Consequences, detection and remedies, Specification Analysis.

DSE-5.4(B): Money, Banking and Financial market:

This course exposes students to the theory and functioning of the monetary and financial sectors of the economy. It highlights the organization, structure and role of financial markets and institutions. It also discusses interest rates; monetary management and instruments of monetary control. Financial and banking sector reforms and monetary policy with special reference to India are also covered.

C-6.1: Indian Economy-II: This course examines sector-specific policies and their impact in shaping trends in key economic indicators in India. It highlights major policy debates and

evaluates the Indian empirical evidence. At the end of the course, a student should be able to understand the role of economic policies in shaping and improving economic performance in agriculture, manufacturing and services. Issues to be covered: Macroeconomic policies and their impact, Policies and performance in agriculture, Policies and performance in industry and services.

C-6.2: Development Economics-II: This paper is developed to understand the dynamics of change in the economy from a theoretical framework and to study the various economic growth models. At the end of the course the students will be able to Differentiate between economic growth and economic development, evaluate theories of economic growth and development, Compare the development levels among different countries and can examine the role of land, labour and capital in the development process.

DSE-6.3(A): Research Project: In this paper students will utilise the theoretical knowledge they got after learning research methodology in their 5th SEM. After doing a research project they will get a practical experience of data collection and analysis. This will increase their critical thinking as well as make them an effective writer.

DSE-6.3(B): Environmental Economics: *This course is designed to* understand effects of trade on Environment, the nature of environmental problems in developing countries, the importance of forest in keeping environmental balance, the causes and problems of water pollution. After the completion of the course Students will undertake trade practices as per the international trade agreements 2. Apply such practices in day-to-day life which will cause no harm to the environment. 3. Follow such practices which will lead to keeping intact our forest resources. 4. Apply such knowledge and undertake such practices which will reduce the problem of water pollution. 5. Substitute the use of renewable resources to that of non-renewable resources.

DSE-6.4 (A): Basic and applied Econometrics: Students will learn to estimate linear models using ordinary least squares and make inferences about population parameters. They will also understand the biases created through miss-specified models, such as those that occur when variables are omitted. Broad areas to be covered: Nature and scope of econometrics, Simple linear regression model: Two variable case, multiple linear regression, Violations of classical assumptions: Consequences, detection and remedies, Specification Analysis.

DSE-6.4(B): International Economics: This course is developed to provide the students theoretical background to understand the functioning of the global economy. And to evaluate the applicability of the various international trade theories. This course contains Comparative Advantage and Terms of Trade 2. Contemporary Trade Theories, Trade Barriers, Growth of Trade and Globalisation. At the end of the course the students will be able to: 1. Describe the various international trade theories. 2. Analyse the impact of international trade on the economy. 3. Illustrate concepts with the help of diagrams.

UG programme in Psychology

Programme Outcome :

- In-depth learning about current advances in the discipline of Psychology, and mastery of the multidisciplinary curricula as a preparation of students towards higher education opportunities.
- Acquisition of skills such as, creativity and innovation, critical thinking, higher-order thinking capacities, problem-solving abilities, teamwork and communication skills, and the like for enhanced employability of students.
- Students' advanced awareness of social, historical and moral implications of the discipline for future sustainability.

Career exploration in work settings for future employment opportunities.

- Increased ability of students to apply the scientific knowledge in solving real world problems
- Making students familiar in using research methodology employed in the discipline for undertaking scientific enquiry.

Programme specific outcomes:

- Developing an understanding of scientific principles that govern human behaviour and experience.
- Acquiring knowledge about different stages of human development across lifespan in cognitive, emotional, social and moral domains.
- Developing insights into different kinds of psychological strengths for facilitating optimal functioning of humans.
- Understanding mental illness and psychological disorders with the aim of prevention and cure of such mental health conditions.
- Acquiring analytical and computational skills for assessment and evaluation purposes that helps furthering in-depth understanding of psychological phenomena.
- Applying psychological principles to understand human behaviour in real world contexts across professions, situations

Semester-1
Core-1
Title- Introductory Psychology

Course Outcomes:

- To help the students know the sources and processes of development of modern scientific psychology.
- To help the students develop a scientific temperament in studying and understanding human behavior.

Learning outcomes:

- Define the term psychology and demonstrate command of the basic terminology, concepts and principles of the discipline.
- Identify and compare the major perspectives in psychology: Recognize how each approach views human thought and behavior.
- Gain knowledge of scientific methodology—the variety of ways in which psychological data are gathered and evaluated / interpreted.
- Understand the physiological basis of human behavior.

Core-II
Title- Basic psychological processes

Course Outcomes:

- To help the students to understand the mental processes to begin with perceptions up to how it results in learning and memory.
- To help the students gather knowledge about the structural and functional dynamics of most of the mental processes and their interconnectedness.

Learning outcomes:

- Understand the basic perceptual processes involved in creating and interpreting different events.
- Gain knowledge of the important processes and principles of human learning.
- Understand the structural functional attributes of human memory to help conserve the learning outcomes.
- Illustrate the important aspects of thinking and reasoning process.

Semester-II
Core-III
Title- Processes of Human Empowerment

Course Outcomes:

- To help students gain ideas about intelligence and personality as foundations of human empowerment.
- To make students understand how motivation and emotion are empowering processes to human development.

Learning Outcomes:

- Know the structural components and functional dynamics of intelligence.
- Gain knowledge regarding different perspectives of human personality.
- Understand the significance of emotion and motivation in behavior management.

Core-IV
Title- Basic Developmental processes

Course Outcomes:

- To help students gain some key ideas about human development and the perspectives to understand and explain such developments.
- To help the students understand the significance of prenatal period for human development.
- To help the students understand the developmental preparations of the childhood and the implications of developmental milestones for the normal human development.

Learning Outcomes:

- Understand the nature, types, and principle of development.
- Understand the processes of formation of life and development during pre- and postnatal periods.
- Understand about the different aspects of preparation for future life.

Semesters-III

Core-V

Title- Fundamentals of social psychology

Course Outcomes:

- To help students develop awareness of the concepts, problems and issues in the discipline of social psychology.
- To make students understand the individuals and groups in respect to patterns of social behavior and attitudes.
- To help students gain insight into the dynamics of intergroup relationships, conflict, prejudice and cooperation.

Learning outcomes:

- Know the scope of studying social psychology and the methods to gather data in the social context to explain them.
- Understand the significant aspects group behaviour and social influence that constitute the core of human relationships.
- Understand the significance of social cognition, attitudes, stereotypes and prejudices in explaining human behaviour in the social contexts.
- Understand pro-social behaviour and aggression in different context.

Core-VI

Title- Psychological statistics

Course Outcomes:

- To help students develop knowledge and understanding of the application of Statistics within Psychology.
- To help students develop critical thinking for application of appropriate statistical analysis in Psychological research.

Learning Outcomes:

- Understand the nature of psychological variables and how to measure them using appropriate scale.
- Students will be able to apply graphical data presentation skills in any research area.
- The processes of describing and reporting statistical data.
- Students will be able to define the use of normal probability curve for of hypothesis testing including estimation of errors.
- The methods of drawing inferences and conclusions for hypothesis testing by using appropriate statistical analysis.

Core-VII
Title- Psychopathology-I

Course Outcomes:

- To help students define and understand the basic concepts underlying psychopathology and the perspectives which contributed to the development of modern psychopathology.
- To help students understand the assessment techniques for identifying and classifying maladaptive behavior and mental disorders.
- To guide students to gain specific knowledge about different types of mental disorders.

Learning Outcomes:

- Understand the differences between normality and abnormality along with the perspectives explaining them.
- Know the importance and the use of assessment techniques in identifying different forms of maladaptive behaviour.
- Learn the symptoms, causes and treatment of anxiety disorders.
- Learn the symptoms, causes and treatment of bipolar and depressive disorders.

Semester-IV
Core- VIII
Title- Introduction to Educational Psychology

Course Outcomes:

- To provide students with an overview of the purposes and uses of educational psychology.
- To help students understand human development focusing mainly on the years of formal education.
- To make students understand the ways that educators motivate their students to learn and strive for excellence.
- To make students explore the ways that educators manage learning environments to maximize learning and providing inclusive education.

Learning Outcomes:

- Understand the basic concepts of educational Psychology and Describe the developmental issues faced by school age children.
- Explain the role of motivation on learning and classroom behavior, describe classroom management techniques and gain insight into challenges presented by children with ability differences.
- Identify commonly used Aptitude tests, their strengths and limitations, and use in school settings.

Core-IX
Title-Applied psychology- I

Course Outcomes:

- The present course is designed to help students get information about how psychology goes to work by venturing into new areas of human behaviour and relationships.
- It will help the students understand the role of psychologists in community services including helping the disadvantaged and otherwise-challenged groups.
- It will help the students to be aware of existing gender discrimination and understand the importance of psychology in fields of information technology and mass media.

Learning Outcomes:

- Perform their role as applied psychologists in community services as well as in fields like helping disadvantaged groups and prevent gender discrimination
- Perform their role as applied psychologists in community services as well as in fields like helping disadvantaged groups and prevent gender discrimination
- Understand the intricacies of relationships between human behaviour and information technology.

Core-X
Title-Psychological Assessment

Course Outcomes:

- To train students in various psychological assessment techniques.
- To impart skills necessary for selecting and applying different tests for different purposes such as evaluation, training, rehabilitation etc.

Learning Outcomes:

- Understand the basic facts about psychological assessment
- Understand the processes of test construction and standardization

Understand about the classroom assessment of different types of skills and abilities.

Semester-V
Core- XI
Paper- Organisational Behaviour

Course Outcomes:

- To help students understand the structure, functions, and designs of different organizations.
- To make students understand the processes of communication and leadership functions in different organizations.
- To make students understand the theories of work motivation and related issues in the organizational set up.

Learning Outcomes:

- Understand different concepts and dynamics related to organizational system, behaviour, and management.
- Identify steps managers can take to motivate employees in the perspectives of the theories of work motivation.
- Get an insight regarding various leadership theories, function of a leader, types of leadership and communication process, it's types, barriers in communication process as well as how decisions are made in a group.

Core-XII
Title- Psychology for Healthy Living

Course Outcomes:

- To help the students understand the issues of Psychology and wellbeing and how to address them by the bio-psychosocial model of health and illness.
- To help the students to describe behavioral factors that influence health and illness.
- To guide the students understand about health compromising behaviors including coping with stress and illness

Learning Outcomes:

- Know the basics of health and illness from the Bio-psychosocial perspectives. Get an insight on nature, model of stress, it's causes and how to manage it.
- Get an insight on nature, model of stress, it's causes and how to manage it. Understand the significance of behavioral and psychological correlates of health and illness.
- Understand the significant aspects of coping and application of health psychology in intervention of chronic and terminal illness.

Core- XIII
Title- Fundamentals of counselling psychology

Course Outcomes:

- To help students understand the meaning, goals, scope and ethics of counselling.
- To make students learn the perspectives and processes of counselling.
- To help students integrate and convey information in the core areas of counselling practice applicable in solving various issues faced by adolescents and survivors of family violence.

Learning Outcomes:

- Understand the purpose of counseling and practice of counseling ethically.
- Understand the basics of counselling process and use them for counselling students, families facing various issues. Gain an insight into various approaches and techniques followed in the counselling practice.
- Understand the basics of counseling process and use them for counseling students, families facing various issues.

Semester-VI
Core- XIV
Title-Introduction to positive psychology

Course Outcomes:

- To help students to understand the rationale behind positive psychology.
- To guide students to identify and analyse the key conceptual and theoretical frameworks underpinning positive psychology.
- To encourage students to appreciate the contributions of scholars from a range of disciplines and their influence on developing a positive approach to mental health.
- To make students understand and apply a strengths-based approach to mental health issues.

Learning Outcomes:

- Understand the goal of positive psychology and the basic behaviour patterns that result in positive human growth from the point of view of leading positive psychologists.
- Gain knowledge regarding the concepts of flow and happiness and the related theories and models explaining happiness behavior and its consequences.
- To know about all the precursors to positive psychology from character strength to positive thinking and how the constructs of positive psychology can be applicable in building healthy relationships.

Core- XV
Title- psychological Research and Measurement

Course Outcomes:

- To provide an overview of scientific approaches to psychological research.
- To acquaint students about sampling and measurement of psychological constructs.

Learning Outcomes:

- Understand the nature and designs of psychological research, and characteristics of scientific methods of research.
- Know the different types of sample.
- Learn the fundamentals of measurement and test construction.

Semester-VII
Core- XVI
Title- Psychological Research and Measurement-II

Course Outcomes:

- To provide knowledge about types of psychological research.
- To acquaint the students with Data collection techniques.
- To train the students in writing of research reports.

Learning Outcomes:

- Understand the difference between qualitative and quantitative research.
- Become familiar with techniques of data collection.
- Become adept in scientific reporting.

Core- XVII
Title- Psychological statistics II

Course Outcomes:

- To impart the statistical knowledge to the students so that they would be able to understand the statistical analyses carried out in any research and apply the knowledge in their own research as well.

Learning Outcomes:

- Students will be able to compute correlation coefficient and regression of statistical data.
- Students will be able to test research hypothesis.
- Students will be able to compute different non-parametric tests along with its application.

Core- XVIII
Title- Applied psychology-II

Course Outcomes:

- The present course is designed to acquaint the students with various areas of applied psychology.
- To help the students appreciate the importance of psychology in the area of economic development.
- It will make the students aware about the role of human behaviour in environmental pollution and its conservation.
- To help students understand about how psychology is useful in the field of defence..

Learning Outcomes:

- Perceive the intricacies of relationships between human behaviour and economic development.
- Develop positive behaviours towards conservation of environment.
- Know the role of military psychologists and aspects of defence where psychology plays a role.

Core- XIX
Title- Disability and Rehabilitation Psychology

Course Outcomes:

- The prime objective of this course is to provide general information regarding the concept, classification, incidence, and prevalence of disability from a psychological standpoint.
- The students will be exposed to various physical and mental disabilities and their related factors.
- The students will also be informed of the definition, nature and scope of Rehabilitation Psychology, the goals and objectives of Rehabilitation, its historical perspective and functions of Rehabilitation Psychology.

Learning Outcomes:

- Understand the concept, types, incidence and prevalence of disability and the nature and scope of Rehabilitation Psychology.
- Analyze the physical and mental disabilities and the associated ecological factors.
- Evaluate the goals, objectives and functions of Rehabilitation Psychology.

Semester- VIII
Core-XX
Title- Indian psychological Thought

Course Outcomes:

- To acquaint the students with the rich heritage of Psychology such as Upanishads, Nyaya, Advaita, Vedanta, that have stemmed from Indian Sub-Continents.
- To acquaint students with diverse religious schools of thoughts such as Buddhism, Jainism, and Sufism and their view on the concept of Mind, Personality, Perception, and States of consciousness.
- To orient them to the concepts of Yoga, and its application in the management of mind and body, and self-development.

Learning Outcomes:

- Know the fundamental concept of Indian Psychology and compare it with Western Psychology
- Analyse various religious schools of thought in explaining the concept of mind, consciousness and personality
- Analyse various religious schools of thought in explaining the concept of mind, consciousness and personality
- Comprehend the ideas of Yoga and its principles for self-development and its application in counselling and allied fields

Core- XXI
Title-Data Analysis in psychological Research (Practical paper)

Course Outcomes:

- Students will able to Use statistical software to conduct basic statistical analyses and interpret the results.
- Understand the importance of statistics in psychology and learn to represent data graphically.
- Learn how to conduct various statistical analyses, apply them to various research designs.
- Report the statistical result according to the guidelines set by the American Psychological Association.

Learning Outcomes:

- Use statistical software to conduct basic statistical analyses and interpret the results.
- Understand the importance of statistics in psychology and learn to represent data graphically.
- Learn how to conduct various statistical analyses, apply them to various research designs
- Learn how to analyze qualitative data
- Report the statistical result according to the guidelines set by the American Psychological Association.

Core- XXII
Title- Psychopathology- II

Course Outcomes:

- Providing basic understanding on clinical diagnosis by using different methods.
- To guide students to gain specific knowledge about different types of mental disorders.
- To orient them about different psycho-therapeutic methods to deal with mental health problems.

Learning Outcomes:

- Understand how to arrive at the clinical diagnosis and prepare a report.
- Learn the clinical features, causes and treatment of Personality Disorders,
- Learn the clinical features, causes and treatment schizophrenia spectrum disorders
- Learn different psychotherapies used to treat mental health problems.

Core- XII
Title- Introduction to Bio- Psychology

Course Outcomes:

- To explore the biological basis of human behaviour and to develop an understanding of genetics and behaviour, chromosomal abnormalities.
- To get an insight regarding biological rhythms which control various bodily processes and sleep wake cycle
- To appreciate the importance of hormones in understanding behaviour, cognition and emotions and various methods used to study physiological functions
- To understand certain biological mechanisms involved in motivation and emotion.

Learning Outcomes:

- Understand the origin of biopsychology with emphasis on understanding the role of nature and nurture on behaviour, chromosomal abnormalities, biological rhythms and sleep wake pattern.
- To know the functions of endocrine gland and hormones, how it affect human behaviour, cognition, emotion etc. and explore the various techniques used to study human physiology
- Get an insight on the physiological processes involved during motivation and emotion

DEPARTMENT OF ZOOLOGY

GOVERNMENT AUTONOMOUS COLLEGE, PHULBANI

Details of course outcomes and programme outcome of UG syllabus

PROGRAM OUTCOME:

1. B.SC zoology syllabus imparts students with the knowledge to get ahead in the career path they choose and help them for rewarding a jobs. Program of the department has been designed to facilitate the students with both theoretical and practical knowledge that it makes students learn about all the essential skills they require to succeed in their career paths.
2. Program has also been designed to facilitate knowledge among the students and to inculcate the scientific temperament inside the students and outside the scientific community.

PROGRAM SPECIFIC OUTCOME:

1. It provides students a launch-pad to enroll themselves for post graduate study in systematic and taxonomy. To inculcate research Students become well versed regarding basic concepts of modern biology, field survey work and social extension program and their applications in real life with Knowledge of various animals from primitive to highly evolved forms and its complexity.
2. To foster curiosity in the students for Zoology & understand potential of various branches of Zoology.
3. To equip students with laboratory skills as well as field based studies to become an successful enterpreuner.
4. To highlight biodiversity and its need of conservation ,make aware about ways of sustainability.
5. Students become well versed regarding basic concepts of modern biology, field survey work and social extension program and their applications in real life.
6. Practical work make the students skillful, this skill will help them to design outdoor activities involving local citizens in conserving biodiversity in their daily life.

7. Various activities like field survey and photography project develop their hidden talent, make their mind face to think and act. Science exhibition, poster competition, short trip help in shaping their personality and do innovations which will be beneficial for the country.

C-1.1 : NON-CHORDATES I: PROTISTA TO PSEUDOCOELOMATES

Course Outcomes

1. Understanding the Animal diversity around and principles of classification of animals.
2. Learning about the differences and similarities in the various aspects of classification.
3. Understand the possible group of the invertebrate observed in nature.
4. Utilizing the information to understand interrelationship between taxa and defined mechanism for survival.

C-1.2 : PRINCIPLES OF ECOLOGY

Course Outcomes

1. Learn about ecosystem and biosphere due to the dynamics in population.
2. Understand the diversity of ecosystems, to understand the local lifestyle and problems of the community.
3. Know about food chains, food webs and link it with human and for non-exploitation of the biotic and abiotic components.
4. Students are expected to know the principles of evolutionary process and its application.

C-2.1 : NON- CHORDATES II: COELOMATES

Course Outcomes

1. Evaluate the significance of specific structures and physiological life processes of taxa for survival in environmental conditions
2. Learn about origin of multicellular organisms from unicellular eukaryotes.
3. Understand the concept and diversity of Non-Chordata with an emphasis and distinction in reference to coelom (e.g. in first semester, protista to pseudocoelomates) .

4. To know about how organisms are classified based in Non-Chordata on their complexity, organization and characters.

C-2.2 : CELL BIOLOGY

Outcomes

1. Learn about the Cell as the fundamental structure unit defines the function of all living things and knowledge of the structures and functions of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles.
2. Understand the cellular components underlying cell division.
3. To know the comparison and contrast the events of cell cycle and its regulation with communications of cells with other cells and to the environment.
4. Untangling the basic mechanism of macromolecular transportation in different cellular compartments and across the plasma membrane.

GE-2.3 : FOOD, NUTRITION AND HEALTH

Outcomes

1. Learn about the nutritional and diet value for all ages group and to obtain knowledge about pre-transitional diseases like under-nutrition and communicable diseases.
2. To understand various life style related diseases and their preventive measures which have public health significance.
3. To know about the, practice good nutrition and provide better care for themselves and their loved ones.
4. Students will be acknowledge about the different parasitic infections and their preventive measures.

C-3.1 : DIVERSITY AND DISTRIBUTION OF CHORDATES

Outcomes

1. Learn about the classification, structure, function and biology of chordates of different taxonomic classes.
2. Understand about special topics like zoogeography, metamorphosis, snake bites, migration of birds, parental care of amphibian, echolocation of mammals.
3. To know regarding the origin of chordates and origin of tetrapods
4. Utilizing the information to understand interrelationship between taxa and defined mechanism for survival.

C-3.2 : PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS

Course Outcomes

1. Appraise the significance of anatomical structures and physiological process
2. Learn regarding the structure, function and regulation, of endocrine systems would be broadened.
3. Understand the processes underlying male and female reproduction and fertility.
4. To know students' interest and passion for biomedical sciences would be invoked.

C-3.3 : FUNDAMENTALS OF BIOCHEMISTRY AND MICROBIOLOGY

Outcomes

1. To learn about structure-functional relationships of carbohydrates, proteins and lipids and describe the structure and role of purines and pyrimidine in nucleic acids and their types, cot curves, hypo-hyperchromicity of DNA.
2. To understand the enzyme , mechanism of action of enzymes; coenzymes, co-factors, Isozymes; kinetics of enzyme catalysed reactions and enzyme inhibitions and regulatory process.
3. Learn about basic laboratory techniques and equipments used in biochemistry.
4. To learn about the microbial organisms and their diseases.

C-4.1 : COMPARATIVE ANATOMY OF VERTEBRATES

Outcomes

1. To understand the comparative account of the different vertebrate systems and pattern of vertebrate evolution, organisation and functions of various systems.
2. Learn the comparative account of integument, skeletal components, their function and modifications in different vertebrates.
3. To know about evolution of heart, modification in aortic arches, structure of respiratory organs used in aquatic, terrestrial and aerial vertebrates; and digestive system and its anatomical specializations with respect to different diets and feeding habits.
4. Learn about digestive system and its anatomical specializations with respect to different diets and feeding habits.

C-4.2 : PHYSIOLOGY: LIFE SUSTAINING SYSTEMS

Outcomes

1. Learn about basic fundamentals and understand advanced concepts related to systems in the body, their feedback loop controls.
2. To understand the connections between knowledge of Physiology in relation to real world situations, including healthy lifestyle decisions, diseases and disorders and homeostatic imbalances.
3. To know the role of self-sustaining systems like circulatory, digestive, respiratory and excretory systems and how all of these work in unison to maintain a balance in the body.

C-4.3 : BIOCHEMISTRY OF METABOLIC PROCESSES

Outcomes

1. Learn the processes in metabolism and regulation of metabolic pathways.
2. Understand the metabolism of carbohydrates, proteins and lipids through various anabolic and catabolic pathways like glycolysis, gluconeogenesis, Krebs cycle, Glycogen metabolism, transamination, deamination, urea cycle, beta and omega oxidation of saturated fatty acids and their regulation; Ketogenesis.

3. Know in detail about concepts to illustrate how enzymes and redox carriers and the oxidative phosphorylation machinery occur.
4. Students are expected to know about the biological function and role of different enzymes in the cellular metabolism.

GE-4.4 : ENVIRONMENT AND PUBLIC HEALTH

Outcomes

1. To learn about specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety.
2. Understand the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.
3. To know about various risk management and risk communication approaches in relation to issues of environmental justice and equity
4. Students are expected to know a vivid information regarding the EIA.

C-5.1 : MOLECULAR BIOLOGY

Outcomes

1. To learn and describe the basic structure of nucleic acids at the molecular level and with a deeper understanding of the structure of DNA students will be able to explain how RNA differs from DNA.
2. Understand about the DNA packaging inside the nucleus in association with the histone proteins and organized in a genome.
3. To know the profound understanding of the process of transcription, including the three major steps of initiation, elongation, and termination and how this process is both similar and different in prokaryotic and eukaryotic organisms.
4. Updating the understanding process related to the gene expression and regulation.

C-5.2 : PRINCIPLES OF GENETICS AND BIOTECHNOLOGY

Outcomes

1. To learn the history and scope of Genetics .
2. Understanding the pre mendelian genetic concepts and to study the laws and concepts of Mendelian inheritance.
3. To know about the principles of deviation from Mendelian inheritance with examples and concepts of multiple alleles with examples.
4. To learn the biotechnological techniques and transgenic theories.

DSE-5.3 : ANIMAL BEHAVIOUR AND CHRONOBIOLOGY

Course Outcomes

1. Understand types of animal behaviour and their importance to the organisms and enhance their observation, analysis, interpretation
2. Learning the documentation skills by taking short projects pertaining to Animal behaviour and chronobiology.
3. Learn about the biological rhythm and their application in pharmacology and modern medicine and relate animal behaviour with other subjects such as Animal biodiversity, Evolutionary biology, Ecology, Conservation biology and Genetic basis of the behaviour.
4. To learn various process of chronobiology in their daily life such as jet lag

DSE-5.4 : ECONOMIC ZOOLOGY

Course Outcomes

1. Recollecting the knowledge about the rearing of honey bees and silkworms.
2. Understanding the scope and significance of aquaculture, acquire the knowledge on culture of Freshwater Fishes.
3. To know and describe the culturable characteristics of Prawns and Molluscs; explain the economic importance of Pearl oyster.
4. Students are expected known about the dairy and poultry farming with field visits.

C-6.1 : DEVELOPMENTAL BIOLOGY

Course Outcomes

1. learning about the mechanisms that support growth and development in a zygote.

2. To understand about the interesting and unique post embryonic development that happens in other animals
3. To know about the concept of ageing and the relevance of this knowledge in several medical applications.
4. Students will enable to understand the teratogenic effects on embryo and during its development

C-6.2 : EVOLUTIONARY BIOLOGY

Course Outcomes

1. To learn about many theories regarding biogeny , evolution of eukaryotes and the Information of fossils and extinction.
2. To understand about population genetics, with the concept of origin and evolution of man various concepts for phylogenetic tree making.
3. To know in details about species concept and speciation.

DSE-6.3 : IMMUNOLOGY

Course Outcomes

1. To learn and describe the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity and define
2. Understand the molecular basis of complex, humoral (Cytokines, Complement) and cellular processes involved in inflammation and immunity, in states of health and disease.
3. To know cellular/molecular pathways of humoral/cell-mediated adaptive responses including the role of Major Histocompatibility Complex Explain the cellular
4. To learn molecular aspects of lymphocyte activation, homeostasis, differentiation, and memory

DSE-6.4 : FISH AND FISHERIES

Course Outcomes

1. To learn about different aspects about the current status, classification, fish and fishery resources and types of capture and culture practices employed in

various Inland (cold water and riverine systems), reservoirs, estuaries as well as marine water bodies in India.

2. To understand the points on and various and problems encountered by these major water bodies and also disseminate on different schemes practiced for the development of the same.
3. To know and demonstrate a sound understanding on various regulations and policies for assessment and conservation of fishery resources.
4. To learn details about taxonomy and biology of fishes as well as various aquaculture techniques in details.

DSE-6.4 : PROJECT WORK

Each student has to undertake a project work under the guidance of a teacher and submit the project report in the form of a thesis. There will be a presentation of the project work before an external examiner.

DEPARTMENT OF ZOOLOGY

GOVERNMENT AUTONOMOUS COLLEGE, PHULBANI

Details of course outcomes and programme outcome of PG syllabus

PROGRAM OUTCOME

After completion of the Master Degree in Zoology, the course is geared to cater the following objectives:

1. PO1-Zoology syllabus imparts students with the knowledge to go ahead in the career path they choose and help them for rewarding a job.
2. PO2-Program of the department has been designed to facilitate the students with both theoretical and practical knowledge that it makes students learn about all the essential skills they require to succeed in their career paths.
3. PO3-Programs also been designed to facilitate knowledge among the students and to inculcate the scientific temperament inside the students and outside the scientific community.

PROGRAM SPECIFIC OUTCOME(PSO):

1. It provides students a launch-pad to enroll themselves for post graduate study in systematic and taxonomy.
2. To inculcate research Students become well versed regarding basic concepts of modern biology, field survey work and social extension program and their applications in real life with Knowledge of various animals from primitive to highly evolved forms and its complexity.
3. To foster curiosity in the students for Zoology & understand potential of various branches of Zoology.
4. To equip students with laboratory skills as well as field based studies to become a successful entrepreneur.
5. To highlight biodiversity and its need of conservation, make aware about ways of sustainability.

6. Students become well versed regarding basic concepts of modern biology, field survey work and social extension program and their applications in real life.
7. Practical work make the students skillful, this skill will help them to design outdoor activities involving local citizens in conserving biodiversity in their daily life.
8. Various activities like field survey and photography project develop their hidden talent, make their mind face to think and act. Science exhibition, poster competition, short trip help in shaping their personality and do innovations which will be beneficial for the country.

ZOOL C 101 Biology of Non- Chordates

Course Learning Outcomes:

1. Enhancing the students about brief idea about each taxon of the non-chordates with some important biological features, important physiological process, functional anatomical structures.
2. Understand and interpret general evolutionary relationship and their significance among animal groups
3. Evaluate the significance of specific structures and physiological life processes of taxa for survival in context of its environmental adaptation.
4. Information useful to understand interrelationship between taxa and explain the mechanism for survival

ZOOL C 102 Molecular Biology

Course Learning Outcomes:

1. To provide basic idea about the general concepts of cell biology and aspects of cell division and cell cycle with inheritance pattern.
2. To make the students understanding on the mechanism of transportation across plasma membrane and cell organelles
3. Students after completion of this course are expected to know different cellular organelles and their functions, cell cycle regulations, and recalling the postulates of cell theory and molecular machineries of living cells.
4. Deciphering the knowledge and understanding the mechanism of cell division and its regulation

ZOOL C 103 Biosystematics, Conservation Biology, Evolution and Ecology

Course Learning Outcomes:

1. Students expected to get the basic idea about classical and modern taxonomic approaches, Biodiversity and conservation of bio-resources, makes student aware about the evolutionary process and various components of ecosystem and their importance
2. The course will help the students in understanding the chemical composition of different matrices of the environment and interaction between them
3. Students after completion of this course are expected to get a holistic understanding of taxonomy, inculcate the value of natural environment and develop compassion toward bio-resources.
4. Students are also expected to know the principle of evolutionary process and its application

ZOOL C 104 Biochemistry

Course Learning Outcomes:

1. Students are expected to have basic idea about structure, and function of macro-molecules such as carbohydrates, proteins, lipids and steroids with their level of organisations
2. The papers also focus on metabolism of Bio-molecules, basic idea about enzyme, its kinetics and regulation.
3. Students after completion of this course are expected to aware about different bio-molecules, their biological functions, information relating to metabolism of bio molecules and role of enzymes in cellular metabolism.
4. Accumulating knowledge on various metabolic processes involved in synthesis and degradation of macro-biomolecules maintain Homeostasis.

ZOOL C 201 Biology of Chordates

Course Learning Outcomes:

1. Diversity, important physiological processes emphasizing the attributes functional anatomical structures associated with chordates taxa will be studied
2. Understand and interpret general evolutionary relationship and their significance among animal groups
3. Evaluate the significance of specific structures and physiological life processes of taxa for survival in the context of its environment.
4. Utilise information to understand inter-relationship between taxa and definite mechanism for survival

ZOOL C 202 Molecular Biology

Course Learning Outcomes:

1. Understand the comprehensive idea about the structure and function of nucleic acid and regulations of gene expression.
2. Introducing the general concepts of central dogma of molecular biology
3. Students after attending the course will understand role of bio-molecule involved in control and expression of genetic information and gene regulation at the level of transcription and translation in a better way.
4. Recollecting and understanding the basic phenomenon of flow of genetic information at molecular level as the basis of life sustaining processes of living beings

ZOOL C 203 Physiology, Endocrinology and Histology

Course Learning Outcomes:

1. Students after completion of this course are expected to learn basic histological features of important organ.
2. To understand the role of physiological processes and hormones involved in maintaining homeostasis.
3. To learn the basic idea about various physiological processes, endocrine system and basic aspect of Histology.
4. Understand inter-relationship of life processes and apply information to understand the functioning of organism

ZOOL C 204 Ethology, Applied Ecology, and Microbiology

Course Learning Outcomes:

1. Students after completion of this course are expected to learn social organisation and their activities.
2. To understand about the importance of animals, pollution and its causative agents, bacterial and viral diversity, their genetics and their implication
3. To provide basic idea about different aspects of animal behaviour, applied ecology and microbial world.
4. The mechanism of virus transmission in human health can be interpreted for its control measures and therapy

ZOOL VAC 206 Bioinformatics, Biosafety and Bioethics

Course Learning Outcomes:

1. To provide theory and practical experience to analyze different biological data using common computational tools and databases which facilitate

investigation of molecular biology and evolution-related concepts in Bioinformatics.

2. To educate students about the fundamental concepts of bioprocess technology and its related applications, thus preparing them to meet the challenges of the new and emerging areas of biotechnology industry.
3. Student should be able to develop an understanding of basic theory of these computational tools; to gain working knowledge of these computational tools and methods; appreciate their relevance for investigating specific contemporary biological questions and to critically analyse and interpret results of their study.
4. Students should be able to appreciate relevance of microorganisms from industrial context; to carry out stoichiometric calculations and specify models of their growth; to give an account of design and operations of various fermenters; to calculate yield and production rates in a biological production process, and also interpret data etc.

ZOOL C 301 Immunology and Histochemistry

Course Learning Outcomes:

1. To provide comprehensive idea about human immunology with special emphasis on the types of immunity and immune cells, maturation and activation of B and T-cells, antibody diversity and interaction with antigens.
2. The paper also deals with Histochemical techniques and other activities of immune system
3. Students after completion of this course are expected to know in details about human immune system and mechanism of immunity.
4. The histochemical technique shall help the students in development of their research skills

ZOOL C 302 Research Methodology

Course Learning Outcomes:

1. Students who come this course will be able to understand and comprehend the basics in research methodology and applying them in research or project work.
2. To evaluate programs and services, reference evaluation, information literacy assessment, historical research and action research .
3. Student will be able to identify research problems, collect data and prepare suitable data for research

4. To provide necessary knowledge to undertake better research and conceivably become successful career researcher.

ZOOL E-303(A) Bioinstrumentation and Biostatistics

Course Learning Outcomes:

1. To provide comprehensive idea about human immunology with special emphasis on the types of immunity and immune cells, maturation and activation of B and T-cells, antibody diversity and interaction with antigens.
2. The paper also deals with Histochemical techniques and other activities of immune system
3. Students after completion of this course are expected to know in details about human immune system and mechanism of immunity.
4. The histochemical technique shall help the students in development of their research skills

ZOOL E-303(B) Entomology

Course Learning Outcomes:

1. To enable the students to get acquainted with origin and classification of insects. It also give insight to commercial entomology, public health entomology, house hold pest, Integrated Pest Management modules for various important crops.
2. They will also learn about the various management strategy especially ecofriendly means of control.
3. After the completion of the course the students will be acquainted with the different vectors, their characteristics and process of transmission and infection
4. The students will also learn about the management techniques of different vectors. Further, the students will also be acquainted with the different means of insect-pest management. They will also learn about the different application techniques of insecticides, and its management.

ZOOL E-304(A) Microbial ecology and Biotechnology

Course Learning Outcomes:

1. Know the basic concepts of microbial ecology such as biotic and abiotic factors, microbial interactions in metals etc.
2. Learn the establishment of symbiosis, some positive and negative interactions. Comprehend the various symbiotic interactions of microbes with plants, animals and other microbes.

3. Understand the microbial interactions in extreme habitats.
4. Know the detail concept of biotechnology process in microbes

ZOOL E-304(B) Conservation Biology

Course Learning Outcomes:

1. To learn basic idea on Biodiversity, measuring biodiversity, international and national efforts, molecular phylogeny and
2. To understand different conservation measures to conserve biodiversity.
3. Students after completion of this course are expected to get a holistic understanding on biodiversity and its importance, phylogeny,
4. Inculcate the value of bio-resources and develop compassion toward bio-resources

ZOOL C 401 Cytogenetics, Stress Physiology and Metabolic disorders

Course Learning Outcomes:

1. To learn advanced knowledge on cytogenetics, stress physiology and metabolic disorders.
2. Students are expected to learn differences aspects of genomic analysis, meiotic abnormalities, different sex linked diseases and in situ techniques.
3. Also, the course will help students in understanding the physiology of stress and various metabolic disorders
4. To understand the genetic diseases ,human nutrition and its associated hazards

ZOOL C 402 Developmental Biology and Radiation Biology

Course Learning Outcomes:

1. The main objective of Developmental Biology course is make student understand the patterns and process of embryonic development, body plan, fate map, induction, competence, regulative and mosaic development,
2. To understand the Molecular and Genetic approach for the study of developing embryo which is not necessarily shared with any other disciplines in the biological sciences.
3. This paper also deal with Radiation Biology with special emphasis on different radiation sources, its health impact, use of radiation in controlling pest and its role in inherited diseases.
4. Students are expected to lean the basic principle and process of developmental biology and Radiation Biology and able to make themselves aware to deleterious effects radiation too

ZOOL E 403(A) Environmental Toxicology, Pollution and EIA

Course Learning Outcomes:

1. Understand and minimize the usage of heavy metals in our environment, differentiate between different type of toxins and bioassay tests.
2. Understand the importance of EIA studies and the role of individuals in reducing the impact of Anthropogenic stressors.
3. Know the impact of various projects on the environment.
4. Understand the need for waste water treatment plants and reuse of treated water.

ZOOL E 403(B) Applied Biology**Course Learning Outcomes:**

1. To learn about human gene mapping, cell culture, transgenic, nano-technology, nano-particles and their application in drug delivery.
2. To understand ecotechnology and Molecular techniques.
3. Students after reading this course are expected to have knowledge orient towards industrial microbiology for self entrepreneurship development and application of nano-science in biological research.
4. Further, it will enhance the students ability in various ecotechnological entrepreneurship skills and advance molecular tools techniques

ZOOL E 404(A) Parasitology**Course Learning Outcomes:**

1. To learn an overview of biological basis of parasitic lifestyles including host responses and parasite evasion of host defense mechanisms.
2. The students are exposed to parasites that not only infect humans but also those of plants and animals.
3. It emphasizes on the evolutionary aspect of host-pathogen interactions leading to host specificity.
4. The students learn about transmission, epidemiology, diagnosis, clinical manifestations, pathology, treatment and control of major parasites.

5. To learn and assimilate the classroom knowledge for applied aspects of parasitology and public health.

ZOOL E 404(B) Epigenetics

Course Learning Outcomes:

1. To understand about comprehensive idea about epigenetic and its mechanism, and cancer cells biology
2. The students are expected to learn epigenetic related disorders and their consequences, differences aspects of cell transformation from normal to cancer cells, different proteins and genes involved in different types of cancers, and treatment.
3. To learn the recent researches related to the cancer and its treatment .

ZOOL D 405 Project, Dissertation and Viva-Voce

Course Learning Outcome-

1. To develop research aptitude, scientific temper and critical analysis among students.
2. Students are expected to gain the basic skill in project handling and writing of their project report.

DEPARTMENT OF POLITICAL SCIENCE

**GOVERNMENT AUTONOMOUS COLLEGE, PHULBANI,
KANDHAMAL**

Model Curriculum for Three/Four Year Degree Course (With Multiple Entry /Exit Option)

Based on NEP-2020

UG Programme Objectives & Outcomes

ABOUT THE PROGRAMME OBJECTIVES AND OUTCOMES

We as human beings are all political. In recent past, the understanding of Political Science has changed. There was a time, when Political Science used to be understood in terms of State and Government. The definition of Political Science has changed with the gradual progress of society. The purpose of the course in Political Science at B.A. level is to make the students aware about the importance of their association with the state and also to expose them to the global political affairs in order to make them best suitable for various competitive examinations. Political Science explores the concerns and issues that animate public life. Using both humanistic and scientific approaches, it studies how political communities attempt to reconcile the conflicting claims of justice, power, liberty, and authority. Drawing on history, law, economics, psychology, sociology, and philosophy, Political Science is a broadly based social science that shares the traditional aims of liberal arts and education while attempting to come to grips with the major public issues of our time.

B.A. in Political Science with Learning Outcomes aims at offering a general framework within which Political Science teaching may be organized. It serves the twin goals of responding to the needs of students to grow as competent, self-reflective learners with relevant academic and professional skills while at the same time prepare them as contributors to the growing discipline. This framework is intended to help maintaining the standards of teaching, its periodic review against graduate attributes, qualification descriptors, program learning outcomes and course level learning outcomes. It is viewed in the spirit of innovation in teaching-learning process and adopted according to local conditions, regional priorities, national and global needs along with the availability of the expertise.

Looking at the diversity and complexity of the subject and diversified students' background along with subject dynamism, the curriculum is developed considering various aspects such as: -

- Entry level expectations of students coming from various Board of examination (CBSE/ICSE/CHSE/State Boards) and their socio-economic background
- General expectations from a three-year undergraduate honours training.
- The changing profile of undergraduate students

Keeping the above aspect in mind the learning objectives and outcomes have been adapted to the local, regional and linguistic diversities with the changing academic scenario and conditions. Further, the learning objectives and outcomes have been framed with a projected scope on the basis of the extent of academic facilities available (e.g. availability of faculty and their expertise, resources and opportunities for field training).

Nature and Extent of the Programme:

The programme is designed in such a way that students have the option to exit even after one year completion of the course. If a student completes one year, she is entitled to get a certificate; after completion of two years, she is entitled for a diploma certificate. Similarly, in case of three year and four year course, the students have

multiple choices. We have explained the structure of the syllabus in detail in the following pages. Each semester is for 16 weeks. There are two reading lists. First one contains most important essential reading list, while a relatively long list of reference books for additional information is included in the second list. We have also tried to provide links of E resources particularly from reliable Government sources. At the end of the syllabus, we have suggested activities to be done while reading any particular paper.

Programme Objectives (PO: Four Year Course):

PO-1: The four-year Political Science syllabus at Higher Education of Odisha aims to instructs the students to demonstrate a systematic, extensive and coherent knowledge and understanding of Political Science as a subject as a whole and its applications and links to disciplinary areas of the study; including critical understanding of the established theories, principles and concepts of a number of advanced and emerging issues in the field of Political Science.

PO-2: Develop knowledge of theories, concepts, and research methods in humanities and social sciences and apply them in the subject of Political Science

PO-3: To assess how global, national and regional developments affect society and to theorize these experiences

PO-4: To train the students with a unique multidisciplinary approach in social sciences and prepares them for further academic study and for careers in the public and the private sector.

PO 5: To train the students applying subject knowledge for sustainable development practices and other areas where the knowledge of Political Science is used in the field.

Programme Outcomes (PSO):

The student graduating with the Degree in B.A (Honours) in Political Science should be able to acquire

PSO1: Core competency: Students will acquire core competency in the subject Political Science, and in allied subject areas with a systematic and coherent understanding of the fundamental concepts in Political Science and all other related arts and humanities. Students will be able to demonstrate the new techniques and methods of their area of specialization in Political Science.

PSO2: Interdisciplinary knowledge and skill: A graduate student is expected to be capable of demonstrating comprehensive knowledge and understanding of in various fields of Political Science.

PSO3: Skilled Communicator: The course curriculum incorporates basics and advanced training in order to make a graduate student capable of expressing the subject through technical writing as well as through oral presentation.

PSO4: Critical Thinker and Problem Solver: The course curriculum also includes components that can be helpful to graduate students to develop critical thinking ability by way of solving problems/numerical using basic Political Science knowledge and concepts.

PSO5: Sense of inquiry: The course curriculum will develop an inquisitive characteristic among the students to write clearly and with purpose on issues of international and domestic politics and public policy; participate as a engaged member of society with a civic sense; Analyse political and policy problems and formulate policy options.

PSO6: Team player: The course curriculum has been designed to provide opportunity to act as team player by contributing in field-based research. Apply quantitative problem-solving skills to social questions in a scientific way.

PSO7: Skilled Project Manager: The course curriculum has been designed in such a manner as to enable a graduate student to become a skilled project manager by acquiring knowledge about modern social science research including competency in statistics and qualitative analysis.

PSO8: Digital literacy: The course curriculum has been so designed to impart a good working knowledge in understanding and carrying out data analysis, use of library search tools, and use of Statistical software's like SPSS, R and related computational work.

GRADUATE ATTRIBUTES IN POLITICAL SCIENCE

Attributes of Political Science graduates under the outcome-based teaching-learning framework may encompass the following:

- **Core Competency:** Political Science graduates are expected to know the fundamental concepts of Political Science. These fundamental concepts would reflect the latest understanding of the field, and therefore, are dynamic in nature and require frequent and time-bound revisions.
- **Communication Skills:** Political Science graduates are expected to possess minimum standards of communication skills expected of a graduate in the country. They are expected to read and understand documents with in-depth analyses and logical arguments. Graduates are expected to be well-versed in speaking and communicating their ideas/findings/concepts to a wider audience.
- **Critical Thinking:** Political Science graduates are expected to know the basics of cognitive biases, mental models, logical fallacies, scientific methodology and constructing cogent scientific arguments.
- **Psychological Skills:** Political Science Graduates are expected to possess basic psychological skills required to face the world at large, as well as the skills to deal with individuals and students of various socio cultural, economic and educational levels. Psychological skills may include feedback loops, self-compassion, self-reflection, goal-setting, interpersonal relationships, and emotional management.
- **Problem-solving:** Political Science Graduates are expected to be equipped with problem-solving philosophical approaches that are pertinent across the disciplines.
- **Analytical reasoning:** Political Science Graduates are expected to acquire formulate persuasive arguments and spot logical flaws, inconsistencies, circular reasoning etc.
- **Research Skills:** Political Science Graduates are expected to be keenly observant about what is going on in the natural surroundings to awake their curiosity. Political Science Graduates are expected to carryout research in contemporary issues of global and national politics.
- **Teamwork:** Political Science Graduates are expected to be team players, with productive cooperations involving members from diverse socio-cultural backgrounds.
- **Digital Literacy:** Political Science Graduates are expected to be digitally literate and increase their core competency via e-learning resources such as MOOC and other digital tools for lifelong learning. Political Science Graduates should be able to spot data fabrication and fake news by applying rational scepticism and analytical reasoning.
- **Moral and Ethical Awareness:** Political Science Graduates are expected to be responsible citizen of India and be aware of moral and ethical baseline of the country and the world. They are expected to define their core ethical virtues good enough to distinguish what construes as illegal and crime as per the laws of the country. Emphasis be given on academic and research ethics, including fair Benefit Sharing, Plagiarism, Scientific Misconduct and so on.
- **Leadership Readiness:** Political Science Graduates are expected to be familiar with decision making process and basic managerial skills to become a better leader. Skills may include defining objectives, vision and mission and how to become charismatic inspiring leader and so on.

Semester-I
Core I (Major Paper -I)
Fundamentals Of Political Science

Course Objectives

This course will familiarize students with the basic normative concepts in political theory and encourage them to understand how these concepts manifest in social practices. The course will also help students learn how we make use of these concepts in organizing our social living. The main objective is to project the plural, interdisciplinary orientation of political theory and to emphasise its deep engagement with the political process.

Expected Learning Outcomes

The course would provide students with a rudimentary understanding of political concepts, theories, and their application in contemporary society and their interplay with societal and economic factors. The unit-wise outcomes are given below.

Unit-I: Upon completion of this Unit, students will have acquired a comprehensive understanding of the multifaceted nature of politics, its theoretical underpinnings across disciplines, and its intricate interplay with societal and economic spheres.

Unit-II: After completing this Unit, student's understanding on the state as a political entity will be deepened and students would be able to critically examine its relationship with sovereignty, governing structures, and the multifaceted challenges posed by globalization.

Unit-III: Upon completion of Unit III, students will be able to critically analyse and synthesize the intricate concepts of power, authority, and legitimacy, as well as the interrelated notions of rights, freedoms, equality, and justice, thereby enabling them to comprehend the theoretical underpinnings that shape socio political constructs and inform discourse on contemporary issues.

Unit-IV: Upon completion of this Unit, students would have developed a nuanced and multidimensional understanding of democracy along with its models, and the critical roles played by pluralism and diversity in shaping democratic ideals, practices, and discourse. This will deepen democratic values among students.

Core II (Major Paper - II & Minor Paper – I)

Introduction To The Constitution Of India

Course Objectives:

This course introduces students to the Constitution of India – the supreme law of the land. The primary objective of this course is to provide students with a comprehensive understanding of the constitutional framework and political institutions in India. Through a critical examination of the constitutional design, the learners will explore the foundational principles of the Indian Constitution. By tracing the historical contestations surrounding the incorporation of these values into the Constitution and their practical manifestations, learners will develop an appreciation for the intricate interplay between institutional practices and political contexts. Furthermore, the course aims to cultivate an understanding of the institutional dynamics within the Indian governance matrix, characterized by both conflict and cooperation, asymmetrical federal arrangements, and mechanisms for safeguarding vulnerable populations against discrimination. Additionally, students will gain insight into the powers and functions of key governmental figures such as the President, Prime Minister, and Chief Minister and other constitutional and non-constitutional bodies, while also delving into the intricacies of Union-State relations.

Expected Learning Outcomes:

This course endeavours to equip students with the necessary knowledge and analytical tools to engage critically with the constitutional structures and processes that underpin Indian democracy. The unit-wise outcomes are given below.

Unit-I: The learners would gain basic understanding of Indian Constitution and its underlying values. This would enable them to analyse the operation of the Constitution of India from a policy perspective, and in the context of social and cultural diversity. This would strengthen the foundation of constitutional ethics among the learners.

Unit-II: The learners would develop awareness regarding the basic structures and processes of government at both union and state levels with a specific focus on power and responsibilities of highest constitutional dignitaries. This will help them to acquire administrative skills and political insights for engaging in various institutions.

Unit-III: The learners would be familiar with the judicial structures and procedures in India. Further, the awareness about Writs, Judicial Review, PIL, Basic Structure Doctrine would enable them to develop an understanding about their rights and entitlements as citizens and methods to secure these within the legal framework, in case of violation.

Unit-IV: The learners would understand the division of power between Union and States with focus on different constitutional bodies. This would enable them to understand and analyse the manner in which the Indian federal system functions.

SEMESTER II

Core III (Major Paper – III)

Introduction To Political Theory

Course Objectives:

The course seeks to foster a comprehensive and nuanced understanding of political theory, its significance within the discipline of Political Science, and its profound influence on conceptualizing and interpreting various facets of social life. Through a critical examination of influential traditions and perspectives, students will gain insights into how theoretical frameworks shape debates and discourses on socio political issues. Furthermore, the course aims to equip learners with the ability to critically analyse and deconstruct contemporary theories and perspectives that delve into the intricate interplay between politics and social constructs. It begins with an overview of why we study political theory and what are the approaches and forms of political theory. It then proceeds to elaborate in a detailed manner on the key concepts in political theory such as 'Liberty', 'Equality', 'Rights', 'Justice', 'Democracy'. It will also focus on recent trends of Political Theory. Each concept is explained through the thoughts and writings of noted theorists who have deliberated at length on that particular issue with emphasis given on readings of original writings.

Expected Learning Outcomes:

This course aims to cultivate a sophisticated understanding of the theoretical foundations that inform and shape the ever-evolving political landscape. The unit-wise outcomes are given below.

Unit-I: This unit familiarises the students with the basic concepts of political theory, how political theory has evolved as well as the nature of political theory. It also introduces the students to the normative and empirical dimensions of political theory. The necessity of values and the importance of empirical investigation in the theory building exercise is the primary objective of this unit. This unit also makes an attempt to explain how modernity influenced the theory building exercise and how it reshaped some of the important debates on politics and society.

Unit-II: This unit makes an attempt to study important traditions in political theory. These traditions influence our political decisions. Even since the evolution of industrial revolution, nation state, political questions and debates have revolved round the concepts of liberalism and Marxism. Students will be exposed to various debates in each of these traditions and their importance in the present-day context.

Unit-III: Political theory, fifty years back, was only concerned about liberalism and Marxism. Of late, with the advancement of society and our understanding of society, new ideas have emerged. They have expanded the horizon of political theory. New theories have evolved and they have thrown new challenges to the society. Modernity encouraged societies to engage in theory building exercise. The emergence of post modernity challenged the grand narratives and encouraged all of us to have micro perspective and challenge everything as modern. Similarly, new theories emerged challenging the existing power structure of the state and society. The understanding of a monocultural society has also changed with people shifting their choice of living from one country to another country. This unit promises to throw many interesting ideas to the students of political science.

Unit-IV: This unit makes an attempt to understand some of the important political ideas within the nation state framework. Once nation state is strongly established, it is important to understand the political concepts in detail. Even though concepts like citizenship and civil society are old yet these concepts need some sort of redefinition in the modern context. Similarly, the emergence of welfare state in a political system also has reinforced its presence in the modern context. A student of Political Science needs to take concepts like welfare state and swaraj seriously as it throws many new challenges to the already existing political ideas.

Core IV (Major Paper – IV)

Comparative Governments

Course Objectives:

This course will familiarize the students with the basic concepts and approaches to the study of comparative governments. It enables the students to critically examine politics in historical and contemporary perspectives while engaging with various themes of comparative analysis in developed and developing countries. This course is designed to address the various elements of constitutional systems in the world including political parties, interest groups, election process, in addition to an analysis of the dominant executive, legislature and judicial systems all over the world.

Expected Learning Outcomes:

This course would enable the students to understand concepts and various approaches relevant to the study of comparative politics. The students would familiarise with a vast range of relevant political concepts and processes supposed to train their critical thinking to understand comparative politics and government. The unit-wise outcomes are given below.

Unit-I: This will help students to engage with the topics of comparative government, institutionalism, neo-institutionalism, and the comparison of democratic and authoritarian regimes in a comprehensive and critical manner.

Unit-II: This unit will aware students about a structured framework for engaging with the concepts, theories, and empirical research associated with comparative government, institutionalism, neo-institutionalism, and the comparison of democratic and authoritarian regimes.

Unit-III: This unit will help students in developing a comprehending skill on the working of legislatures, the executive branch, and bureaucracies in political systems, including their structures, functions, and dynamics in both democratic and authoritarian states.

Unit-IV: This unit will enhance the analogical capacities and critical thinking about elections, political parties, and interest groups in political systems, including their roles, dynamics, and implications for democratic governance in both democratic and authoritarian contexts.

Semester-III

Core V (Major Paper- V & Minor Paper II)

Colonialism And Nationalism In India

Course Objectives:

The purpose of this course is to help the students understand India's colonial past, the shaping of the nationalist ideology and the unfolding of the national movement. Integral to the course is understanding the ideas of democracy and freedom along with corresponding social relations as well as political and institutional practices that took shape in the context of the anti-colonial struggles. The institutions of the state, its policies, and the social and economic structures that exist today, reflect the imprint of the colonial experience and the manner in which they have been transformed in the course of social struggles and the national movement.

Expected Learning Outcomes:

This course will enable the learners to understand India's colonial history and shaping of its identity as a nation. The students would be well versed with the major streams of socio-political thought as well as socio-political and religious reform movements which contributed to our nation building. The unit-wise outcomes are given below.

Unit-I: This unit will give the students a conceptual understanding of colonialism from different perspectives as well as an analysis of Indian nationalism through various approaches.

Unit-II: This unit help the students to develop a critical understanding of colonial ideology and its civilizing mission based on an assertion of cultural superiority. It will also help the students to assess the various impacts of colonialism on society, economy, polity and agrarian structure.

Unit-III: This unit will give an understanding about various reform movements as well as various types of resistance during the first century of British rule in India.

Unit-IV: This unit will help the students will learn about the historical context in which the nationalist movement emerged in India and took different forms in subsequent periods. It will also provide a broad understanding about the role, ideologies and contributions of great nationalist leaders and organisations in nationalist struggle till the achievement of independence.

Core VI

International Relations

Course Objectives:

This paper seeks to equip students with the basic intellectual tools for understanding International Relations and its major theories. The course begins by historically contextualizing the evolution of the international state system before discussing the agency-structure problem through the levels-of- analysis approach. After having set the parameters of the debate, students are introduced to different theories in International Relations. It provides a fairly comprehensive overview of the major political developments and events starting from the twentieth century. Students are expected to learn the economic relation between developed and under developed nations and emerging world order after globalization.

Expected Learning Outcome:

This course would enable the learners to understand the international relations and major theories. Also, this course would make students aware about major political and historical phenomenon occurred in 20th century which have shaped the International Relations. The unit-wise outcomes are given below.

Unit-I: This unit would provide fundamental ideas to the students about International Relations & evolution of state system with reference to pre- Westphalia, Westphalia& post- Westphalia.

Unit-II: This unit would help the students to familiarise with the basic theoretical perspectives of International Relations.

Unit-III: This unit would make students understand about the causes & consequence of World War I & II. It also makes the students understand about the creation of League of Nation and UNO and the formation of former USSR, Fascism & Nazism.

Unit-IV: This unit would familiarise the students with different dimensions of Cold War & the contemporary ideas like the third world, new economic world order, north- south co-operation, development & under-development, globalisation & emerging world order.

Core VII

Western Political Thought-I

Course Objectives:

This course deals with the classical thinkers and themes of western political philosophy. It will probe the key concerns of political thought such as the good ideal and possible regimes; citizenship and civil virtues; contract, consent and trust as the alternative bases of political obligation; the relative autonomy of politics vis-à-vis philosophy or economy; and concepts such as justice, liberty, and rights. There will be an attempt to understand thinkers and texts both from philosophical and historical perspectives. The main objective is to train students in the foundational texts and thinkers of Political Science.

Expected Learning Outcomes:

The course will familiarize students with the questions, ideas and values of political philosophy addressed by political thinkers and contextualize the same to contemporary political thinking. This will enhance their comprehending and analytical capacities to read and decode the classics and use them to engage contemporary socio-political issues and clearly present their own arguments and thoughts about contemporary issues and develop ideas to engage with the latter. The unit-wise outcomes are given below.

Unit-I: Students would gain comprehensive understanding of the foundational ideas and frameworks proposed by the seminal thinkers of ancient Greece. Thus, students could make an appraisal of the enduring influence of these pioneering thinkers on subsequent political discourse and the evolution of socio-political ideologies.

Unit-II: Upon completion of this Unit, students will be able to critically examine the transformative ideas that emerged during this pivotal period in intellectual history. Through the exploration of Renaissance and early modern political thought, students will gain insights into the paradigm shifts that reshaped the understanding of power, authority, and the role of the state, laying the foundations for subsequent political philosophies and ideologies. This will enable them to connect with historically written texts and their interpretations.

Unit-III: Through this Unit students will gain a nuanced understanding of the tension between individualistic and collectivist ideologies, and would develop a critical thinking in assessing the impact of social contract theories on shaping subsequent political discourse, governance structures, and societal norms.

Unit-IV: Through this exploration of utilitarian thought, students will gain a comprehensive understanding of the principles underlying this utilitarianism, its potential applications in governance and policymaking, as well as its limitations and criticisms.

Core VIII

Semester-IV

Indian Politics

Course Objectives:

The course adopts a historical-analytical framework to foster a critical understanding of the Constitutional design and governmental institutional framework in India, along with the insight on the changing nature of state, situating them within historical political processes. It seeks to acquaint students with the multifaceted manifestations of politics in India, examining the diverse mechanisms through which power is wielded and distributed across societal dimensions of caste, class, ethnicity, gender, region, language, and religion. It aims at elucidating how social power shapes and mediates the political processes. Learners would explore the interplay between caste, religion, and politics, as well as constitutional provisions for self-governance, autonomy, and development, particularly for tribal communities under the Fifth and Sixth Schedules. The course also elucidates the legal and constitutional mechanisms aimed at empowering the marginalized groups. Further, the course delves into the complex interplay between political parties, electoral systems, and governance structures in India's democratic landscape to render useful insights on the dynamics of Indian Politics.

Expected Learning Outcomes:

The course would develop among students a critical and comprehensive understanding of India's nation-building process, identity politics, political parties, and electoral process. This would enable them to analyse state policies, socio-political contexts, and democratic participation across diverse segments of Indian society. The unit-wise course outcome is given below.

Unit-I: The learners would be familiarised with the process of nation building and the changing dynamics of state in terms of policy intervention for vulnerable groups. Further, the complex understanding of the social cleavages would enable them to critically assess state's response within the broader socio-political context of India.

Unit-II: The learners would develop awareness on different social groups like caste, tribe, gender, their sense of self, persistence, and demand for recognition in the broader socio-political and historical contexts in India. Further, the complex understanding of identity politics, constitutional safeguards, issues of privileges, discrimination, mobilisation, and politicization in the context of these sections of the society would enable them to develop insights for policy formulation and identify gaps in effective policy making.

Unit-III: The learners would gain comprehensive understanding of the debates surrounding secularism, communalism, minority rights, regionalism, language diversity and demand for separate statehood. This will

enable them to critically analyse the dynamics of Indian politics and the interplay of these identities in shaping the political process in India. This will harness their domain skills for future engagement in the public sector.

Unit-IV: The learners would demonstrate knowledge of political parties and party system in India. The awareness of the manner in which representation and electoral competition play out in Indian politics will enable them to evolve critical insights on voting behaviour and democratic participation of different segments of the population.

Core IX

Western Political Thought-II

Course Objectives: In continuation with the first course of Western Political Thought the structure of this course is designed in such a way as to enable the students to understand the continuity in Western Political Thought. This paper focuses on thinkers and themes of western political philosophy of the medieval and modern periods. An attempt has been made to understand thinkers and texts both from philosophical and historical perspective. The main objective is to train students in the foundational texts and thinkers of western political philosophy. Taking forward from the earlier thinkers belonging to Western Political Thought, this course highlights the modern advances in political philosophies ranging from socialism, critical theory, feminism, and so on.

Expected Learning Outcome: After going through the seminal and perennial ideas of the political thinkers, the learners would be able to understand various political ideas and constructs influencing and shaping the society. They would be informed about the key debates across different streams of political thought. The unit-wise outcomes are given below.

Unit-I: This unit analyses the contribution of Hegel and Karl Marx to ideas related to state, dialectic process, freedom, history, class, exploitation, and revolution.

Unit - II: This unit explains about the critical theory with the contributions of Gramsci and Jurgen Habermas.

Unit-III: This unit broadly discusses about the role of Marry Wollstonecraft and Carole Pateman in the development of Feminism.

Unit-IV: This unit will give an understanding related to the concepts of John Rawls and Michel Foucault

Core X

Public Administration

Course Objectives:

This course aims at familiarizing the learners with the foundation of Public Administration as a discipline and identifying its core concepts and theories. In addition to a conceptual understanding of public administration, this course will enable the learners to analyze various administrative theories and identify the key principles of organization. Highlighting the advantages and disadvantages of these principles may help the learners to contextualize the administrative system in the present system of governance and note the changes in application of such principles in Indian administrative system. The learners will also be introduced to the concepts of Good Governance, New Public Management, and New Public Administration as the developments in the discipline to meet the changing demands of society. Through the study of traditional binaries- such as politics-administration dichotomy, public-private administration, along with the emerging issues of public-private partnership, the ideas of e-Governance, and changing role of state and market will enable the students to note the changes in objectives and processes of administration. Further, the students will have an understanding of the structure and processes of civil service system in India.

Expected Learning Outcomes:

The course will equip the students with theoretical understanding of the core principles of public administration as well as enable them in examining the practical functioning of the administrative system in India. The topics are divided into four units with each unit dealing with a unique aspect of the discipline of public administration.

Unit-I: The learners will be introduced to the origin and evolution of the discipline of public administration. This unit will discuss the debates over politics-administration dichotomy and help the learners identify the different characteristics of public and private administration. By noting the various interventions in the discipline, the learners will be able to reflect on the changing goals of administration through different periods.

Unit-II: This unit is designed to familiarize the learners with the core principles of organization and enable them to differentiate between different types of organization. The learners will be able to understand the significance of principles like hierarchy, unity of command, delegation, etc. while noting their advantages and disadvantages.

Unit-III: This unit will offer alternative models of organizational management through analysis of dominant organizational theories. An understanding of these theories will enable the learners to evaluate the effectiveness of current structural and procedural principles and deliberate on alternative solutions to meet the contemporary challenges.

Unit-IV: After going through this unit, the learners will have a basic understanding of the prevailing administrative system in India. By studying the recruitment and training procedures of civil servants, and steps to incorporate ethics in Indian administrative system, the learners will gain insights into the working of bureaucratic system in India. The learners will also be encouraged to deliberate on the emerging issues and challenges in governance in India.

Core XI

Semester-V

Global Politics

Course Objectives: This course introduces students to the key debates on the meaning and nature of globalization by addressing its political, economic, social, cultural and technological dimensions. In keeping with the most important debates within the globalization discourse, it imparts an understanding of the working of the world economy, its anchors and resistances offered by global social movements while analysing the changing nature of relationship between the state and trans- national actors and networks. The course also offers insights into key contemporary global issues such as the proliferation of nuclear weapons, ecological issues, international terrorism, and human security before concluding with a debate on the phenomenon of global governance.

Expected Learning Outcomes:

The course intends to equip students with a comprehensive understanding of contemporary global issues, fostering critical thinking skills and analytical capabilities essential for engaging with complex international dynamics and contributing to informed decision-making in global contexts.

Unit -I: Learners would gain a comprehensive understanding of international relations, global power dynamics, and the political debates surrounding sovereignty and territoriality and the various factors influencing global political processes.

Unit-II: Learners would develop insights on cultural diversity and its impact on global interactions and conflicts and how technological advancements influence political, economic, and social structures globally.

Unit-III: This unit will aware learners about the objectives and provisions of the NPT (Non-Proliferation Treaty) and CTBT (Comprehensive Nuclear-Test-Ban Treaty) and the impact of these treaties on global security and nuclear disarmament. This would also enable learners to understand the causes, types, and impacts of international terrorism.

Unit- IV: This unit would expand learners' knowledge about the goals related to food security and poverty alleviation within the SDG framework and the objectives and outcomes of major climate summits (e.g., COP

meetings) and principles and practices of managing epidemics and natural disasters as well as strategies for preparedness, response, and recovery in the face of epidemics and natural disasters.

Core XII

Comparative Politics

Course Objectives:

This course aims to familiarise students with basic concepts, methods and scope of comparative politics, different approaches with their strengths and weaknesses. The objective is to provide a deeper understanding of structures and functions of institutions in a comparative perspective. The course will examine politics in a historical framework while engaging with various themes of comparative analysis in developed and developing countries. The historical context of modern state, constitutional development and their political economy could be understood through an analysis of modern state and its processes of communication and culture.

Expected Learning Outcomes:

After the completion of the course, the learners will be able to understand the concept of comparative politics, different methods and approaches used to study comparative politics and also to evaluate some of the major policies in India. They would be aware about different development approaches and political regimes which distinguishes the political culture of developing countries from that of the developed countries. The unit-wise outcomes are given below.

Unit-I: This unit will aware the students about political systems, institutions, and their influence on behaviour, governance, and policy outcomes. It covers voting, public opinion, decision-making processes, rational choice theory, and the Interpretative Approach in comparative politics. Students will also learn about colonialism and decolonization, their historical, political, social, and cultural dynamics, and their significance in comparative politics.

Unit-II: The students can develop a comprehensive understanding of the modern nation-state in the Western context and its significance in comparative politics, including its political, economic, social, and cultural dimensions. Pupils can gain a thorough grasp of the Welfare State and its relevance in comparative politics, covering its evolution, challenges in the modern world, ideological underpinnings, historical antecedents, and policy implications. It helps the students to develop a comprehensive understanding of the state, ethnicity, nationalism, and nation-building in the developing world, including their historical roots, contemporary dynamics, and implications for governance, stability, and development.

Unit-III: The students may gain a comprehensive understanding of political culture, civic culture, political trust, social capital, post-materialism, and thesis of Huntington's clash of civilizations. This unit may enable the students to understand political communication, mass media's role in democratic societies, and media's influence on political attitudes and outcomes.

Unit-IV: This unit explores democratization, a process of regime transformation from authoritarian to democratic systems, analysing key features, drivers, and challenges, and identifying factors facilitating or hindering democratization. The students can develop a comprehensive understanding of the theoretical frameworks and debates surrounding development and under-development, and their implications for policies and practices aimed at promoting global development and social justice.

Core XIII

Indian Political Ideas-I

Course objective:

This course introduces the specific elements of Indian Political Thought spanning over two millennia. The basic focus of the study is on individual thinkers whose ideas are however framed by specific themes and within specific contexts. The course as a whole is meant to provide a sense of the broad streams of Indian thought while giving an understanding about specific knowledge of individual thinkers and texts. Selected extracts from some original texts are also given to discuss in class.

Expected Learning Outcome:

This course will enable students to gain a comprehensive understanding of the evolution of Indian political thought, its historical and contemporary relevance, and its role in shaping the socio-political landscape of the nation. This knowledge will enable them to critically engage with the complex and dynamic nature of Indian politics and contribute to the ongoing discourse on the country's democratic and developmental trajectories.

Unit-I: The students will be able to understand and evaluate the political ideas and theories of Manu including his social laws and Kautilya with a focus on his theory of the state and foreign policy

Unit-II: This unit would familiarize the students about the political ideas of Barani, particularly theory of kingship and Abul Fazal's ideas on monarchy, and will enable them to evaluate their contributions to the Indian political thought.

Unit-III: This unit will enhance the understanding of students on political and social ideas of Ram Mohan Roy and Pandita Ramabai and their contributions in the field of social reforms.

Unit-IV: This unit will enable students to critically analyse the ideas of spiritual nationalism and universalism of Vivekananda, and Savarkar's concept of Hindutva.

India's Foreign Policy**Course Objectives:**

This course has been designed to provide the students with critical insights into the different Determinants, the fundamental goals, and numerous dimensions of India's foreign policy. It engages in the areas of economic, political, diplomatic, and strategic relations with major powers like the USA, Russia, and China. It aims to highlight the need for promoting peace and stability in the South Asian countries. The ambition to become a global power can never be accomplished without having strong ties with the regional organizations. Further, India's presence in different regional organizations has not only strengthened its global presence, it has also enhanced diplomatic possibilities. To further enhance India's aim to pursue strategic autonomy, this course attempts to study India's foreign policy like SAARC, BIMSTEC, G20+, QUAD, SCO.

Expected Learning Outcomes: After completion of the course, students will be able to understand the foreign policy of India in the changing time, its relationship with major powers as well as its engagement with the neighbours and regional powers. The unit-wise outcomes are given below.

Unit-I: This unit would benefit the students by providing a background understanding about evolution of India's foreign policy & also about some pivotal factors that play a very significant role in formulation of India's foreign policy.

Unit-II: This unit would make the students understand about different dimension of India's relationship with the major powers.

Unit-III: This unit is meant to provide broad ideas to the students about India's relationship with prominent South Asian nations in the field of culture, trade & politics.

Unit-IV: This unit, with an emphasis on existence and relevance of important regional organisations, will help the students to understand the significant role of India in the global context in coordinating the member states.

Core XV

Government And Politics In Odisha

Course Objectives:

This course aims to provide students with a comprehensive understanding of the political landscape at the provincial level, focusing on the state of Odisha. By delving into the socio-political history of the region, including resistance movements for provincial autonomy, learners will grasp the contextual background shaping contemporary politics. The course attempts to study the political structure and process in Odisha, while reflecting on the role of CM in Odisha politics. Additionally, it seeks to analyze the growth and development of political parties, coalition politics, electoral trends in Odisha. The course investigates the intricate interplay of caste, class, gender, and tribe in Odisha's political arena to sharpen the understanding on inclusive development in the context of Odisha. Further, the course critically examines grassroot movements led by marginalized communities, offering insights into their agency within the political landscape of Odisha.

Expected Learning Outcomes:

The course intends to develop a nuanced understanding of political dynamics and political leadership in Odisha, fostering critical insights into its socio-economic fabric and governance paradigms which shape the discourse of development in Odisha. The unit-wise outcomes are given below.

Unit-I: This unit would help in developing a basic understanding of the demographic and economic profile of the state. Further, the awareness about the creation of Odisha as a separate province and other political movements in the pre-independence period would enable the learners to gain critical insights on political developments in Odisha in the post-independence period.

Unit-II: The understanding of political leadership along with the political parties, electoral trends and patterns, regionalism, coalition politics etc. would enable learners to critically analyze the political dynamics and political culture in Odisha.

Unit-III: The knowledge of social cleavages e.g., Class, Caste, Tribe and Gender and their role in shaping the larger spectrum of politics as well as state's response to the aspirations of people through various interventions and policy initiatives would develop learners' capacity to analyze socio-political factors and government's role on the path of inclusive development.

Unit-IV: This unit would enable the learners to understand the significance of people's movement in shaping the state politics. This will enable them to appreciate the engagement of people in the democratic framework and the role of dissent in preserving the voices from the margins. Further, it will equip them with insights to formulate policies catering to the needs and aspirations of every section of the society.

Contemporary Political Theory**Course Objectives:**

The time we live in is truly fascinating. Political theory is what we turn to in order to make sense of and possibly even alter our times. The ideas and guidelines we employ to analyse, interpret, and assess political events are laid forth in political theory. This course attempts to construct those political ideas which explain the problems of contemporary times and address those problems. First, it intends to make students aware of the political issues which emerge from the interaction between individual and community. Community and identity politics are two important aspects of political life. This course familiarizes students with political ideas in a community context. New forms of political communication have significantly affected societies. For example, impact of AI on political decisions, impact of technology in election management are something that traditional political actors like state and individual just cannot imagine. The course then proceeds to analyse the changing dimensions of freedom and justice in the context of a new technocratic society. Further, the issues of climate change and how it needs to be part of any theory building exercise is something that a student of political science should be aware of. Traditionally justice was seen as one of the most important aspects of any political study. However, justice was always understood in the context of the state. With large scale migration and the evolution of a global society, the traditional justice framework needs to change.

Expected Learning Outcome:

The course would enable students to clearly present their own arguments and thoughts about contemporary issues and develop ideas to engage with the latter. The unit-wise outcomes are given below.

Unit-I: The students will be able to understand, explain and analyse the dynamic interaction between individual and community and how different contesting political ideas are settled in a political system

Unit-II: This will cultivate analytical skills among students on new forms of communication and technological development affect the issues of freedom and justice.

Unit-III: The students will be able to explain emerging political issues like citizenship, pandemics in a global context

Unit-IV: The students will develop understanding on the framework of justice in a global perspective.

Core XVII

Research Methodology

Course Objectives:

This course establishes a foundational understanding of the fundamental concepts and methodologies integral to the study of research methodology. It helps to acquaint students with the basics of research methods, techniques, and approaches and to assist in the accomplishment of exploratory as well as result-oriented research studies. The students will be able to identify the research problem and start asking the right questions with the aim of improving their ability to make logical arguments. In addition to familiarizing the students to learn various research techniques (qualitative and quantitative), the course will also train the students in the process of writing various academic and popular writings.

Expected Learning Outcomes: This course would train the students in shaping and developing their research skills through a systematic learning framework. The unit-wise outcomes are given below.

Unit-I: This unit will give the students a basic understanding about research, its nature and characteristics, types as well as the relevance of research in general and social science research in particular.

Unit-II: After reading this unit, the students will learn about the basic components of a research such as identification of research area, Review of Literature, formulation of Hypothesis, variables etc. which are minimum requirement of any research.

Unit-III: This unit will introduce the students to the practical aspect of the research by making them familiar with sampling and its various types as well as various techniques of data collection.

Unit-IV: The students will develop their analytical skill when they engage in analysis of different types of data collected from both primary and secondary sources by using different tools like tabulation, graph charts etc. The students will also learn about Report Writing, Referencing Style and Citation Style that will be helpful during their higher studies.

Core XVIII

Public Policy And Governance In India

Course Objectives:

This course aims at providing a basic understanding of public policy, policy making process and institutions involved in public policy making in India. Public Policies reflect the objectives and directions of the government. An organized and integrated policy structure symbolizes an efficient and effective governance system. The learners will gain insights into the development of public policy as a major determinant of Governance, understand various theories and approaches towards policy making, identify different types and stages of public policy, and note the emerging trends and goals in public policy in current times. The course is designed to offer theoretical knowledge of policy process as well as a practical opportunity to apply the tools and models in analysis of a prevailing public policy.

Expected Learning Outcomes:

This course will enable the learners to analyse various approaches to policy making, examine the policy processes and also evaluate some of the major policies in India. The unit-wise outcomes are given below.

Unit-I: This unit dealing with an introduction to public policy, different approaches and theories in policy making will enable the learners to have a theoretical understanding of what and how of public policy. The learners will be able to locate the public policy mechanism within the overall governance system.

Unit-II: After going through this unit, the learners will have a comprehensive idea on policy cycle and various types of public policy. Identifying the processes involved at each stage, the learners should be able to examine the current policy structure and analyse different policies against an ideal policy making model.

Unit-III: This unit will highlight the agencies involved in process of policy formulation and implementation in India. The learners will assess the roles of various governmental and non-governmental agencies in public policy in India and identify the strengths and gaps in Indian governance system. Analytical tools like Cost-Benefit Analysis, SWOT analysis will strengthen critical and objective insights towards policy analysis.

Unit-IV: This unit is designed to offer the learners a practical experience in policy analysis. By the completion of the earlier units, the learners are expected to have sufficient theoretical knowledge to attempt analysis of a selected policy from given sectors. Through this unit, the learners will have the opportunity to apply the analytical tools and models in evaluating a policy under the guidance of a teacher. It will polish their analytical skills and prepare them for opportunities in industry and research organizations involving similar activities.

Core XIX

Indian Political Ideas-II

Course Objective:

This section of the Indian Political Traditions course aims to provide students with a comprehensive understanding of the dynamics and contemporary relevance of political thought and practices in India. This course aims to examine the evolution of Indian political thought in the modern era, focusing on key thinkers who have contributed to shaping India's political landscape. Through critical analysis of their ideas, students will gain insights into contemporary political debates and challenges facing Indian society.

Expected Learning Outcome:

This course will help the learners explore the ideas of the modern political thinkers whose ideas have shaped the modern India. They would also get insights on Odia nationalism, reforms in Odia society and socio-economic ideas propagated by eminent Odia political thinkers. The unit-wise outcomes are given below.

Unit-I: This unit evaluates and critically analyzes the political ideas and perspectives of Rabindranath Tagore's views on education, nationalism and Internationalism vis-à-vis Sri Aurobindo's concept of nationalism.

Unit-II: This unit analyzes and evaluate the political ideas of Mohandas Karamchand Gandhi, Bhim Rao Ambedkar

Unit-III: This Unit throws light on the political ideas of Jawaharlal Nehru and on modern education and social reforms, democratic socialism, and socialism & M.N. Roy's Marxism and new humanism.

Unit-IV: This unit dives into the Odia nationalism and socio-economic ideas depicted in the work s of Madhusudan Das and Gopabandhu Das.

Core XX

Semester VIII

Social And Political Movements In Contemporary India

Course Objectives:

Under the influence of globalization, developmental processes in India have produced spaces of advantage and disadvantage and new geographies of power. A variety of protest movements emerged to interrogate and challenge this development paradigm that evidently also weakens the democratic space vital to the formulation of a critical consensus. This course proposes to introduce students to the conditions, contexts and forms of political contestation over development paradigms and examine their bearings on the retrieval of democratic voice of citizens. It introduces the Social and Political movements in the Post- independent India with special reference to mobilization politics like movements for the formation of separate states, agrarian movements,

tribal movements, anti-caste movements and movements related to development projects. It will help the students develop an understanding of the perspectives on three ideological strands represented by agrarian movements, anti-caste movements, and women's movement.

Expected Learning Outcomes:

This course will enable the learners to understand the issues of socio-political conflicts in India and locate these conflicts in broader theories of social movements. After completion of this course, the learners will be able to trace the origin and types of various socio-political movements in India, examine the issues of leadership, organization, and mobilization through selected movements in India. The unit-wise outcomes are given below.

Unit-I: This unit deals with a conceptual explanation of social movements, various theories related to the movements, along with an analysis of socio-political movements in India. Laying the foundation of these movements, this unit explores the diverse social and political issues in India and enables the learners to acquaint with the historical and emerging debates.

Unit-II: This unit will help the learners to identify various peasant movements and tribal movements in Indian history. In addition to understand the genesis and growth of such movements, the learners will be able to understand the dynamics and socio-political implications for Indian society. Dealing with two of the major social groups in India, i.e. peasants and tribal, the unit will also highlight the issues and challenges faced by them.

Unit-III: The learners will be able to familiarize themselves with the issues related to caste and gender in Indian society through this unit. Emergence of gender and caste movements from discriminations to political mobilization through leadership and participation of various social groups will shape the understanding of Indian society for the learners. Identifying the challenges to these movements, the learners are expected to investigate the various socio-political developments in India.

Unit-IV: This unit, discussing the environmental movements in India, will help the learners to familiarize themselves with the influence of rising global concerns over ecological movements in India. It further helps the learners to understand the changing role of state and civil society in relation to the social movements in India.

CLIMATE CHANGE AND POLITICS

Course Objectives:

This course aims to provide a comprehensive understanding of the intricate relationship between climate change and politics, both globally and within India. By exploring the political dimensions of climate change, the course seeks to equip learners with knowledge about the key drivers and impacts of climate change, the global and national political responses, and the strategies for adaptation and mitigation. Students will gain insights into the theoretical frameworks, policy debates, and practical challenges in addressing climate change through a political lens. Further, the sensitization regarding climate change and policy action will enable the learners to deliver their future roles in public policy making and finding innovative ways to address climate change.

Expected Learning Outcomes:

This course will enable the learners to comprehensively understand the issue of climate change, analyse the politics of climate change and various debates on this issue both at the global and national level and examine various policy initiatives for addressing this issue. The unit-wise learning outcomes are given below.

Unit-I: By the end of this unit, learners will be able to explain the phenomena of climate change and its causes, assess its impacts, and analyse the politics surrounding it, including political ecology and climate justice.

Unit-II: Upon concluding this unit, learners will be able to comprehend the concepts of climate diplomacy, climate justice, and the geopolitical dynamics of climate change. They will be able to assess the importance of global climate negotiations and agreements and their agenda as well as debates surrounding them. Furthermore, they will be able to critically examine the emergence of climate capitalism, alongside the operational aspects of carbon markets, carbon footprints, and carbon trading.

Unit-III: Upon completion of this unit, learners will proficiently recognize climate-induced challenges, assess adaptation and mitigation strategies, and evaluate the role of various stakeholders in climate action.

Unit-IV: Upon completion of this unit, learners will be able to analyse climate change politics in India, critically assess its international stance and leadership, and comprehend its institutional frameworks and policy initiatives. This will harness their analytical skills in observing the climate change phenomenon in their locality and suggest measures through appropriate climate action.

Core XXII

Social Exclusion And Inclusive Policies In India

Course Objectives:

This course provides students with enhanced opportunities to delve into both theoretical principles and practical applications of social exclusion. It is structured to offer comprehensive exposure not only to various dimensions of social exclusion but also to a range of tools and mechanisms for inclusion. The specific objectives of this course include conceptualizing discrimination, exclusion, and inclusion based on caste/ethnicity, religion, gender, and disability; developing a thorough understanding of the dynamics of discrimination and exclusion; critically contextualizing issues related to discrimination, exclusion, and inclusion; gaining empirical insights into discrimination; and formulating policies aimed at protecting the rights of marginalized groups and addressing the challenges of exclusion and discrimination.

Expected Learning Outcome:

Unit-I: This would cultivate broad understanding of the concept and approaches of social inclusion and exclusion among students.

Unit-II: This unit will enable students to understand the framework of social exclusion and inclusion on from various perspectives.

Unit-III: This unit will enable students to identify various forms of social exclusion exist in Indian society like caste, class, migrant, ethnicity, and disability which will empower them to adopt stands against such marginalisation.

Unit-IV: This unit will harness the legal knowledge base of social inclusion in India among students.

Core XXIII

Democratic Decentralization In India

Course Objectives:

The course aims to provide a comprehensive understanding of the principles, processes, and challenges associated with decentralized governance in the Indian context. To understand the nuances of democratic decentralisation and participation of the citizens at the grassroot level, it is essential for the learners to familiarise with the institutional and the constitutional framework of local governance. Through a scholarly lens, the course delves into the theoretical underpinnings of democratic decentralization and also provides a space for enquiry into the emerging developments e.g., glocalization and new localism. It seeks to examine

the evolution and functioning of rural and urban local self-government in India, tracing its historical trajectory from pre-independence initiatives to contemporary constitutional provisions and legislative frameworks. Through using these concepts and analytical frameworks informed by the scholarly literature on the subject buttressed by empirical details, the course aims at providing learners with the requisite domain and functional skills to enable them to engage in employment in rural and urban governance sector as well as Non-Governmental Organisations. Further, to examine the actual functioning of the local governing bodies, effective implementation of the policies and programmes and emerging issues and challenges in the local governance, this course envisages active learning by the learners through conducting studies on various local governance practices at the ground level. Overall, the course endeavors to equip participants with the knowledge and analytical tools necessary to navigate the complexities of democratic decentralization in the Indian context and contribute effectively to decentralized governance processes.

Course Learning Outcomes:

On completion of the course, learners would attain the following competencies.

Unit-I: This unit would inculcate fundamental understanding about democratic decentralisation among the learners. It would familiarise them with different theoretical roots of civic engagements and its several dimensions.

Unit- II: This unit would enable the learners to understand the evolution of Panchayati raj institutions in India, the institutional frameworks of rural local governance, the constitutional provisions, and reflect on the emerging issues and challenges of rural local governance.

Unit-III: Engaging with this unit will facilitate a comprehensive understanding of the constitutional provisions and institutional frameworks underpinning urban local governance. This would enable learners with critical insights on contemporary urban issues and the formulation of informed strategies for effective municipal management.

Unit-IV: The learners would examine the working of the local government institutions, efficacy of various constitutional provisions, policies and programmes, and emerging issues and challenges of local governance, through engaging themselves at the ground level study in their preferred locality. The learners are expected to prepare a report individually, on their observation, analysis, or assessment of their study on any topic provided in this unit, for the purpose of internal evaluation.

PG in Political science

PO,CO & PSO

Programme Outcome:

1. Develop a comprehensive understanding of fundamental political theories, concepts, and ideologies that shape political thought and governance.
2. Gain insights into Western and Indian political philosophies, from classical to contemporary thinkers, and their influence on political systems.
3. Acquire knowledge of the structure, functions, and complexities of Indian government, including the constitutional framework, federalism, and state politics, especially in Odisha.
4. Understand the core concepts and principles of Public Administration, focusing on governance, policy-making, and administrative challenges.
5. Analyse the evolution and theories of international politics, including India's foreign policy, global diplomacy, and international relations in the South Asian context.
6. Explore the methodologies of social science research, equipping students with the skills to conduct academic research and critically assess political and social movements.
7. Compare the political and constitutional frameworks of major world nations to appreciate diverse governance models and political practices.
8. Develop the ability to engage with contemporary political debates and issues through in-depth study, including project work and dissertation writing.

Programme Specific Outcome:

1. Gain a thorough understanding of classical and modern Western political thought and its relevance to modern political systems.
2. Develop expertise in Indian political thought, focusing on major political thinkers and the evolution of political ideology in India.
3. Attain a detailed knowledge of the Indian political system, including public administration, public policy, and the dynamics of state politics.
4. Acquire a strong foundation in comparative politics, enabling students to compare and contrast political systems, institutions, and processes globally.
5. Enhance skills in research methodology for conducting political and social research, preparing students for academic and policy-oriented work.
6. Attain a nuanced understanding of international relations, focusing on the foreign policies of major powers and the geopolitical landscape of South Asia.
7. Develop the ability to critically engage with new social and political movements, with a particular focus on social exclusion and inclusive policy.
8. Complete a dissertation or project work that demonstrates the application of political theory and empirical research, showcasing specialized knowledge in selected areas of study.

C.C. -1.1: Political Theory

Course Objective:

1. To introduce the fundamental concepts of political theory, its meaning, nature, significance, and the reasons for its decline and resurgence.
2. To explore the normative and empirical approaches to the study of political theory.
3. To provide a comprehensive understanding of the theory of the state, including liberal and Marxist perspectives, as well as theories of state sovereignty.
4. To analyse key political concepts such as liberty, equality, justice, and rights, alongside examining various political ideologies and theories of democracy.

Course Learning Outcome:

1. Gain a clear understanding of political theory, its importance, and the factors contributing to its development and evolution over time.
2. Critically differentiate between normative and empirical approaches in political theory and apply them to analyse political phenomena.
3. Develop a nuanced understanding of the theory of the state and sovereignty, including liberal, Marxist, monistic, and pluralistic perspectives.
4. Analyse and compare key political ideologies and concepts, such as liberalism, socialism, and democracy, and assess their practical applications in modern governance and society.

C.C.- 1.2 : Western Political Thought-1

Course Objective:

1. To provide an in-depth understanding of the major political theories and philosophies of prominent thinkers like Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, and Hannah Arendt.
2. To explore foundational concepts such as the ideal state, justice, communism, social contract, and popular sovereignty, and their relevance to political theory.
3. To critically examine the evolution of statecraft, governance, ethics, and politics from ancient to modern political thought.
4. To analyse key philosophical debates around totalitarianism, political theory, and modernity, especially through the lens of Arendt's contributions.

Course Learning Outcome:

1. Gain comprehensive knowledge of Plato's and Aristotle's political ideas on state, justice, governance, and their enduring impact on political philosophy.
2. Understand and critically evaluate the theories of social contract and political sovereignty as developed by Hobbes, Locke, and Rousseau.
3. Examine Machiavelli's ideas on statecraft and the relationship between ethics and politics, and relate them to modern governance.
4. Analyse Hannah Arendt's contributions to political theory, focusing on her views on totalitarianism, action, and the challenges of modernity.

C.C.-1.3 : Public Administration: Concept & Issues

Course Objectives: The essence of Public Administration lies in its effectiveness in translating the governing philosophy into programmes, policies and activities and making it a part of community living. The paper covers public administration in its historical context thereby proceeding to highlight several of its categories, which have developed administrative salience and capabilities to deal with the process of change. Organized into four units, the recent developments and particularly the emergence of New Public Administration are incorporated within the larger paradigm of democratic legitimacy.

Course Learning Outcome:

By the end of the course students will have a conceptual clarity on

1. The essence of Public Administration
2. The Historical context of Public Administration
3. The recent developments particularly the emergence of New Public Administration, New Public Management, and New Public Service Approach to Public Administration.

C.C.- 1.4 : INTERNATIONAL POLITICS: THEORIES & CONCEPTS

Course Objectives: The basic objective of this course is to introduce students to some of the most important theory and practice for studying international relations. The aim of the course is to understand international relations and its multidisciplinary nature where the student will be accommodated with contemporary trend of multidisciplinary discourse. Following are the objectives:

1. To provide a fairly all-inclusive overview of the major political developments and events starting from the days of Peloponnesian war.
2. To provide a comprehensive and in-depth orientation to students to understand the character of contemporary character of international relations.
3. To enable students to learn about the key milestones in world history and equip them with the tools to understand and analyze the same from different perspectives.

Course Learning Outcomes

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

1. Familiarization with key theories, concepts, and debates of International Relations.
2. Comprehensive re-reading of the origin of IR and its mainstream theories and concepts, with basic tools to question statist ontology and reification of euro-centrism.
3. Appreciation of decolonial accounts that challenge the mainstream and parochial International Relations.
4. 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.
5. Analysis of the assumptions and key concepts of IR such as power, sovereignty, empire and international order.
6. Learning about the new directions in IR via a critical engagement with Global IR and the relational turn in IR.

C.C.- 1.5- Indian Government and Politics.**Course Objective:**

1. To explore the historical background, composition, and functioning of the Constituent Assembly in the making of the Indian Constitution.
2. To understand the ideological framework of the Indian Constitution, focusing on the Preamble, Fundamental Rights, Directive Principles, and Fundamental Duties.
3. To examine the structure and processes of the Union Government, including the roles of the Executive, Legislature, and Judiciary in India.
4. To analyze the concept of Indian Federalism, the nature of Centre-State relations, and the evolving trends in federal governance.

Course Learning Outcome:

1. Develop a deep understanding of the process and debates involved in the drafting of the Indian Constitution and the key contributions of the Constituent Assembly.
2. Gain insights into the ideological underpinnings of the Constitution, particularly the significance of the Preamble, Fundamental Rights, and Directive Principles in shaping Indian democracy.
3. Comprehend the functioning of the Union Government's Executive, Legislature, and Judiciary, and the importance of Judicial Review and Activism in India.
4. Analyze the dynamics of Indian federalism, legislative and administrative relations between the Centre and States, and the current trends in Centre-State relations.

C.C.-2.1: WESTERN POLITICAL THOUGHT-II**Course Objective:**

1. To examine the foundational ideas of Jeremy Bentham and J.S. Mill, focusing on utilitarianism, liberty, and democratic principles.
2. To understand Hegel's dialectical idealism and T.H. Green's views on political obligation, positive freedom, and the role of the state.
3. To analyze Karl Marx's theories on dialectical materialism, class struggle, and revolution, along with Lenin's contributions to socialism and imperialism.
4. To explore the political ideas of Antonio Gramsci on power and hegemony, Mary Wollstonecraft on women's rights, and John Rawls on justice and liberty.

Course Learning Outcome:

1. Develop a clear understanding of Bentham's utilitarianism and its revision by Mill, as well as their views on liberty and democratic governance.
2. Critically analyze Hegel's dialectical idealism and Green's theory of positive freedom and their significance in shaping modern political thought.
3. Gain insight into Marxist philosophy, including class struggle, revolution, and Lenin's theories on socialism and imperialism.
4. Evaluate the concepts of power and hegemony by Gramsci, Wollstonecraft's advocacy for women's rights, and Rawls' theory of justice and its impact on modern liberal thought.

C.C.-2.2 Comparative Politics

Course Objectives: To familiarize students with the basic concepts and approaches to the study of comparative politics. To critically examine politics in historical and contemporary perspectives while engaging with various themes of comparative analysis in developed and developing countries.

Course Learning Outcomes

1. This paper will provide students with a comprehensive understanding of a range of political systems from different continents in a historical context.
2. The students will engage in studying different countries in detail with reference to their political tradition and state formation, constitution and division of power, political parties and elections, political economy and contemporary challenges.
3. The critical analysis of different political systems will delineate the institutional structures, processes and their functioning in these systems.
4. The course content would also help students develop analytical skills to understand not just the similarities and differences but the uniqueness of some cases as well that highlight how the matrix of diverse determinants and variables result in different discourses in different countries.

C.C.-2.3- INDIA'S FOREIGN POLICY

Course Objective:

1. To explore the historical origins, determinants, and principles of India's foreign policy, highlighting its evolution and continuity.
2. To analyze India's bilateral relations with major global powers such as the US, China, and Russia.
3. To understand India's role in the United Nations, particularly in peacekeeping, global disarmament, and its nuclear policy.
4. To evaluate India's contribution to the Non-Aligned Movement (NAM), its contemporary relevance, and the significance of India's Act East policy and relations with ASEAN.

Course Learning Outcome:

1. Gain a comprehensive understanding of the historical context and key determinants shaping India's foreign policy over time.
2. Critically assess India's diplomatic and strategic relationships with major global powers including the US, China, and Russia.
3. Understand India's contributions to international peacekeeping, its stance on global disarmament, and the impact of its nuclear policy.
4. Analyse India's pivotal role in NAM, its relevance in the modern world, and the strategic significance of India's Act East policy in engaging with ASEAN nations.

C.C.-2.4-INDIAN POLITICAL THOUGHT

Course Objective:

1. To study the political and philosophical contributions of ancient Indian thinkers like Manu and Kautilya and their impact on governance and law.
2. To explore the ideas and ideologies of modern Indian thinkers such as Bal Gangadhar Tilak, Swami Vivekananda, and Aurobindo Ghosh, focusing on nationalism and spirituality.
3. To critically examine the thoughts of key figures like Mahatma Gandhi, B.R. Ambedkar, and M.N. Roy on social justice, human rights, and political reforms.
4. To analyze the contributions of Raja Ram Mohan Roy, Jawaharlal Nehru, and Amartya Sen in shaping modern Indian society, governance, and economic policies.

Course Learning Outcome:

1. Understand the foundational ideas of ancient Indian political thought and their relevance in contemporary governance.
2. Analyze the role of modern Indian thinkers in shaping India's struggle for independence and their views on nationalism, education, and society.
3. Evaluate the contributions of Gandhi, Ambedkar, and Roy towards socio-political reforms and their lasting influence on Indian democracy and human rights.
4. Gain a deeper understanding of how Nehru's vision for a secular, democratic India and Amartya Sen's economic insights continue to impact India's political and economic landscape.

CC-2.5 STATE POLITICS IN ODISHA

Course Objectives: This course expects the students to study one state in an in-depth manner to understand how the political process evolves at the State level. It will also allow the students to do assignments based on field studies. The study is to be done from socio- historical as well as political economy perspectives. The course seeks to sensitize students to the changes in the political process over the period of over half a century from 1936 to the present. This Course aims to provide knowledge on political culture, institutional governance and variation in Internal Political Pattern within the state of Odisha. It focuses on regional political parties and pattern of voting behavior among the people of Odisha. It also focuses on the political history of the state of Odisha.

Course learning outcomes

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

1. The party politics of Odisha.
2. Political system of Odisha.
3. Issues associated with the state politics and formulate the research questions for their future course of academics.

C.C.-3.1 INDIAN POLITICAL SYSTEM

Course Objectives: This paper aims to provide a comprehensive understanding of India's political party system, examining the evolution, classification, and role of national, regional, and local parties in shaping Indian democracy. It seeks to explore the processes of decentralization and devolution of power through rural and urban governance, as well as the role of institutions like the NDC and NITI Aayog in addressing challenges such as globalization and inequality. Additionally, the course will analyze India's electoral system, political participation, and the impact of social factors like gender, caste, religion, and class on representation and exclusion in the political sphere.

Course Learning Outcomes:

1. Understanding Party Systems: Analyse the evolution, classification, and role of political parties at national, regional, and local levels in shaping Indian democracy and the dynamics of coalition politics.
2. Decentralization and Governance: Critically evaluate the decentralization of power through rural and urban local self-governments and assess the role of institutions like NDC and NITI Aayog in addressing challenges like globalization and economic inequality.
3. Electoral System and Reforms: Explain the features of India's first-past-the-post electoral system, the role of the Election Commission, and explore key electoral issues such as the influence of money, criminalization, and malpractices.
4. Political Participation and Representation: Examine voter behavior, political participation, and socialization, and assess issues of political exclusion based on gender, caste, religion, and class in the context of Indian democracy.

C.C.-3.2 RESEARCH METHODOLOGY

Course Objectives: To familiarize students with the basic concepts and approaches to the study of research methodology. To acquaint students with the basics of research methods, techniques, and approaches and to assist in the accomplishment of exploratory as well as result-oriented research studies. To help students to identify the research problem and start asking the right questions with a goal of improving their ability to make a logical argument. To assist students to learn various research techniques (qualitative and quantitative). To train students in the process of writing various academic and popular writings. To sensitize students of research ethics.

Course Learning Outcome:

On successful completion of the course, students would demonstrate:

1. Preliminary training in basic elements of social science research.
2. Familiarity with how to conceptualize a research problem.
3. Familiarity with diverse methodologies used in the study of politics.
4. Skills to identify and understand the use of specific methodologies in a text.

CC-3.3 NEW SOCIAL AND POLITICAL MOVEMENT IN INDIA

Course Objectives: Under the influence of globalization, development processes in India have undergone transformation to produce spaces of advantage and disadvantage and new geographies of power. A variety of protest movements emerged to interrogate and challenge this development paradigm that evidently also weakens the democratic space so very vital to the formulation of critical consensus. This course proposes to introduce students to the conditions, contexts and forms of political contestation over development paradigms and their bearing on the retrieval of democratic voice of citizens. To introduce the Social and Political movements in the Post – independent India with special reference to mobilization politics like movements for the formation of States, agrarian movements, anti – caste movements and movements related to development issues. To help the students to develop the capability of standing the perspectives of three major ideological strands represented by agrarian movements, Anti – caste movements & Women’s movement. To help students to understand the impact of movements on shaping the pattern of politics.

Course Learning Outcome:

After reading the course, the learner would

1. Understand the various traditions and approaches of political theory and appreciate how they get reflected in organizing social living
2. Understand multiple frames by which the idea of political community is debated
3. Understand the significance of theorizing and relating theory to practice.

CE-3.4(Elective -A) PUBLIC POLICY AND GOVERNANCE

Course Objectives: The paper seeks to provide an introduction to the interface between public policy and administration in India. The essence of public policy lies in its effectiveness in translating the governing philosophy into programmes and policies and making it a part of the community living. It deals with issues of decentralization, financial management, citizens and administration and social welfare from a non-western perspective. This paper deals with concepts and different dimensions of governance highlighting the major debates in the contemporary times. There is a need to understand the importance of the concept of governance in the context of a globalizing world, environment, administration, development. The essence of governance is explored through the various good governance initiatives introduced in India.

Course Learning Outcomes:

1. Students will be able to understand different concepts related to governance.
2. Students will be able to understand the concept of globalization and its impact on every sector.
3. Students will be able to understand the structure of development and new ideas related to new development processes.
4. Students will be able to analyse the power of electronic governance, which is an essential factor in service delivery.

CE 3.4 (Elective- B) SOCIAL EXCLUSION AND INCLUSIVE POLICY

Course Objectives: This course provides better opportunities to the students to learn theoretical and practical aspects of social exclusion. The course is designed in such a way that it would give wider exposure to the students not only about the various aspects and dimension of Social Exclusion but also on various tools and mechanism of inclusion. The specific Objectives of this course are Conceptualizing discrimination, exclusion and inclusion based on caste/ethnicity and religion. Developing understanding of the nature and dynamics of discrimination and exclusion. Contextualizing and problematizing discrimination, exclusion and inclusion. Developing an understanding of discrimination at an empirical level. Formulating policies for protecting the rights of these groups and eradicating the problem of exclusion and discrimination.

Course Learning Outcomes

1. The course provides an insight into the historical background of the concept social exclusion
 2. The students will see how the concept is related to various theoretical concepts of inequality, poverty and discrimination
 3. It discusses different modes of social exclusion with case studies from India and elsewhere
- It discusses case studies relating to social exclusion with a specific focus on poverty, discrimination, deprivation and inequality.

CE-3.5 (Elective-C) INDIA'S FOREIGN POLICY- II

Course Objectives: The basic objective of this course is to introduce students to the mechanics of foreign policy making and to the issues that influence the policy in order for them to develop a perspective on the emerging trends in Indian foreign policy

Course Learning Outcomes

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

1. Basic knowledge of the sources, theoretical perspectives and key drivers of India's foreign policy.
2. Analyse the opportunities and challenges India faces in securing its interests as an emerging global power.
3. 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.
4. An enhanced understanding of India's sub-regional, regional, and global issues of concern.
5. Grasp of India's negotiation strategies in dealing with global trade, environment, and security regimes.
6. Recognise the ways in which India deploys its soft power in the world.

C.E. 3.5 (Elective -D) INTERNATIONAL RELATIONS OF SOUTH ASIA

Course Objectives: International relations of South Asia are based on the study of South Asia as a region. The course will consider a number of conceptual and policies' questions and explore how the South Asian region has been transforming with the globalization of its economy, the resurgent ethnic conflicts, situated in a nuclearized security environment and the ever deepening and rapidly pervading connections with the global and local extremism and terrorism.

Course Learning Outcomes

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

1. The reasons and circumstances leading to the emergence of such regional organisations
2. May able to understand the role of these grouping in relation to the global fora and in relation to India
3. May analyse about the role of India to be played in these groupings to achieve global mandates.

SEMESTER-IV

CC-4.1 POLITICAL SOCIOLOGY

Course Objectives: The basic objective of this course is:

1. To explore the main sociological explanations of political behaviour.
2. To understand how does political mobilization take place and how political organizations (parties) and elites shape the interaction between citizens, society and power?
3. To understand processes of political engagement and participation and politicalbehavioral in general.

Course Learning Outcomes

On successful completion of the course, the students will demonstrate:

1. Understanding of political process in India and its interaction with social cleavages of caste, class, gender, ethnicity and religion
2. Familiarity with the ways in which the state in India responds to social groups and vulnerable sections
3. Knowledge of political parties and the party system in India
4. Awareness of the manner in which representation and electoral competition play out in Indian politics.

C.C.- 4.2 MAJOR WORLD CONSTITUTIONS

Course Objectives: To familiarize students with the basic concepts and approaches to the study of comparative politics. To critically examine politics in historical and contemporary perspectives while engaging with various themes of comparative analysis in developed and developingcountries. To understand governmental systems of US, UK, China and Switzerland in comparative perspective.

Course Learning Outcomes:

1. Understanding Constitutional Frameworks: Analyze the salient features and structures of the constitutions of Great Britain, the USA, Switzerland, and China, comparing their distinctive approaches to governance.

2. **Political Systems and Institutions:** Evaluate the functioning of key political institutions like the British Crown, American Congress, Swiss Federal Council, and China's National People's Congress, and understand their roles in shaping political systems.
3. **Judiciary and Rule of Law:** Examine the judicial systems of these countries, with special focus on the concept of the rule of law in Great Britain and the federal judiciary in the USA and Switzerland, and how they ensure checks and balances.
4. **Party Systems and Governance:** Understand the evolution and role of party systems in different political contexts, from multi-party systems in Switzerland and Great Britain to the dominant one-party system in China.

C.C.-4.3 Dissertation and Viva Voce

Course Objectives: A Dissertation tests the ability of a student to carry out independent research. In broad ways it demonstrates that a student is capable of identifying an area of interest, able to explore the research area and use the appropriate research tools. Since a dissertation involves a different set of ideas or different point of views, it enhances the critical, analytical and research skills of a student.

By the end of the course students will be able to

1. Identify an area of interest, able to explore the research area and use the appropriate research tools.
2. It will enhance the critical analytical and research skills of a student. On successful completion of the course students will be able to:
3. Demonstrate a sound technical knowledge of their selected project topic.
4. Undertake problem identification, formulation and solution.
5. Demonstrate the knowledge, skills and attitudes of a professional researcher.

C.E. -4.4 (Elective-A) POLITICAL PROCESS IN INDIA

Course Objectives: Teaching politics in a country has to be grounded in understanding and analysis of politics of the country concerned. Thus, organized in four units, this paper focuses in detail on the political processes and the actual functioning of the political system. It then examines the functioning of various social movements, the nature of Indian party system, civil society groups and the statutory and constitutional bodies of governance. The major contradictions of the Indian political process are critically analyzed along with an assessment of its relative success and failures.

Course Learning Outcomes: By the end of the course students will have a conceptual clarity on the political processes and the actual functioning of the political system. The major contradictions of the Indian political process along with an assessment of its relative success and failures.

C.E.-4.4 (Elective-B) CONTEMPORARY ISSUES IN INTERNATIONAL RELATION

Course Objectives: The basic objective of this course is:

1. To provide the students a fairly comprehensive overview of the major political developments and events starting from the twentieth century.
2. To provide a comprehensive and in-depth orientation to students to understand the character of contemporary character of international relations.
3. To enable students to learn about the key milestones in world history and equip them with the tools to understand and analyze the same from different perspectives.

The aim of the course is to understand international relations and its multidisciplinary nature where the student will be accommodated with contemporary trend of multidisciplinary discourse.

Course Learning Outcomes:

1. Analyse Superpower Relations and Global Peacekeeping: Understand contemporary shifts in superpower relations, challenges to peacekeeping efforts, and the role of the United Nations in promoting human development and pursuing structural reforms.
4. Examine Global Issues and Nuclear Politics: Explore the politics of nuclearization, ecological concerns, and the governance of global commons, understanding their implications for international security and development.
5. Assess Regional Conflicts and Major Power Dynamics: Evaluate the role of major powers in regional conflicts, with a focus on South Asia, oceanic politics, and the geopolitics of the South China Sea.
6. Understand Regionalism and Integration: Study the growth of regionalism and the functioning of regional blocs like the European Union, ASEAN, SAARC, and BIMSTEC, analysing their impact on global and regional stability

C.E.-4.5 (Elective (C)- INDIAN POLITICS : ISSUES & PROBLEMS**Course Objectives:**

1. To explore the various approaches and debates surrounding nation-building in India, focusing on political culture and its role in shaping national identity.
2. To analyse key challenges to national integration, such as casteism, communalism, and terrorism, and their socio-political implications.
3. To introduce the concept of good governance, examining issues like corruption and the tools for accountability such as the Citizen's Charter and Right to Information.
4. To provide an understanding of India's parliamentary democracy, focusing on the role of political parties, pressure groups, defections, and coalition politics.

Course Learning Outcome:

1. Gain a comprehensive understanding of the theories and debates on nation-building and the role of political culture in India.
2. Critically analyse the challenges of casteism, communalism, and terrorism and assess their impact on India's national integration.
3. Understand the issues of governance, including corruption, and evaluate tools like the Citizen's Charter and RTI for promoting transparency.
4. Analyse the functioning of India's parliamentary democracy, evaluating the influence of political parties, pressure groups, and coalition politics on governance.

C.E.-4.5 (Elective (D)-FOREIGN POLICY OF MAJOR POWERS**Course Objectives:**

1. To understand the nature and theoretical approaches to foreign policy analysis, focusing on key frameworks for understanding state behaviour.
2. To examine the phases of foreign policy, particularly during the Cold War, post-Cold War, and in the evolving New World Order.
3. To explore U.S. foreign policy evolution, from isolationism to containment, and its relationship with regions like South Asia, the Middle East, and China.
4. To analyse the foreign policies of major global players like China and Russia, focusing on their strategic goals, emerging trends, and geopolitical relations.

Course Learning Outcome:

1. Develop a solid foundation in foreign policy analysis, understanding key theories and approaches used to interpret international relations.
2. Gain insights into the historical phases of global foreign policy, understanding the shifts in geopolitical strategies from the Cold War to the present.
3. Analyse U.S. foreign policy dynamics with key regions and assess emerging trends, including the Asian Pivot strategy.
4. Critically evaluate the foreign policies of China and Russia, identifying their global strategies, regional alliances, and evolving geopolitical objectives.

GOVERNMENT AUTONOMOUS COLLEGE PHULBANI
DEPARTMENT OF BOTANY

POST-GRADUATE COURSE IN BOTANY

PROGRAMME OUTCOMES:

PO1- It aims to train the students in all the areas of botany with a unique combination of core and elective paper with significant interdisciplinary components as per CBCS.

PO2- They are made aware about the social and environmental issues, significance of plants and their relevance to national economy.

PO3- Inculcate thorough knowledge about various plants from primitive to highly evolved.

PO4- They can pursue PhD with various fellowship like ICAR, CSIR, ICMR and other government fundings like JFR or SRF.

PO5- To generate resourceful degree holders enabled with professional and research oriented knowledge and skills to enhance their employability that significantly helps in the process of individual empowerment, societal development and overall nation building.

PROGRAMME SPECIFIC OUTCOMES (PSO)

Plant science is the combination of basic and applied science. The course has been designed to advantage students to study on various aspects of botany along with its practical applications. After studying this subject, students can take up teaching at different levels, research work in various institute and organization, environment impact study, biodiversity assessment.

PSO1:	Students will imbibe deep understanding on basis plant life, reproduction and their survival in nature, role of living and fossil plants in our life.
PSO2:	Student will acquire skill as good laboratory practices and safety and field based studies
PSO3:	Student will apply knowledge on cultivation, conservation and sustainable utilization of biodiversity.
PSO4:	Student will know advance techniques in plant sciences like tissue culture, Phytoremediation, plant disease management, formulation of new herbal drugs, mushroom cultivation, biofertilizer production, fruit preservation and horticultural practices.
PSO5:	The student completing the course is capable of executing short term research projects/dissertations using tools and technique in any of the basic specialization of botany under supervision.

BOTA C101
(Microbial Diversity)

Course objective

The goal of the course is to teach students how to cultivate and isolate microorganisms. It also provides vast variety and reservoir of microbe which can be utilized by humans for their benefits.

Course Learning Outcomes:

The course will increase the understanding of the students about the classification, structure, role and infectious cycle of microbes.

BOTA C102
(Diversity of Cryptogams and gymnosperms)

Course objective

The goal of the course is to teach students how to cultivate and isolate microorganisms. It also provides vast variety and reservoir of microbe which can be utilized by humans for their benefits.

Course Learning Outcomes:

The students will develop understanding about the diversity, identification, classification and economic importance of lower plants.

BOTA C103
(Cell Biology and Evolution)

Course Objectives:

The objective of the present course is to provide a foundation and background of cellular structure, cell organelles in relation to their functions and regulatory mechanisms.

Course Learning Outcomes:

The student will be learning about the structure and function of cellwall and plasma membrane, cell organelles such as chloroplast, mitochondria and also learn evolution.

BOTA C104
(Genetics and Molecular Biology)

Course Objectives:

The paper deals with Mendelian and non-Mendelian inheritance, quantitative genetics, molecular markers and linkage mapping, prokaryotic and eukaryotic genome-structure, gene function and regulation, epigenetics, cytogenetics and crop evolution.

Course Learning Outcomes:

They understand the pattern of inheritance in various life forms.

They develop a strong fundamental basics for further molecular studies.

BOTA C201
(Systematics of Angiosperms)

Course Objectives:

This course aims to add to understanding of the students about the diversity of plants, their Description, Identification, Nomenclature and their classification including recent advances in the field.

Course Learning Outcomes:

The students will be learning

The students will know about the systematic position of Generas, Species and, Families.

The students develop knowledge about plant nomenclature.

BOTA C202
(Plant physiology and Metabolism)

Course Objectives:

This course aims to educate student about the mechanism and physiology life processes in plants. It focus on the plant nutrient uptake and translocation, photosynthesis, respiration, nitrogen metabolism and various metabolic pathways leading the formation of significant molecules and their catabolism.

Course Learning Outcomes:

1. They will also gain about the various uptake and transport mechanisms in plants and are able to coordinate the various processes.
2. They understand the role of various hormones, signaling compounds, thermodynamics and enzyme kinetics.
3. During the course students will gain knowledge about various mechanisms such as channel or transport proteins involved in nutrient uptake in plants.
4. The student will enrich themselves with the phenomenon of metabolism of primary and secondary metabolites and their role in plants.

BOTA C203
(Biochemistry and Biostatistics)

Course Objectives:

The course aims to educate the students on the basic principles of biochemistry, fundamentals of biochemistry, structure and properties of various biomolecules such as carbohydrates, protein etc. The students will be taught about basics of statistical analysis and its application in biological studies.

Course Learning Outcomes:

1. Students will be learn about concepts of reaction kinetics, thermodynamics and their biological applications, fundamentals of biochemistry.
2. Students will gain knowledge on the structure and properties of carbohydrate, lipid, protein etc.
3. Student will learn the basics of enzyme kinetics and regulation of enzyme activity.
4. Students will learn about sampling techniques, correlation and regression.

BOTA C204
(Ecology and Environment)

Course Objectives:

This course aims to introduce the concepts and principles of ecology, biological diversity, conservation, sustainable development, population, community and ecosystem structure and function, application of these concepts to solve. This course focus on the Environmental Impact Assessment

(EIA), Energy resources, various types environmental pollution, water pollution and conservation strategies with sustainable management.

Course Learning Outcomes:

The students will be learning

1. They will be understand the concept, types, development and functions of various ecosystems and their communication.
2. The various environmental factors governing these ecosystems are also clearly understood.
3. They will be understand the factors leading to Environmental degradation, their reasons and their impact on the Environment.
4. This knowledge can help to form strategies for conservation and sustainable management under the given legislative measures

BOTA C301

(Plant Embryology and Anatomy)

Course Objective:-

The paper contains structure and function of reproductive organs and their significance in plant reproduction, Pollination, Fertilization, Embryogenesis, Apomixis are the areas which are stressed upon. This course aims at making the students acquainted with the fundamentals and present understanding of the mechanism associated with development, differentiation and structure of various plant organs, metabolic and physiological changes occurring in them.

Course Learning Outcomes:

1. Student will develop the understanding of growth, development and reproduction in plants as well as understand the physiological and metabolic changes happening along with the environmental impact.
2. Student will learn the basic anatomical plant tissues.

BOTA C302

(Research Methodology)

Course Objective:-

The paper focuses on the extensive methodology used in different area of research in plant sciences. Further experimentation followed by data analyses part is also highlighted. Above all, ethical aspect and way of scientific writing has been emphasized so that students who proceed to higher studies will be well acclimated in new environment of research institutes or companies.

Course Learning Outcomes:

1. Students will learn about analytical techniques used in plant sciences.
2. Students will learn how experiments and data analysis can be used in research.
3. Students will have idea about techniques related to energy calculation, separation of molecules, use of sophisticated instruments.
4. Students would learn about how to write research or review articles (scientific writing) and their ethical aspect.

BOTA C303
(Phytomedicine)

Course Objective:-

The main objective of phytomedicine are associated with the integration of phytopreparation into conventional/official medicine and to identify drug from natural origin and their supply, cultivation, collection and storage.

Course Learning Outcomes:

At the end of the course student will be able to

1. Identify, isolate and characterize the active constituents against advanced diseases from plants.
2. Practice principles of ayurveda and utilize in herbal medicine.

BOTA C304
(Natural Resources, Conservation and Utilization)

Course Objective:-

The main objective of NRM are associated with knowing our natural resources and their utilization in daily life. Additionally as we are moving into a global climate crisis, how these natural resources can be conserved for a sustainable environment for fauna and flora.

Course Learning Outcomes:

At the end of the course student will be able to

1. Learn about proper utilization of natural resources without damaging the environment.
2. Students will be able to know and implement renewable energy requirements in home or institution.
3. Students will take part and make aware people about conservation of natural resources and its importance for environment.

BOTA C401
(Advanced Biotechnology)

Course Objectives:

This course would provide students with an understanding of principles and techniques of plant tissue culture, concepts and methods associated with development and analysis of transgenic plants, and their applications in basic and applied research.

Course Learning Outcomes:

The students will learn about

1. Concepts, tools and techniques related to *in vitro* propagation of plants.
2. Different methods used for genetic transformation of plants, use of *Agrobacterium* as a vector for plant transformation, components of a binary vector system.
3. Various case studies related to basic and applied research in plant sciences using transgenic technology.
4. Principles and methods used for phenotypic, genetic and molecular analysis of transgenic plants.

BOTA C402
(Seminar/Field Visit)

Course Objectives:

Objective of the course is to enable the students for public speaking and presentation of a scientific topic.

Course Learning Outcomes:

Students will acquire the skill of public speaking, content development for presentation and discussion with audience.

BOTA C403 A
(Biosystematics)

Course Objectives:

The course aims to educate student on plant systematic, international code of botanical nomenclature (ICBN), plant identification, herbarium and evolutionary trends in some plant orders.

Course Learning Outcomes:

The students will be learning

1. The students will know about the systematic position of Generas, Species and, Families.
2. The students develop knowledge about plant nomenclature.

BOTA C403 B
(Molecular Stress Biology and Biotechnology of Cyanobacteria)

Course Objectives:

Provide fundamental insights into the understanding the responses of plants, microorganisms and animals to abiotic and biotic stresses.

Course Learning Outcomes:

The student will understand ecology, gene mining, physiology of cyanobacteria and its responses towards biotic and abiotic stresses.

BOTA C404 A
(Environment Law)

Course Objectives:

The objective of environmental law is to preserve and protect the nature's gift from pollution. Another objective of environmental law is to protect the man's fundamental rights of freedom, equality and adequate conditions of life in an environment of quality that permits a life of dignity and wellbeing.

Course Learning Outcomes:

Understand and interpret the structure of environmental laws as well as judgement of appellate courts in cases pertaining to the environment.

BOTA C404 B

(Environmental Science and Ecotoxicology)

Course Objectives:

The course aims to educate students on biodegradation of organic pollutants, biogeochemical cycles, toxic nature of different heavy metals.

Course Learning Outcomes:

The student will be learning about different environmental phenomena and biological factors of environment and environmental and ecological consequences of population growth.

UNDER-GRADUATE COURSE IN BOTANY

PROGRAM OUTCOMES:

B.SC Botany syllabus imparts students with the knowledge to get ahead in the career path they choose and help them for rewarding a jobs. Program of the department has been designed to facilitate the students with both theoretical and practical knowledge that it makes students learn about all the essential skills they require to succeed in their career paths. Program has also been designed to facilitate knowledge among the students and to inculcate the scientific temperament inside the students and outside the scientific community.

PROGRAM SPECIFIC OUTCOMES:

- After completing the course, a student is able to understand different branches of Botany such as systematics, evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics and molecular biology of various life-forms.
- A student can identify various life forms of plants, design and execute experiments related to basic studies on evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics, microbiology, molecular biology, recombinant DNA technology, proteomics and transgenic technology.
- Students are also familiarized with the use of bio-informatics tools and databases and in the application of statistics to biological data.

CORE: BOTANY

COURSE OUTCOMES

C 1.1

(Microbiology and Phycology)

Objectives

To get vivid knowledge about classification, characteristic, and ultra-structure of prokaryotic microbial diversity and the structure, pigmentation, food reserve, methods of reproduction and economic importance of Algae.

Outcomes

- Get knowledge about host parasite interaction as per process
- Know about organism and causal factor responsible for plant diseases and methods of studying plant diseases.

C-1.2

(Biomolecules and Cell Biology)

Objectives:

Gain skill on working principle of pH meter, mechanism of enzyme action and gain knowledge of fixation dehydration, structure, chemistry and function of cellular organelles.

Outcome

- Describe the evolution, diversity, and replication of cells.
- Learn the properties of enzyme catalysis and activation energy.
- Helpsto get lucid information regarding biochemical structures and their implementation in scientific temperament.

C-2.1

(Mycology and Phytopathology)

Objectives

Learn about structure, pigmentation, food reserve, method of reproduction and economics importance of fungi and lichen.

To study about living, non-living and environmental causes of plant diseases.

Outcomes

- As simple eukaryotic organisms fungi are important model research organisms.
- Know about some plant diseases special reference to the causative agent, symptoms, etiology, and control majors.

C-2.2

(Archegoniate)

Objectives

Pteridophytes have been considering an excellent source of ornamental purposes. Gymnosperms are good source of food and seeds are used as edible spices.

Outcome

- Learn about general characters and classification, stelar evolution in pteridophytes and gymnosperms.
- Know about the structure life history, and economic importance of gymnosperm.
- Knowledge about fossils and methods of fossilization process.

G.E-2.3

(Plant Physiology and Metabolism)

Objectives

It aims to educate student about the mechanism and physiology of life processes in plants. It focus on the plant nutrient uptake and translocation, photosynthesis, respiration and nitrogen metabolism. Learn about the various metabolic pathways lead to the formation of significant molecules and their catabolism.

Outcome

- Understand the various physiological life processes in plants and also gain about the various uptake and transport mechanisms in plants.
- Understand the role of various hormones, signaling compounds, thermodynamics and enzyme kinetics and also about various mechanisms such as channel or transport proteins involved in nutrient uptake in plants.
- Know about metabolism of primary and secondary metabolites and their role in plants.

C-3.1

(Anatomy of Angiosperm)

Objectives

It emphasizes different part of tissue and tissue system and various adaptive features justifying ecotypes.

Outcomes

- Learn about the structure, chemistry and functions of cellular organelles.
- Understand the structural adaption of plants with respect to diverse environmental condition.
- Know about structure of plant tissue and their modification.

C-3.2

(Economic Botany)

Objectives

It encompasses economic importance of crop plants, pulses, oil seeds etc. and its agricultural practices.

Outcomes

- Learn about economic products with special reference to botanical name, family, morphology of useful part and uses.
- Find ways that will allow the plant to be used sustainably.
- Increase the economic benefits of crop plant.

C-3.3

(Genetics)

Objectives

It focuses on transfer of information to different generation, hereditary changes and inheritance.

Outcomes

- Learn about Mendelian principles.
- Know about gene mapping method and extra chromosomal inheritance.

C-4.1**(Molecular Biology)****Objectives**

This course emphasizes the molecular mechanism of DNA replication, repair, protein synthesis etc.

Outcomes

- Learn about the core principles of molecular biology.
- Know about the large and overchanging discipline.
- Increase the higher level of thinking skills at molecular level.

C-4.2**(Plant Ecology and Phytogeography)****Objectives**

The course describes classification of plant community in terms of climatic conditions, plant succession and establishment of plant community.

Outcomes

- Learn about the approaches to the study of ecology (autoecology and synecology).
- Understand the population and community ecology.

C-4.3**(Plant Systematics)****Objectives**

It allows the identification of unknown species and their classification by comparing them to known species.

Outcomes

- Learn about the type of classification- artificial, natural, and phylogenetic.
- Knowledge about herbarium techniques.
- Learn about the taxonomic evidences from cytology, molecular biology and cytochemistry.

GE-4.4**(Plant Ecology and Taxonomy)****Objectives**

The course describes classification of plant community in terms of climatic conditions and allows the identification of unknown species and their classification.

Outcomes

- Learn about the approaches to the study of ecology (autecology and synecology).
- Know about the type of classification- artificial, natural, and phylogenetic.

C-5.1

(Reproductive Biology of Angiosperms)

Objectives

This course aims to impart and insight into the internal structure and development of reproductive organs of most evolved group of plants.

Outcomes

- Learn about male and female reproductive organ of flower.
- Learn about double fertilization and its significance.
- Know about the structure and development of monocot and dicot embryo.

C-5.2

(Plant Physiology)

Objectives

Concerns the physiological functions or processes of plants.

Outcomes

- Know about the requirements of mineral nutrition for plant growth.
- Understand the processes of photosynthesis, respiration, nitrogen metabolism.
- Know about the plant growth hormones.

DSE-5.3

(Analytical Technique in Plant Science)

Objectives

This course especially designed for skill development of the students of plant science by acquiring knowledge of plant analytical technique.

Outcomes

- Provides the foundation for studying microscopy.
- Understand the basic mechanism of centrifugation.
- Learn about the use of radioisotope in biological research.
- Know about the separation of particles by using different chromatographic technique.
- Analyses the samples by t-test and Chi-square test.

DSE-5.4

(Natural Resources Management)

Objectives

This course focuses on various types of natural resource management, and its sustainable use.

Outcomes

- Provides the foundation for reserve management and sustainable use of natural resource.
- Concerns with the interaction of people and natural landscape.
- Identification the soil types, formation and way to modify soil structure.
- Know about rain water harvesting, storage and utilization.

C-6.1

(Plant Metabolism)

Objectives

To illustrate knowledge about molecular understanding of primary and secondary metabolic processes.

Outcomes

- Acquire knowledge in various metabolic processes occurs in plants.
- Understand the basic knowledge about Carbon assimilation and oxidation.
- Learn about nitrogen fixation in legumes and non-legumes plants.
- Know about lipid in plant physiology and development.

C-6.2

(Plant Biotechnology)

Objectives

To alter genetic information in organisms and produce improved varieties and to develop different product.

Outcomes

- Know about the role of tissues culture in crop improvement.
- Understand the basic knowledge about Recombinant DNA technology.
- Know about different transgenic crops with improved quality traits.
- Booming carrier option with high demand in different sectors.

DSE-6.3

(Horticultural Practices and Post- Harvest Technology)

Objectives

To increase the production and productivity of fruit, vegetable, ornamental crops, and its storage and protection from disease.

Outcomes

- Gain knowledge about transfer technology from lab to land.
- Learn about preserve the essential characteristics of plants.
- Produce high yielding variety of fruit, vegetables etc.
- Conservation of different horticultural crops.
- Protection of the plant its product before and after harvesting.

DSE-6.4

(Industrial and Environmental Microbiology)

Objectives

Application of microorganisms to produce different industrial products and use them to check environmental quality.

Outcomes

- Learn about fermenters and fermentation process.
- Understand the basic knowledge about downstream processing.
- Learn about distribution of microbes in air, water and soil.
- Learn about microbial remediation of contaminated soil.

UG ENVIRONMENTAL SCIENCE

CBCS PEOs AND COURSE OUTCOMES

Programme Outcomes

By the end of the Programme the students will be able to develop:

- PO 1** : Multidisciplinary knowledge related to catering to *environmental sustainability*
- PO 2** : Systemic and *critical thinking* with reference to environment-people-economic development attributes
- PO 3** : Problem identification *skills and sustainable* solution provisioning
- PO 4** : *Self-directed learning* efficiencies leading to a productive lifelong learning process to maintain a green life style.
- PO 5** : Research related skills such as review of literature, *Reflective thinking*, design of experiments, assignment, projects, *social interaction*, report writing and prepare target specific communication packages.

SEMESTER-I

C-1.1: EARTH AND EARTH SURFACE PROCESSES

Course Outcomes:

- CO1:** This paper enlightens and trained students about different aspects of origin and different processes of Earth surface along with different mineral composition and a brief account on mountains.
- CO 2:** Students will be able to Analyse formation of Solar System, Earth, Atmosphere & Hydrosphere through study of Solar System and history of Earth.
- CO 3:** Students will be able to Analyse role of Plate Tectonics in Various Earth Surface Processes.
- CO 4:** Create in student's ability to understand about changes in Earth's history with time.
- CO 5:** Students will be able to Evaluate the role of different types of Rocks in Rock Cycle and significance of Weathering and Erosion over Earth Surface.
- CO 6:** Students will Evaluate the role of Atmosphere - Ocean, Atmosphere- Land & Ocean-Land Interface in Earth.

C-1.2: PHYSICS AND CHEMISTRY OF ENVIRONMENT

Course Outcomes:

- CO 1:** Develop in depth knowledge about estimation of various Water Quality Parameters
- CO 2:** Develop practical knowledge on Measurement of soil parameters.
- CO 3:** Gain knowledge about Identification of Minerals
- CO 4:** Gain knowledge about Identification of Rocks
- CO 5:** Develop knowledge on Preparation of Herbarium and its Documentation

SEMESTER-II

C- 2.1 WATER AND WATER RESOURCES

Course Outcomes:

- CO 1:** Develop in depth knowledge about estimation of various Water Quality Parameters
- CO 2:** Develop practical knowledge on Measurement of soil parameters.
- CO 3:** Gain knowledge about Identification of Minerals
- CO 4:** Gain knowledge about Identification of Rocks
- CO 5:** Develop knowledge on Preparation of Herbarium and its Documentation.

C-2.2: LAND AND SOIL CONSERVATION AND MANAGEMENT

Course Outcomes:

- CO 1:** Develop in depth knowledge about estimation of various Water Quality Parameters
- CO 2:** Develop practical knowledge on Measurement of soil parameters.
- CO 3:** Gain knowledge about Identification of Minerals
- CO 4:** Gain knowledge about Identification of Rocks
- CO 5:** Develop knowledge on Preparation of Herbarium and its Documentation.

SEMESTER-III

C-3.1: ECOLOGY AND ECOSYSTEMS

Course Outcomes:

- CO 1:** Have an enhanced knowledge of an ecology.
- CO 2:** Be able to make connections and interrelations between various disciplines in the environment.
- CO 3:** Be able to explain the structure and impact of biogeochemical cycles.
- CO 4:** Be able to Illustrate abiotic/biotic interactions and symbiotic relationships.
- CO 5:** Be able to describe ecological and statistical techniques and approaches used in the study of environmental biology.

C-3.2: ENVIRONMENTAL BIOTECHNOLOGY

Course Outcomes:

- CO 1:** To explain the basic concepts of biotechnology
- CO 2:** To define the principles of Genetic Engineering
- CO 3:** To understand the techniques involve in Genetic Engineering
- CO 4:** To know the application of biotechnology
- CO 5:** To study the future and scope of biotechnology

C-3.3: ATMOSPHERE AND GLOBAL CLIMATE CHANGE

Course Outcomes:

- CO 1:** Describe the linkage between different components of the Atmospheric system and climate change.
- CO 2:** Explain the basic principles and laws global climate system.
- CO 3:** Understanding climate change causes and human interactions.
- CO 4:** Account for the impact of climate change on society and the role of various mitigation

and adaptative measures.

CO 5: Students able to learn effective implementation of environmental policy combating Climate Change.

SEMESTER-IV

C-4.1: SYSTEMATICS AND BIOGEOGRAPHY

Outcomes: This paper helps the students to better understand the concept of Taxonomic hierarchy, Nomenclature & Systems of classification. It also provides students the knowledge regarding biogeography, its speciation, extinction and its conservation by various methods.

CO 1: Concept and understanding of taxa and species CO₂

CO 2: Knowledge development regarding principles and rules of biological nomenclature system.

CO 3: Study on biogeography, speciation and extinction.

CO 4: Application of various conservation method of biodiversity.

C-4.2: URBAN ECOSYSTEMS

Course Outcomes:

CO 1: Demonstrate an entry level competence in understanding the ecological dynamics and their influence on urban ecosystem.

CO 2: Demonstrate the ability to carry out environmental analysis in field conditions/laboratories and make appropriate judgment on growing Indian cities.

CO 3: Ability to understand and appreciate the role of ecology and system dynamics in specific habitats/agro-ecosystems.

CO 4: Be able to understand the demands and function in environmental management.

C-4.3: ENVIRONMENTAL LEGISLATION AND POLICY

Course Outcomes:

CO 1: Get basic knowledge of environmental policies, its relevance, and various principles.

CO 2: Understand various acts and legislation in place and suggest solutions of the gaps in the existing policies and legislation.

CO 3: Know about international treaties and conventions

CO 4: Know the significance of various historical environmental movements.

SEMESTER-V

C-5.1: BIODIVERSITY AND CONSERVATION

Course Outcomes:

CO 1: To understand the importance of biodiversity.

CO 2: To analysis diversity types and indices.

CO 3: Develops knowledge on different factors for biodiversity laws.

CO 4: study various methods of biodiversity conservation.

CO 5: To learn the conservation status of species and recent developments on biodiversity.

C-5.2: ORGANISMAL AND EVOLUTIONARY BIOLOGY

Course Outcomes:

CO 1: At the end of this course, we expect the student to have a better understanding of the different evolutionary processes that shape biodiversity.

CO 2: The course also addresses micro-evolutionary processes using quantitative genetics at the molecular level.

CO 3: In the practical section of the course, the students will learn how to use analytical tools to construct and interpret phylogenetic trees from molecular data.

CO 4: To understand the evolutionary diversification of gene/protein families.

Discipline Specific Elective -I

DSE-5.3: ENERGY AND ENVIRONMENT

Course Outcome:

CO 1: Students would be able to exhibit an ability to integrate major factors affecting the Earth's energy resources, environment, and climate change.

CO 2: The students would be able to demonstrate expertise in energy supply and demand. Understanding technologies for sustainable energy usage.

CO 3: Conservation of energy, alternate energy efficiency, security and their association with environmental effects in a global and societal context.

CO 4: The students would exhibit innovative and creative solutions to energy and environmental problems through projects.

Discipline Specific Elective -II

DSE-5.4 : ENVIRONMENTAL ECONOMICS

Course Outcome:

CO 1: Discuss the environmental issues in relation to the theory of externalities, public goods, and welfare.

CO 2: Illustrate and examine economic principles concerning the choice of instruments for controlling pollution and the relative strength and weaknesses of environmental policies based on command-and-control vis-à-vis market-based instruments.

CO 3: Discuss various approaches and methods developed for valuing environmental goods and services.

CO 4: Examine issues in the contemporary environmental discourse from an economists' point of view.

SEMESTER-VI

C-6.1: ENVIRONMENTAL POLLUTION AND HUMAN HEALTH

Course Outcomes:

CO 1: Understanding of the essential concepts of environmental pollution, classification, and its sources.

CO 2: To gain clear concepts over air and water pollution and its impacts.

CO 3: Concept of noise, radioactive, and thermal pollution causes and effects.

CO 4: Understanding standards of the pollution level and its management as well as the impact on human health.

C-6.2: NATURAL RESOURCE MANAGEMENT AND SUSTAINABILITY

Course Outcomes:

CO 1: Be able to Protection of Natural Resources.

CO 2: Responsible Use of Natural Resources.

CO 3: To Promote energy conservation through efficient land use planning and building design through energy conservation.

CO 4: Students are able to understand the benefits of sustainable use of Natural Resources.

CO 5: Students are able to encourage conservation of natural resources, the city should work towards ensuring that users are charged for the full local costs of their individual use of water, electricity and sanitary sewers. There should also be educational programs to encourage conservation of natural resources.

Discipline Specific Elective Paper III**DSE-6.3: HAZARDS AND DISASTER RISK ASSESSMENT****Course Outcome:**

CO 1: Explain various types of Environmental disasters and responsible factors.

CO 2: Interpret and discriminate different stages of disaster management planning and utility tools in every stage.

CO 3: Understand the administrative structure of disaster management in India and know the ethical and humanitarian values.

CO 4: Apply advanced techniques in disaster management and disaster risk reduction.

Discipline Specific Elective Paper IV**DSE-6.4: SOLID WASTE MANAGEMENT (OPTIONAL-I)****Course Outcomes:**

CO 1: Understand the characteristic of wastes and the systems, and processes of waste management.

CO 2: Identify the case specific issues related to pollution potentials of solid wastes

CO 3: Address solid waste management practices through a cradle-to-grave approach

CO 4: Apply understanding to generate recourses from wastes

CO 5: Make appropriate decisions through application of waste management principle.

