+3 1st year commerce

Business Law

Core -2, semester-1

Core Objective**:**

The main objective of teaching Business Law is to present the complicated provisions of Business Laws in a simplified and concise manner.The objective the course is to impart basic knowledge of the important business legislation along with relevant case law. This paper also helps the student – To demonstrate the relationship between law and economic activity by developing in the student an awareness of legal principles involved in economic relationship and transaction.- To develop in the student an understanding of the free enterprise system and legal safeguard of the same- To teach some subjective law.

Program specific objective:

Unit-1: The Indian contract Act, 1872 General Principles –

- To ensure that the right and obligation arising out of a contract are honoured and the legal remedies are made available to an agreed party against the party failing to honour his part of agreement.
- The India contract act brings within its ambit the contractual rights that have been granted to the citizen of India.

Unit-2: - The India contract Act: Specific contract -

- The concept of identify and guarantee differ on several issues; they both remain modes of compensation with overlapping principles.
- Understand what a bailment is and why the law of bailment is important.
- Recognise how bailments compare with sales.
- Point out the elements required to create a bailment.

Unit-3: Sale of Goods Act, 1930

- Sale of Goods Act 1930: It is an Act to define and ausend the law relating to the sale of goods.
- It tells about the meaning of sale and goods, warranties and conditions, property transfer and includes the rights of impaid seller.
- The contracts for the sale of goods are subject to legal principles scholar to at the other contracts.
- This law includes ch VII of India contract Law 1872 [Sec 2 (5) (3)]

Unit-4: - Indian Partnership Act, 1932

- Understanding the concept of partnership.
- Identify the features of partnership form of business organization.
- State the advantages and disadvantages of partnership form of business organization.
- Recognise the different types of partners.
- Distinguish between partnership and sole proprietorship form of business organization.
- Suggest the stability of partnership form of business organization.

Unit-5: The Negotiable Instrument Act, 1881.

- Understanding of negotiable instruments including promissory note, bills of exchange and cheque.
- The negotiable instruments Law sets out the general rules that relate to bills of exchange, cheque and promissory notes.
- Defenses to claims for payment of bills of exchange.

+3 1st year commerce

Corporate Law

Core -4, semester-2

Core Objective:

Indian Companies Act, 2013 is the culmination of several years of effort to enact a new legislation governing companies to replace the Companies Act,1956.The 2013 Act introduces significant changes in the provisions related to governance, compliance and enforcement, disclosure norms, auditors etc.and adds new concepts such as OPC and small company etc.

Program specific objective:

Unit-1:

The basic objective of this unit is to provide a clear cut idea regarding following aspects.

- Purpose of the Companies Act,2013.
- Details regarding constitution and powers of various authorities administering the Companies Act, 2013,i.e.Ministry of corporate affairs, NCLT, NCLAT,Registrar of companies.
- Procedure of incorporation of a company.

Unit-2

The basic objective of this unit is to provide a clear cut idea regarding the following matters

- Preparation of various documents like memorandum, articles and prospectus etc,.
- Procedure for making alterations in memo, articles and prospectus as per Companies Act 2013.
- Procedure for issue and transmission of shares.

Unit-3

The basic objective of this unit is to provide a clear cut idea regarding the following aspects.

- Meaning and type of directors.
- Qualifications of directors.
- Concept of DIN.
- Powers of the board.
- . Registration and removal of directors.
- Meetings of the board.
- Committees of directors.

Unit-4

The basic objective of this unit is to provide a clear cut idea regarding the following matters.

- The legal procedures relating to distribution of dividend.
- The transfer of unpaid dividend to Investors Education and Protection Fund and utilisation of IEPF.
- The keeping of books of accounts and financial statements.
- Procedure for appointment of auditors,their qualifications, resignation and removal of auditors.

Unit-5

The basic objective of this unit is to provide a clear cut idea regarding the following aspects.

- Meaning of Depository system.
- Parties involved in a Depository system.
- Rights and obligations of Depositories,Depository participants, issuers and beneficial owners.
- Enquiry and inspection under The Depositories Act,1996.
- Penalties.
- Benefits of depository system etc,.

+3 1st year commerce

Corporate Accounting

Core -3, semester-2

Core Objective:

- To the students to acquire the conceptual knowledge of the corporate accounting and learn the technique of preparing for the financial statements.

Program specific objective:

Unit-1:

- To enable students in understanding the issue of shares buyback of shares and redemption of preference shares
- To develop an understanding about the preparation of financial statements(under companies act 2013)

Unit-3:

- To enable the students in understanding the concepts of valuation of goodwill and shares

Unit-4:

- To explain the concept and accounting treatment of internal reconstruction and accounting standard(14)

Unit-5:

- To provide conceptual clarity about the liquidation winding up and preparation of statement of affairs.

+3 1st year commerce

Financial Accounting

Core -1, semester-1

Core Objective

The objective of this paper is to help student to acquire conceptual knowledge of financial accounting and its impact skills for recording various kinds of business transactions.

Program specific objective:

Unit-1

- To provide theoretical knowledge of accounting based on accounting principle and Standards

Unit-2

- The basic aim of this program is to impart conceptual knowledge regarding depreciation on fixed assets and preparation of financial statements of standard based ledger accounts trial balance and adjustment

Unit-3

- To provide practical knowledge regarding valuations and recording of inventory as per Accounting Standard 2

Unit-4

- To provide practical exposure to the students regarding specialised accounting like lease branch accounting and departmental accounting

Unit-5

- To provide knowledge to the students regarding preparation of books of accounts relating to partnership business with specific reference admission retirement death and dissolution of partnership firm

+3 2nd year commerce

Business Mathematics

Core -9, semester-4

Core Objective:

- The objective of this course is to familiarise the students with the basic mathematical tools with emphasis on application to business and economic conditions.
- The students will be able to understand basic concepts in the areas of business calculus and financial mathematics and to connect acquired knowledge with practical problems in economic practice.

Program specific objective:

Unit-1

- To enable the students to learn basic concepts of determinants
- To enable the students to learn basic concepts of matrices.

Unit-2

- To develop an understanding about concept, relation, types and application of functions.
- To enable the students to learn the concept , methods, and business applications of limits and continuity.
- To enable the students to learn the concept, methods and business applications of derivation and uts higher order.

Unit-3

- To enable the students to learn the conce, methods and business applications of integration.

Unit-4

- To enable the students to learn the concept of single and compound interest along with their calculation.
- To help the students in learning the concept of annuity and it's application.

Unit-5

- To enable the students to have the knowledge of linear programming techniques and it's application in business.

+3 2nd year commerce

Business Statistics

GE-3, semester-3

Core Objective:

The objective of this course is

- To familiarise students with the basic statistical tools used for managerial decision making.
- The students are expected to be equipped with tools of processing and description of statistical data.
- The students would develop competence to use computer for statistical data.

Program specific objective:

Unit-1

- To provide a conceptual clarity about statistical framework and survey.
- To enable the students to understand the concept of data, process of data collection, classification and tabulation of data.
- To help the students in leaving the concept, types and calculation of averages.

Unit-2

- To enable the students to understand the concept , objectives, features and application of measures of dispersion.
- To enable the students to know the complementary relationship of skewness with measures of central tendency and dispersion in describing a set of data.
- To understand fundamentals of probability and various probability rules that help to measure uncertainty involving uncertainty.

Unit-3

- To express quantitatively the degree and direction of the co variation and association between two variables.
- To use simple linear regression for building models for business.

Unit-4

- To explain the purpose of index numbers.
- To revise the base period of a series of index numbers
- To compute indexes to measure price and quantity changes over time.

Unit-5

- To understand the pattern of the historical data and then extrapolate the pattern into future.
- To understand different approaches to forecasting that can be applied to business.
- To gain a general understanding of time series forecasting techniques.

+3 2nd year commerce

Cost and Management Accounting

Core -8, semester-4

Core Objective:

- To acquaint the students with basic concepts used in cost accounting various methods used in cost ascertainment.

Program specific objective:

Unit-1

- To understand and define the terms costing cost accounting Cost sheet cost centre and cost unit
- To discuss the various classification of cost
- To understand the elements of cost and components of cost
- To describe the advantages of cost accounting to management and others
- To understand the meaning and various techniques used for material/inventory control
- To understand the steps involved for purchasing materials
- To understand the various methods of pricing the material issues

Unit-2

- To understand the meaning of direct labour and its importance
- To discuss the causes of labour turnover
- To understand time rate and piece rate system of wage payment understand the various incentive schemes of labour remuneration and their effect on cost and profit.
- To understand the meaning of overheads and the methods of their classification describe the meaning of allocation and apportionment free apportionment and absorption of overheads understand under and over absorption of overheads and their accounting treatment

Unit-3

- To know the various methods of Costing that is unit costing job costing contract costing process costing the type of industries in which these methods is used

Unit-4

- To understand and define budget and budgetary control explain the objective merits and limitations of budgetary control explain the concept of fixed budget flexible budget and zero based budget and other type of functional budgets and know the method of preparation know the basic objective of standard costing technique
- To understand what is variance analysis and the method of computing material labour and overhead variance

Unit-5

- To define and understand marginal cost and marginal costing understand break even analysis cost volume profit analysis understand key terms like contribution , p/v ratio margin of safety angle of incidence etc.

+3 2nd year commerce

E-Commerce

SEC-1, semester-3

Core Objective:

- The objective is to familiarise students about information technology and application of E-commerce and also about the planning online Business, Technology used and making payment through Internet.

Program specific objective:

Unit-1

- To inform about advantages and reasons about transacting online and about supply chain management and customer relationship management .

Unit-2

- To provide conceptual understanding about the Internet and requirements for online business designing and development.

Unit-3

- To enable students know about the IT infrastructure and the use of Internet and integration of E-business applications.

Unit-4

- To provide understanding and reasons for payment online and the use of payment gateways and plastic money.

Unit-5

- To enable student in understanding the application of e commerce in various sectors.

+3 2nd year commerce

Entrepreneurship

SEC-3, semester-4

Core objectives:

- The purpose of the paper is to orient the learner towards entrepreneurship as a career option and creative thinking and behaviour for effectiveness at work and life.

Program specific objective:

Unit-1

- The basic objective of this unit is to communicate to the students some facts and basic ideas regarding entrepreneurial functions.
- To know the role of an entrepreneur in the economic development of a nation.
- To know various psychological and political factors of entrepreneurial environment.

Unit-2

- To impart some knowledge regarding different types of entrepreneurship.
- To have some knowledge regarding the various ways and means by which the practical problems faced by different entrepreneurs can be overcomed.

Unit-3

- To provide knowledge regarding various specialised institutions extending support to potential entrepreneurs.
- To understand the basic role and functions performed by these institutions for the development of entrepreneurship.

Unit-4

- To understand the various core competencies to become successful entrepreneurs.
- To know in detail various entrepreneurial traits.
- To impart knowledge regarding various sources of business ideas and test of feasibility.

- To explain administrative policy and guidelines for setting up an enterprise.
- To give knowledge regarding various techniques of a project appraisal and procedures involved in getting provisional registration.

Unit-5

- To understand mobilising of resources for starting an enterprise.
- To know preliminary contacts with the vendors, suppliers, bankers etc.
- To understand basic start-up problems and means of overcoming them.

+3 2nd year commerce

Human Resource Management

Core -5, semester-3

Core Objective:

- The objective of this paper is to detailed analysis on the core areas of HRM and key challenges that confront HR Managers in developing flexible and skilled workforce needed to compete effectively. This theme is woven around such major aspects as Human Resource Information System (HRIS), Employee Empowerment, HR Planning, Recruitment, Selection, Training and Development, Job Evaluation, Performance Appraisal, Promotion, Compensation, Industrial Relations and Employees Health, Safety, Welfare, Social Security, VRS and Institutional Grievance Handling and redressal Mechanisms.

Program specific objective:

UNIT-1:

- Understand the concept of HRM and explain its nature, objectives related to organisations, employees and society.
- Appreciate the role of HR Department as well as the responsibilities and status of HR management to carry out HR activities.
- Identify the phases in the evaluation and development of HRM.
- Understand the concept and various dimensions of workforce diversity, employee empowerment.
- Explain the concept of work-life balance and Human Resource Information System.

UNIT-2:

- Understand the Concept of HR Planning as well as its objective and significance.

- Describe the various factors that managers take account while deciding about time horizons for HR planning.
- To discuss the problems / barriers to HR planning and suggest steps to make HR Planning effective.
- Explain the Meaning, Uses and Limitations of Job Description.
- To understand the meaning, features, objectives and factors affecting recruitment of employees in an organisation.
- Describe the sources and methods of Internal and External recruitment.
- To understand the meaning, significance and features of selection.
- Differentiate and recruitment and selection and appreciate the right way to interview a job applicant.
- Understand the meaning, methods and significance of induction/orientation of employees in an organisation and also know how some reputed companies induct their employees.

UNIT-3:

- Understand how organisations develop an effective workforce through training and development efforts
- Discuss the role of training and development activities to achieve a sustainable competitive advantage for the organisations
- Explain the methods to identify training and development needs
- Outline the essentials of an effective training programme.
- Describe the various on-the-job and off-the-job methods of training employees and executors.

UNIT-4:

- Understand what performance appraisal is and how best it can be conducted to help improve job performance of employees.
- Explain the concept of performance management and differentiate it from performance appraisal
- Delineate the major traditional and modern methods of performance appraisal and role that superiors can play in making performance appraisal beneficial for employees and the organisations.
- Identify the barriers to effective performance appraisal, including common appraisal errors and explain the measures to overcome those barriers.
- Understand the meaning, purpose, the concept, reasons and types of transfers.
- Understand the concept of compensation policy, identify the major issues in compensation policies and appreciate the features of good compensation policy.
- Describe the major individual and group incentive plans, understanding the meaning, features, objectives and types of fringe benefits and identify the guidelines for managing fringe benefit programme effectively.
- Explain the individual-based, team-based, and enterprise-based performance linked compensation plan.

UNIT-5:

- Describe the need for employees health and safety
- Understand the relationship between working conditions and health of employees
- Describe employees welfare including social security measures.
- Understand the grievance handling and redressal procedure.
- Understanding the meaning of employer and employee relations

- Explain the meaning and causes of industrial disputes

+3 2nd year commerce

Human Resource Management

Core -6, semester-3

Core Objectives:

- To provide basic knowledge and equip student with the application of principles and provisions of Income Tax Act 1961 and the relevant rules.

Program specific objective:

Unit-1

- To provide basic knowledge related to residential status and scope of total income of assessee which are taxable in India

Unit-2

- To enable statement regarding calculation of total taxable income under the head of salaries and house property

Unit-3

- To enable students regarding calculation of total income under the head of Business and profession capital gains and income from other sources

Unit-4

- The basic objective of this unit is to provide knowledge regarding aggregation of income set off carry forward of losses deductions and relief and also calculation of tax liability of individuals and farms.

Unit-5

- This unit is practical oriented regarding filing of return by the assessee and TDS by the employer.

+3 2nd year commerce

Management principles and Applications

Core -7, semester-3

Core Objective:

- The objective of the course is to provide the students with an understanding of basic management concepts, principles and practices.

Program specific objective:

Unit-1

- To understand the concept and need and Management
- To know various Managerial functions
- To understand classical approach of Management thought by different authors
- To understand neo-classical approach of management thought by different authors
- To understand Management by objective

Unit-2

- To know the meaning and definition of planning
- To understand various types of plan
- To understand different internal and external environment analysis and their diagnosis
- To understand Different techniques (swot/twos)
- To know the concept and importance of decision making

Unit-3

- To know the concept and process of organising
- To understand different types of authority
- To know organisation structure
- To understand decentralization and delegation of authority and their importance

Unit-4

- To understand concept of staffing and staffing process
- To understand concept and importance and different motivation theories
- To understand concept and importance and major leadership theories
- To know the concept purpose and process of communication.

Unit-5

- To know the concept and principles of control

- To know Major control techniques ratio analysis ROI, budgetary control etc
- To understand emerging issues of Management.

+3 2nd year commerce

Personal Selling

SEC-2, semester-3

Core objectives-

Now a days selling is regarded as one of the important marketing activities in most of the organisations.The scope for selling has increased to a remarkable extent in past few decades due to the growth of trade and industry.Persuasive selling skills are used by both profit and non-profit making organisations.

Because of this varied nature of the selling jobs, personal Selling has developed into a specialised area of management.

Program specific objective:

Unit -1

The basic objective of this unit is to make clear to the students regarding the following matters.

- To build product awareness.
- To create interest in the minds of prospects.
- To communicate information regarding products to prospects.
- To stimulate demand.
- To reinforcing the brand.

Unit-2

The basic objective of this unit is to make clear to the students regarding how to motivate to a prospect,so that he can be converted into a buyer.

The following are the basic objectives of this unit.

- Motivating a prospect to become a buyer and effect of group influence.

Unit-3

The basic objective of this unit is to make clear to the students regarding the process of selling through which they may know the following matters.

- Lead generation.
- Recurring revenue.
- Referrals.
- Customer service.

Unit-4

A sales report gives a access to invaluable data that is generated by the effort of a team work.The basic objective of this unit is to make clear to the students regarding ,

- Who your customers are.
- Where your leads are coming from.
- What prompts a prospect to buy.
- Campaign success rate.
- Closing rate.

DEPARTMENT OF I.T & COMPUTER SCIENCE

COURSE OUTCOMES

SEMESTER-I

C:1- (Programming Using C)

UNIT1-

This unit covers the C Programming language starting with the structure, constants and variable declarations, the main subroutine, simple input/output, arithmetic expressions, Boolean expressions, the assignment statement, and lastly simple functions with at most one input and one output.

Unit2-

In programming the order of execution of instructions may have to be changed depending on certain conditions. This involves a kind of decision making to see whether a particular condition has occurred or not and then direct the computer to execute certain instructions accordingly.

Unit3-

A function is a block of code that performs a particular task. There are some situations when we need to write a particular block of code for more than once in our program. C language provides an approach in which you need to declare and define a group of statements once and that can be called and used whenever required. This saves both time and space.

Unit4-

Yes pointers are variable but variable that can point to the address of other variable . One use of pointer in C is pass-by-reference that when you pass a value lets say from main() to a function it is by default passed by value that mean if the function does any change to that variable that is passed it won't affect the one in main() but using pass-by-reference it will change the value in main().

Unit5-

A **file** represents a sequence of bytes on the disk where a group of related data is stored. File is created for permanent storage of data. It is a readymade structure. In C language, we use a structure **pointer of file type** to declare a file.

C:2-(Computer Organization)

Unit1-After going through this unit, you will be able to understand the decimal, binary, octal and hexadecimal number systems, convert from one number system into another, apply arithmetic operations to binary numbers, understand BCD codes and alpha numeric codes, learn the operations of logic gates, apply the basic laws of Boolean algebra, apply De Morgan's theorems to Boolean expressions

Unit 2-

In electronics, a flip-flop or latch is a circuit that has two stable states and can be used to store state information. A flip-flop is a bitable multivibrator.

These Registers are used for performing the various Operations. While we are working on the System then these Registers are used by the CPU for Performing the Operations.

Unit 3-

In computer architecture, a bus is a communication system that transfers data between components inside a computer, or between computers. Each instruction initiates a sequence of micro operations that fetch operands from registers or memory, possibly perform arithmetic, logic, or shift operations, and store results in registers or memory. Instructions are encoded as binary instruction codes.

Unit 4-

In computer programming, a subroutine is a sequence of program instructions that perform a specific task, packaged as a unit. This unit can then be used in programs wherever that particular task should be performed. A stack is a container of objects that are inserted and removed according to the last-in first-out (LIFO) principle. In the pushdown stacks only two operations are allowed: push the item into the stack, and pop the item out of the stack. A queue is a container of objects (a linear collection) that are inserted and removed according to the first-in first-out (FIFO) principle.

Unit 5-

Understand the concepts of interconnecting processor to memory devices, understand the speed of access of memory-devices, latency and bandwidth, and learn how they relate in a memory system

SEMESTER-II

C:3-(Programming Using C++)

Unit1-

Object-oriented programming (OOP) is a programming paradigm based on the concept of "objects", which may contain data, in the form of fields, often known as *attributes* and code, in the form of procedures, often known as methods. A feature of objects is that an object's procedures can access and often modify the data fields of the object with which they are associated. In OOP, computer programs are designed by making them out of objects that interact with one another. The most popular ones are class-based, meaning that objects are instances of classes, which typically also determine their type.

Unit2-

In C++, a function is a group of statements that is given a name, and which can be called from some point of the program. The most common syntax is: type name (parameter1, parameter2,) {statements}. A class is an abstract data type similar to 'C structure'. Class representation of objects and the sets of operations that can be applied to such objects. Class consists of Data members and methods.
An **Object** is an instance of a Class. When a class is defined, no memory is allocated but when it is instantiated (i.e. an object is created) memory is allocated.

Unit3-

Constructors are special class functions which performs initialization of every object. The Compiler calls the Constructor whenever an object is created. Constructors' initialize values to object members after storage are allocated to the object. Destructor is a special class function which destroys the object as soon as the scope of object ends. The destructor is called automatically by the compiler when the object goes out of scope.
Operator overloading means that the operation performed by the operator depends on the *type* of operands provided to the operator. Conversion operators help to cast user-defined types from one to the other much like the basic types.

Unit4-

Inheritance is one of the key features of Object-oriented programming in C++. It allows user to create a new class (derived class) from an existing class (base class).The derived class inherits all the features from the base class and can have additional features of its own. The word polymorphism means having many forms. Typically, polymorphism occurs when there is a hierarchy of classes and they are related by inheritance. virtual functions are called according to the type of object pointed or referred, not according to the type of pointer or reference. In other words, virtual functions are resolved late, at runtime. To access address of a variable to a pointer, we use the unary operator **&** (ampersand) that returns the address of that variable.

Unit5-

In case of C++ it uses streams to perform input and output operations in standard input output devices (keyboard and monitor). A stream is an object which can either insert or extract the character from it. An implementation file is used in C++ programming when creating a class definition to split the interface from the implementation. The header file would declare all the member functions (methods) and data methods (fields).

C:4-(Data Structure)

Unit1-

Data Structure is a way of collecting and organizing data in such a way that we can perform operations on these data in an effective way. Data Structures is about rendering data elements in terms of some relationship, for better organization and storage.

Unit2-

A **linked list** is a linear collection of data elements, in which linear order is not given by their physical placement in memory. Instead, each element points to the next. It is a data structure consisting of a group of nodes which together represent a sequence.

Unit3-

The simplest application of a stack is to reverse a word. You push a given word to stack - letter by letter - and then pop letters from the stack. Another application is an "undo" mechanism in text editors; this operation is accomplished by keeping all text changes in a stack.

Unit4-

A queue is a container of objects (a linear collection) that are inserted and removed according to the first-in first-out (FIFO) principle. An excellent example of a queue is a line of students in the food court of the UC. The difference between stacks and queues is in removing. In a stack we remove the item the most recently added; in a queue, we remove the item the least recently added.

Unit5-

A **tree** is a widely used abstract data type (ADT)—or data structure implementing this ADT—that simulates a hierarchical tree structure, with a root value and sub trees of children with a parent node, represented as a set of linked nodes.

SEMESTER-III

C:5 - (Operating system)

Unit1-

An Operating System (OS) acts as an interface connecting a computer user with the hardware of the computer. An operating system falls under the category of system software that performs all the fundamental tasks like file management, memory handling, process management, handling the input / output and governing and managing the peripheral devices like disk drives, networking hardware, printers etc.

Unit2-

Scheduling processes on the processor is often called ``process scheduling'' or simply ``scheduling''. Fairness, Efficiency, Low response time, Low turnaround time, High throughput, Repeatability.

Unit3-

CPU scheduling, the basis for multiprogrammed operating systems.CPU-scheduling algorithms. Evaluation criteria for selecting a CPU-scheduling algorithm for a particular system. Scheduling algorithms of several operating systems.

Unit4-

To develop a description of deadlocks, which prevent sets of concurrent processes from completing their tasks .To present a number of different methods for preventing or avoiding deadlocks in a computer system.

Unit5-

The computer's operating system, using a combination of hardware and software, maps memory addresses used by a program, called virtual addresses, into physical addresses in computer memory. Guarantees data in the file is valid, Optimizes performance in terms of throughput & response time, Provide I/O support for storage device type, Provide I/O support for multiple users, Meet user requirements for data operations.

C:6 - (Database Management System)

Unit1-

In the database, each set of information is stored in the form of rows and columns. We define a unique key column for each record known as primary key. This helps in reducing unnecessary data storage and faster retrieval of data. A **data model** is an abstract model that organizes elements of data and standardizes how they relate to one another and to properties of the real world entities.

Unit2-

relational algebra is a (high-level) procedural language; can tell the DBMS how to build a new relations from other relations in the database. Relational calculus is an query language which is non procedural, and instead of algebra it uses mathematical predicate calculus.

Unit3-

SQL (Structured Query Language) is a standardized programming language used for managing relational databases and performing various operations on the data in them. The uses of SQL include modifying database table and index structures; adding, updating and deleting rows of data; and retrieving subsets of information from within a database for transaction processing and analytics application.

Unit4-

Normalization is the procedure to split the relation into relations with less attributes thereby minimizing the redundancy of the data and minimizing the insertions, deletions and updating. There are above five normal forms. These are 1NF, 2NF, 3NF, 4NF and 5NF. Here NF stands Normal Form.

Unit5-

Hash File organization method is the one where data is stored at the data blocks whose address is generated by using hash function.

C:7-(Discrete structure)

Unit1-

Discrete mathematics deals with objects that come in discrete bundles. A predicate with variables can be made a proposition by either assigning a value to the variable or by quantifying the variable. Nested quantifier uses a quantifier that appears within the scope of another quantifier. Structural induction applies induction on recursive definitions even if there is no integer. Algorithm recursive solves by reducing it to an instance of the problem with smaller input.

Unit2-

Recursive function used to describe any function that is defined with recursion. Subsets of n-ary Cartesian Products. The Cartesian product is the set of n-tuples (a1... an). Fundamental of equivalence relations, relation and properties, partial ordering, Boolean (true or false).

Unit3-

Boolean functions used for a description of the operation of discrete control systems. Logic gates are the basic building blocks of logic circuits. Study of structure of algebras, monodies, homomorphism and congruence relation. A polynomial **ring** is a set equipped with addition and multiplication satisfying certain properties.

Unit4-

Pigeonhole principle of n items is put into m containers. Concepts in fundamental counting rule, the *permutation* rule, and the *combination* rule. Binomial coefficient, generating perambulations and combinations. *Inclusion–exclusion principle* is to the combinatorial problem of counting all derangements of a finite set. **Bayes' theorem** that describes how to update the probabilities of hypotheses when given evidence.

Unit5-

Graph theory is an important part of a number of disciplines in the fields of mathematics, engineering and computer science. *Graph Models*: Social Networks. *Model* social *structures*: relationships between people or groups. *Havel-Hakim* method, determine if the degree sequence numbers in graphical. Study of graph isomorphism and connectivity. **Euler path** and **Hamiltonian path** graph problems deal with finding a path between two vertices or finding a path between two vertices. Fundamental of network flows and graph coloring.

SEMESTER-IV

C:8-(Java programming)

Unit1-

Understand fundamentals of programming such as variables, conditional and iterative execution, methods. Understand fundamentals of object-oriented programming in Java, including defining classes, data types, operator, invoking methods, using class libraries; be aware of the important topics and principles of software development. Be able to use the Java SDK environment to create, debug and run simple Java programs.

Unit 2-

An introduction to object oriented programming (OOP) using the Java programming language.
The model of object oriented programming: string class, class, byte, character stream, class constructor, method overloading. Fundamental features of an object oriented language like Java: object classes and interfaces, exceptions and libraries of object collections.

Unit 3-

An introduction to purely (OOP) using the Java programming language. In this unit using abstract data types, encapsulation, inheritance and polymorphism. Using standard java packages like Lang, io, net can import individual classes or a whole package of classes.

Unit 4-

Multithreading in java is a process of executing multiple threads, difference between multithreading, multiprocessing; threads share a common memory area. An exception is an object that wraps an error event that occurred within a method and contains: Information about the error including its type. Study of Internet protocol and data programming. Database connectivity, manipulating, accessing with JDBC (java database connectivity).

Unit 5-

Applet program that is embedded in the webpage. How to runs inside the browser and works at client side. Event handling of click on button, dragging mouse use of java.awt.event package using many event classes and Listener interfaces for event handling. Design and implementation of GUIs using AWT controls. Application diagram and calculation showing through lines, rectangle and oval, Fetching of fonts. Textbox label buttons creation and implement.

C:9-(Computer Network)

Unit1-

The Open Systems Interconnection model (OSI model) is a conceptual model that characterizes and standardizes the communication functions of a telecommunication or computing system without regard to their underlying internal structure and technology. Its goal is the interoperability of diverse communication systems with standard protocols. The model partitions a communication system into abstraction layers. The original version of the model defined seven layers.

Unit2-

There is different type of signal conversion i.e. from analog to digital, digital to digital, digital to analog and analog to analog.

Unit3-

In telecommunications and computer networks, multiplexing is a method by which multiple analog or digital signals are combined into one signal over a shared medium. There are basically three types of switching methods are made available. Out of three methods, circuit switching and packet switching are commonly used but the message switching has been opposed out in the general communication procedure but is still used in the networking application.

Unit4-

error detection and correction or error control are techniques that enable reliable delivery of digital data over unreliable communication channels. Many communication channels are subject to channel noise, and thus errors may be introduced during transmission from the source to a receiver. Error detection techniques allow detecting such errors, while error correction enables reconstruction of the original data in many cases.

Unit5-

Stands for "Local Area Network" and is pronounced "lan." A LAN is a network of connected devices that exist within a specific location. LANs may be found in homes, offices, educational institution, or other areas. A LAN may be wired, wireless, or a combination of the two. A standard wired LAN uses Ethernet to connect devices together. Wireless LANs are typically created using a Wi-Fi signal. If a router supports both Ethernet and Wi-Fi connections, it can be used to create a LAN with both wired and wireless devices.

C:10-(Computer Graphics)

Unit-1

Graphic Systems Industrial & Commercial Printing & Packaging *monitor* or *display* is electronic visual *display* for computers. Raster scan system the electron beam is swept across the screen, one row at a time from top to bottom. Input devices, hard copy devices, graphic software. Graphic point and lines draw. *Algorithm* graphical *algorithm* for a *line* segment on discrete graphical media. Graphics primitive, no divisible graphical element for input or output within a computer-graphics system. File area attributes. Ant aliasing software technique for diminishing lines.

Unit-2

Basic geometric transformations are translation, rotation, and scaling. Other transformations that are often applied to objects include reflection and shear. Study of matrix representation, homogenous coordinates, composite transformations, inverse transformation. Two Dimensional *Viewing*. *Pipeline*. Clipping window -- the part of two dimensional scenes that it to be displayed, viewport coordinate transformation. Line clipping is the process of removing lines or portions of lines outside an area of interest. 3D can view an object from any spatial position, Viewing Transformation. *Parallel Projection*. *Perspective Transformation* and Perspective Projection.

Unit-3

Curved Surface Area of a Cylinder. Quadratic surfaces include the cone, cylinder, ellipsoid, sphere, and spheroid. *B-spline*, or basis spline, is a spline function that has minimal support with respect to a given degree. *BSP tree* is a hierarchical subdivision of n dimensional space. Fractral geometry methods.

Unit-4

Visible-Surface Detection identifies those parts of a scene that are *visible* from a chosen viewing position. Back face detection and depth buffer method. *Scan line*. Z – *Sort*. *Depth* List. Visible element determination. Ray casting is the use of ray–surface intersection tests.

Unit-5

Illumination Model Reflection – light is reflected with equal intensity in all directions. Displaying light intensities, *Halftone* screen *patterns* are a key ingredient of retro design, polygon rendering methods. Ray tracing's in a realistic simulation of lighting over other rendering methods. *Computer animation* process used for generating *animated* images. Hierarchical modeling introductory.

SEC:II-(Android programming)

Unit-1

Android is a mobile operating system developed by Google, designed primarily for touch screen mobile devices such as smart phones and tablets. Android developer *tools* to build apps for *Android* phones, tablets. Oops programming concept using java. An abstract computing machine to run a Java program.

Unit-2

A programming tool or software development tool is a computer program that software developers use to create, debug, and maintain. Eclipse development application with ADT pug in. Android emulator of sandwich jellybean, creating a small program. Deploying in android devices.

Unit-3

Functional requirements for a user interface system. *Lifecycle* callback methods. Device screen size deploying like height, width inches.

Unit-4

Form appearing with applies action, textbox use, button event, toggle button for different devices. Dropdown box, putting images, dialog box of messages, and stylish menu use.

Unit-5

Database connectivity with android application and uses of sqlite database query.

SEMESTER-V

C:11-(Internet Technology)

Unit1-

Objects are key to understanding object-oriented technology. Look around right now and you'll find many examples of real-world objects: The Array List class extends Abstract List and implements the List interface.

Unit2-

JavaScript is an excellent language to write object oriented web applications. It can support OOP because it supports inheritance through prototyping as well as properties and methods.

Unit3-

To connect with individual databases, JDBC (the Java Database Connectivity API) requires drivers for each database. The JDBC driver gives out the connection to the database and implements the protocol for transferring the query and result between client and database.

Unit4-

Java Server Pages (JSP) is a technology that helps software developers create dynamically generated web pages based on HTML, XML, or other document types. Released in 1999 by Sun Microsystems.

Unit5-

In computing based on the Java Platform; JavaBeans are classes that encapsulate many objects into a single object (the bean). They are serializable, have a zero-argument constructor, and allow access to properties using getter and setter methods. The name "Bean" was given to encompass this standard, which aims to create reusable software components for Java.

C:12-(Software Engineering)

Unit-1

Introduction to *Professional Software Development* work in teams, to find and fix errors, to write software and insures their code base against disaster. *Software engineering* leaders promote an *ethical* approach to the management of *software* development and maintenance. Software process model analysis, process activities and coping with change. Agile software development set of values and principles for software development under which requirements and solutions. Agile method, agile development agile project management and scaling agile methods

Unit-2

Requirements engineering refers to the process of defining, documenting and maintaining requirements in the engineering design process. Non-functional requirement is a requirement that specifies criteria can be used to judge the operation of a system contrasted with functional requirements. Software requirement documents, requirement specification, engineering process requirement analysis, requirement validation, requirement management, system modeling, context models, interaction models, structural models, behavior models. *Architectural design* news on *Architectural* Digest, including profiles on top talent, building announcements and new projects. *Architecture decision* record is a short text file. Architectural views and patterns.

Unit-3

Object-Oriented Analysis and *Design* Concepts in *UML*, inherently *object-oriented* modeling language designed for use in *object-oriented* software applications. *UML* and OOAD. *UML* core elements. *Open-source* software *development* is the process by *open-source* software, source code is publicly available. Software testing after development, test driven development, release testing, software evolution, evolution process, program evolution dynamics, software maintenance of software and legacy system management. Preliminary risk analysis identifies risks from the systems environment. Aim is to develop an initial set of system *security* and *dependability* requirements.

Unit-4

Sociotechnical systems organizational development an approach to complex organizational work design that recognizes the interaction between people and technology in workplaces. S*ystems engineering* management that focuses on how to design and manage complex *systems* over their life cycles. Operation of system. Dependability and security their properties and uses. Risk driven requirements, specification reliability specification, security specification, safety specification and formal specification.

Unit-5

Dependability and Computer *Engineering*: Concepts for Software-Intensive Systems offers a state-of-the-art overview of the *dependability* research. Redundancy is generally applied to hardware and components and is intended to make the full system more resilient. Diversity is a specific instance of redundancy. Dependable systems architecture, dependable programming and security engineering. Security mass management needs of organization. Security survivability, dependability and security assurance. Software Reliability is the probability of failure-free software operation for a specified period of time in a specified environment. Process assurance and safety dependability cases.

DSE:1-(Information Security)

Unit1-

Cryptography is an indispensable tool for protecting information in computer systems. In this course you will learn the inner workings of cryptographic systems and how to correctly use them in real-world applications.

Unit2-

Being human, programmers and other developers make many mistakes, most of which are unintentional and no malicious. Many such errors cause program malfunctions but do not lead to more serious security vulnerabilities. However, a few classes of errors have plagued programmers and security professionals for decades, and there is no reason to believe they will disappear. In this section we consider three classic error types that have enabled many recent security breaches.

Unit3-

Database security concerns the use of a broad range of information security controls to protect databases (potentially including the data, the database applications or stored functions, the database systems, the database servers and the associated network links) against compromises of their confidentiality, integrity and availability. *Database security* is a specialist topic within the broader realms of computer security, information security and risk management.

Unit4-

Network security combines multiple layers of defenses at the edge and in the network. Each network security layer implements policies and controls. Authorized users gain access to network resources, but malicious actors is blocked from carrying out exploits and threats.

Unit5-

An information security strategic plan can position an organization to mitigate, transfer, accept or avoid information risk related to people, processes and technologies. Protecting sensitive data is the end goal of almost all IT security measures. Two strong arguments for protecting sensitive data are to **avoid** identity theft and to **protect privacy**.

DSE:2-(Microprocessor)

Unit -1

Processor architecture is the science of integrating those components to achieve a level of functionality and performance. **MU0 an abstract design, The study of MU0 processor designing, processor design trade-offs. Design of low power consumption.** ARM processor is one of a family of CPUs based on the RISC architecture developed by Advanced RISC Machines. The arm programmers' model and arm development tools.

Uint-2

General data processing instructions. Add, Subtract, and Reverse Subtract. Data transfer instructions move data between memory and the general-purpose and segment registers. Control flow instructions, arm organization and implementation. 3-stage pipeline ARM organization, ARM coprocessor interface.

Unit-3

Conditionally execute statement lists according to the value of a Boolean expression. Branch and *exchange* instruction set, Branch with *Link and exchange* instruction set. Software interrupt, data processing instruction. *Multiple register transfer instructions* provide efficient way of moving the contents of several registers. *Coprocessor Register Transfer* Instructions. LDC and STC Transfer data between memory and coprocessor. Breakpoint instruction, unused instruction, space and memory faults

Unit-4

An abstraction during design gives the *designer* freedom to field its explicit formulation. Data types like integer, float, double. Conditional statement of program, loops programming, function and procedures. Memory uses when and where, runtime environment and program examples.

Unit-5

The *Thumb* instruction set consists of 16-bit instructions. Thumb branch instruction. Thumb software interrupts instruction. *Thumb* general *data processing instructions* .thumb data processing instruction contains the following subsections: AND, ORR, EOR, and BIC Bitwise logical operations. Thumb single register data transfer instructions for accessing half-words were a later addition to the instruction set so have some restrictions. Thumb multiple register data transfer instruction. Thumb breakpoint instruction, thumb implementation, thumb application, ARM memory interface. Bus communication system that transfers data between components inside a computer, or between computers. ARM reference peripheral specification. ARM Instruction Set Simulator, *ARMulator*, is one of the software development tools provided by the development systems business unit.

SEMESTER-VI

C:13-(Artificial Intelligence)

Unit1-

In artificial intelligence, an intelligent agent (IA) is an autonomous entity which observes through sensors and acts upon an environment using actuators (i.e. it is an agent) and directs its activity towards achieving goals (i.e. it is "rational", as defined in economics). Search is a central topic in Artificial Intelligence. This part of the course will show why search is such an important topic, present a general approach to representing problems to do with search, introduce several search algorithms

Unit2-

Knowledge representation and reasoning (KR) is the field of artificial intelligence (AI) dedicated to representing information about the world in a form that a computer system can utilize to solve complex tasks such as diagnosing a medical condition or having a dialog in a natural language.

Unit 3-

Most real-world Planning problems are multi-objective, trying to minimize both the make span of the solution plan, and some cost of the actions involved in the plan.

Unit 4-

Decision tree learning is one of the most successful techniques for supervised classification learning. In this all of the features have finite discrete domains, and there is a single target feature called the classification. The idea of ANNs is based on the belief that working of human brain by making the right connections can be imitated using silicon and wires as living neurons and dendrites. Reinforcement learning (RL) is an area of machine learning inspired by behaviorist psychology, concerned with how agent sought to take actions in an environment so as to maximize some notion of cumulative reward.

Unit5-

Natural language processing (NLP) is a field of computer science, artificial intelligence and computational linguistics concerned with the interactions between computers and human (natural) languages, and, in particular, concerned with programming computers to fruitfully process large natural language corporation.

C:14-(Design And Analysis Of Algorithms)

Unit-1

Uses of Analysis and design of algorithm. *Asymptotic Analysis* that handles above issues in analyzing algorithms. Divide and conquer algorithm design paradigm based on multi-branched recursion. *Recurrence relation* recursively defines sequence or multidimensional array of values. *Stassen's* matrix Divide and Conquer method to multiply two matrices.

Unit-2

Quick Sort is a Divide and Conquer algorithm. *Heap sort* is a comparison based sorting technique based on Binary Heap data structure. Counting sort technique based on keys between specific ranges. Randomized quick sort of integer or data. Order statistics.

Unit-3

Amortized analysis is a method for analyzing a given algorithm's time complexity. 2–3–4 tree self-balancing data structure, commonly used to implement dictionaries. Fibonacci heap data structure for priority queue operations. Black color node. Hashing to map data of arbitrary size to data of fixed size. *Succinct data structure* uses amount of space to the information-theoretic lower bound.

Unit-4

Matrix chain multiplication and optimization problem that can be solved using dynamic programming. *Algorithm* code returns only length of *LCS.* Travelling Salesman Problem (*TSP*). *Branch and bound* algorithm design paradigm for discrete and combinatorial optimization problems. Greedy algorithm paradigm follows the problem solving heuristic of making the locally optimal choice at each stage with the hope of finding a global optimum. Study of Convex hall, fractional knapsack and back tracking.

Unit-5

PSPACE is the set of all decision problems. NP-complete decision problem is one belonging to both the NP and the NP-hard complexity classes. Vertex cover of a graph is a set of vertices. *Graph coloring* problem to assign colors to certain elements of a graph subject to certain constraints. Uses of cycle matching, exact cover, independent set, Hamiltonian and cheque. Minimum size *vertex cover* of a graph is NP complete, Travelling Salesman Problem (*TSP), and sum of subset.*

DSE:3-(Cloud Computing)

Unit-1

Grid computing collection of *computer* resources from multiple locations to reach a common goal. *Computer cluster* set of loosely or tightly connected *computers* that work together. *Distributed computing* systems are shared among multiple *computers. Cloud computing* paradigm that enables ubiquitous access to shared pools of configurable system. History of cloud computing and introduction too. Cloud service provider and benefits.

Unit-2

A comparison of *traditional* methods versus current cloud *computing. Infrastructure* as a *service* (*IaaS*) refers to online *services* that provide high-level APIs used according to the Internet Engineering Task Force. Enterprise *PaaS* provides software developers self-service portal for managing computing *infrastructure. SaaS* users are responsible for managing applications, data, runtime, middleware. Works of cloud computing and deployment. Public cloud standard cloud computing model, private cloud, hybrid cloud, community cloud.

Unit-3

Case study of services, The *Model* Class *application* describes the kinds of data it uses *with models*. *Microsoft Azure* open, flexible, enterprise-grade cloud computing platform uses. Compute Cloud *Amazon EC2* web service provides secure, resizable compute capacity in the cloud.

Unit-4

Cloud service management and *cloud* monitoring encompass a broad range of processes and practices. *Service-level agreement* (*SLA*) official commitment between a *service* provider and client. Billing and a*ccounting* programs of document financial a*ccounting*. Comparing scaling hardware and economics of scaling. Core difference between traditional IT and the cloud.

Unit-5

Cloud security refers to a broad set of policies, technologies, and controls deployed to protect data, applications, host level security, application level security, and network level security. Protective digital privacy to prevent unauthorized access to computers, databases and websites. Security issues, jurisdictional issues and data privacy. Identity management and *authentication* form the basis for security in *cloud* or on the local network.

DSE:4-(PROJECT WORK)

The project provides an important opportunity for students to plan and carry out a detailed and original piece of scientific research and communicate the results. You should develop the following abilities:

1. The formulation of scientific questions, the planning of an investigation and the design of individual experiments.
2. In-depth scientific review of a subject.
3. Organisation of research including: logistics, recording, archiving, numerical analysis and presentation of data.
4. Technical expertise.
5. Interpretation and presentation of results in the form of a dissertation.

DEPARTMENT OF I.T & COMPUTER SCIENCE		
SEMESTER-I		
CORE	**PAPER NAME**	**OBJECTIVE**
CORE-1	C:1-PROGRAMMING USING C	At its core, Objective-C is an ANSI standard version of the C programming language. Wrapped around this ANSI C core is a Smalltalk-inspired set of extensions that give the language its object-oriented capabilities, as well as several other enhancements that you don't get from the regular version of C. Brad Cox and Tom Love created the Objective-C programming language in the early 1980s in an effort to get people to write cleaner, more modular, and clearly separated code. Contrary to popular belief, Objective-C wasn't invented by, nor is it exclusively owned by, Apple. It's actually an open standard; in the past, implementations of the Objective-C compiler existed that even ran on Windows. If you have had any experience with C, learning Objective-C should be a breeze. Most developers find that learning the Objective-C syntax takes very little time at all, and the rest of the learning curve is devoted to learning about all the tools and controls available in Cocoa for Mac OS X.
CORE-2	C:2-COMPUTER ORGANIZATION	• To apply the knowledge of performance metrics to find the performance of systems. • To create an assembly language program to program a microprocessor system. • To design a hardware component for an embedded system • To deal with different types of computers • To identify high performance architecture design • To identify the problems in components of computer. • To develop independent learning skills and be able to learn more about different computer architectures and hardware. • To learn & use the new technologies in computers. • To use the knowledge of micro programming in the field of speech processing.

SEMESTER-II		
CORE	**PAPER NAME**	**OBJECTIVE**
CORE-3	C:1-PROGRAMMING USING C++	The prime purpose of C++ programming was to add object orientation to the C programming language, which is in itself one of the most powerful programming languages. The core of the pure object-oriented programming is to create an object, in code, that has certain properties and methods. While designing C++ modules, we try to see whole world in the form of objects. For example a car is an object which has certain properties such as color, number of doors, and the like. It also has certain methods such as accelerate, brake, and so on.
CORE-4	C:4-DATA STRUCTURE	• To apply the knowledge of performance metrics to find the performance of systems. • To create an assembly language program to program a microprocessor system. • To design a hardware component for an embedded system • To deal with different types of computers • To identify high performance architecture design • To identify the problems in components of computer. • To develop independent learning skills and be able to learn more about different computer architectures and hardware. • To learn & use the new technologies in computers. • To use the knowledge of micro programming in the field of speech processing.

SEMESTER-III		
CORE	**PAPER NAME**	**OBJECTIVE**
CORE-5	C:5-OPERATING SYSTEM	An operating system is a program that acts as an interface between the software and the computer hardware. • It is an integrated set of specialized programs used to manage overall resources and operations of the computer. It is a specialized software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software The objectives of the operating system are − • To make the computer system convenient to use in an efficient manner. • To hide the details of the hardware resources from the users. • To provide users a convenient interface to use the computer system. • To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources. • To manage the resources of a computer system. • To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users. • To provide efficient and fair sharing of resources among users and programs.
CORE-6	C:6-DATABASE MANAGEMENT SYSTEM	1. Understand the areas of database design, SQL and programming 2. Understand relational and object oriented database technology for building applications for the current trend 3. Evaluate a business situation and designing & building a database applications

		• List and explain the fundamental concepts of a relational database system. • Utilize a wide range of features available in a DBMS package. • Analyze database requirements and determine the entities involved in the system and their relationship to one another. • Develop the logical design of the database using data modeling concepts such as entity-relationship diagrams. • Create a relational database using a relational database package. • Manipulate a database using SQL. • Assess the quality and ease of use of data modeling and diagramming tools. • To deal with different types of computers • To identify high performance architecture design • To identify the problems in components of computer. • To develop independent learning skills and be able to learn more about different computer architectures and hardware. • To learn & use the new technologies in computers. • To use the knowledge of micro programming in the field of speech processing.
CORE-7	C7:- DISCRETE STRUCTURES	Objective 1: Students will learn basic logic and set theory. Objective 2: Students will learn core ideas in combinatorial mathematics. Objective 3: Students will learn core ideas in graph theory. Evaluate Boolean functions and simplify expression using the properties of Boolean algebra ,apply Boolean algebra to circuits and gating networks. Use finite-state machines to model computer operations.

SEMESTER-IV		
CORE	**PAPER NAME**	**OBJECTIVE**
CORE-8	C:8-JAVA PROGRAMMING	• This course provides an introduction to **object oriented programming (OOP)** using the **Java** programming language. o Its main objective is to teach the basic concepts and techniques which form the **object oriented programming paradigm** • Students completing the course should know: o The **model** of object oriented programming: **abstract data types, encapsulation, inheritance** and **polymorphism** o **Fundamental features** of an object oriented language like Java: **object classes** and **interfaces, exceptions** and libraries of **object collections** o How to take the statement of a business problem and from this determine **suitable logic for solving the problem;** then be able to proceed to code that logic as a program written in Java. o How to **test, document** and **prepare** a professional looking package for each business project using javadoc.
CORE-9	C:9-COMPUTER NETWORK	A computer network is defined as interconnected collection of autonomous computers. Computer are said to be interconnected, if they able to exchange information. Connection is physically established through cables, lasers, microwaves, fiber optics and communication satellite. Right from the day of computer automation, a computer has developed computer in each department. For example, the task can be to keep of track off inventories, monitor productivity and maintain accounts. Initially, this computer in different department works as an isolation from other computer. These provided the necessary computer assistance in the activities pertaining to the

		respective department. It was not possible to share information among the departments. As a result, the information was replicated wherever needed This increased redundancy caused increased in storage space, less data consistency etc. Hence, at a point it was decided to connect the computers in various departments to extract the information and correlate information about the entire company.
CORE-10	C10:- COMPUTER GRAPHICS	Computer Graphics is the illustration field of Computer Science. Its use today spans virtually all scientific fields and is utilized for design, presentation, education and training. Computer Graphics and its derivative, *visualization*, have become the primary tools by which the flood of information from Computational Science is analyzed. • To Identify and explain the core concepts of computer graphics. • Apply graphics programming techniques to design, and create computer graphics scenes. • Create effective OpenGL programs to solve graphics programming issues, including 3D transformation, objects modeling, colour modeling, lighting, textures, and ray tracing.
SEC:II	SEC:II-ANDROID PROGRAMMING	Build and deploy his/ her Android application. • Students understand the operation of the application, application lifecycle, configuration files, intents, and activities. • The candidates get a better understanding of the UI - components, layouts, event handling, and screen orientation. • Students also develop a working knowledge of the custom UI elements and positioning. • The candidates may also have an in-depth understanding of broadcast receivers and services. • The networking capabilities such as JAVA Sockets, JAVA XML and JSON are taught. • The trainee may develop a basic application that acts as a working example of all the topics covered in the class.

SEMESTER-V		
CORE	**PAPER NAME**	**OBJECTIVE**
CORE-11	C:8-INTERNET TECHNOLOGY	The aim of this course is to provide you the conceptual and technological developments in the field of Internet and web designing with the emphasis on comprehensive knowledge of Internet, its applications and the TCP/IP protocols widely deployed to provide Internet connective worldwide. The World Wide Web with its widespread usefulness has become an integral part of the Internet. Therefore, this course also puts emphasis on basic concepts of web design. • Review the current topics in Web & Internet technologies. • Describe the basic concepts for network implementation. • Learn the basic working scheme of the Internet and World Wide Web • Understand fundamental tools and technologies for web design. • Comprehend the technologies for Hypertext Mark-up Language (HTML). • Specify design rules in constructing web pages and sites. • Effectively deal with programming issues relating to VB Script, JavaScript, Java, ASP, Front Page and Flash. • Figure out the various security hazards on the Internet and need of security measures.

CORE-12	C:12-SOFTWARE ENGINEERING	1. Maintainability – the ease with which changes in a functional unit can be performed in order to meet prescribed requirements. 2. Correctness – the extent to which software meets its specified requirements 3. Reusability – the extent to which a module can be used in multiple applications. 4. Testability – the extent to which software facilitates both the establishment of test criteria and the evaluation of the software with respect to those criteria. 5. Reliability – an attribute of software quality. The extent to which a program can be expected to perform its intended function, over an arbitrary time period. 6. Portability – the ease with which software can be transferred from one computer system or environment to another. 7. Adaptability – the ease with which software allows differing system constraints and user needs to be satisfied by making changes to the software.
DSE:1	DSE:1-INFORMATION SECURITY	1. Educational Objectives: This introductory course is aimed at giving basic understanding about system security. This entry-level course covers a broad spectrum of security topics and is based on real-life examples to create system security interest in the students. A balanced mix of technical and managerial issues makes this course appealing to attendees who need to understand the salient facets of information security basics and the basics of risk management. 2. Course Outcomes: At the end of the course, the students have firm understanding on basic terminology and concepts related to network and system level security, basics of computers and networking including Internet Protocol, routing, Domain Name Service, and network devices. They are also exposed to basic cryptography, security management, and network security techniques. They also look at policies as a tool to effectively change an organization's culture towards a better secure environment.

		In the end, the students put it all together in the form of a case study for designing and auditing a security system at conceptual level.
DSE:2	DSE:2-MICROPROCESSOR	A microprocessor is a computer processor which incorporates the functions of a computer's central processing unit (CPU) on a single integrated circuit (IC), or at most a few integrated circuits. The microprocessor is a multipurpose, clock driven, register based, digital-integrated circuit which accepts binary data as input, processes it according to instructions stored in its memory, and provides results as output. Microprocessors contain both combinational logic and sequential digital logic. Microprocessors operate on numbers and symbols represented in the binary numeral system. The integration of a whole CPU onto a single chip or on a few chips greatly reduced the cost of processing power, increasing efficiency. Integrated circuit processors are produced in large numbers by highly automated processes resulting in a low per unit cost. Single-chip processors increase reliability as there are many fewer electrical connections to fail. As microprocessor designs get better, the cost of manufacturing a chip (with smaller components built on a semiconductor chip the same size) generally stays the same.

SEMESTER-VI		
CORE	**PAPER NAME**	**OBJECTIVE**
CORE-13	C:13-ARTIFICIAL INTELLIGENCE	The objective of the course is to present an overview of artificial intelligence (AI) principles and approaches. Develop a basic understanding of the building blocks of AI as presented in terms of intelligent agents: Search, Knowledge representation, inference, logic, and learning. Students will implement a small AI system in a team environment. The knowledge of artificial intelligence plays a considerable role in some applications students develop for courses in the program. Learning Outcomes: Upon successful completion of this course student will: - be able to design a knowledge based system, - be familiar with terminology used in this topical area, - have read and analyzed important historical and current trends addressing artificial intelligence.
CORE-14	C:14-DESIGN AND ANALYSIS OF ALGORITHMS	The objective of the course is to teach techniques for effective problem solving in computing. The use of different paradigms of problem solving will be used to illustrate clever and efficient ways to solve a given problem. In each case emphasis will be placed on rigorously proving correctness of the algorithm. In addition, the analysis of the algorithm will be used to show the efficiency of the algorithm over the naive techniques.
DSE:-3	DSE:3-CLOUD COMPUTING	The student will learn about the cloud environment, building software systems and components that scale to millions of users in modern internet, cloud concepts capabilities across the various cloud service models including Iaas,Paas,Saas, and developing cloud based software applications on top of cloud platforms. 1. Understanding the key dimensions of the challenge of Cloud Computing 2. Assessment of the economics , financial, and technological implications for selecting cloud computing for

		own organization 3. Assessing the financial, technological, and organizational capacity of employer's for actively initiating and installing cloud-based applications. 4. Assessment of own organizations' needs for capacity building and training in cloud computing-related IT areas.
DSE:-4	DSE:4- PROJECT WORK	The project provides an important opportunity for students to plan and carry out a detailed and original piece of scientific research and communicate the results. You should develop the following abilities: 1. The formulation of scientific questions, the planning of an investigation and the design of individual experiments. 2. In-depth scientific review of a subject. 3. Organisation of research including: logistics, recording, archiving, numerical analysis and presentation of data. 4. Technical expertise. 5. Interpretation and presentation of results in the form of a dissertation.

BOTANY (HONOURS)

SEMESTER-I

PROGRAMME SPECIFIC OUTCOMES OF CORE - 1

MICROBIOLOGY & PHYCOLOGY

After completion of this course, students will be eligible to understand following:

1. Diversity of Microorganisms e.g. Bacteria, Virus, Algae present in our surroundings.
2. To Know the systematic position, the morphology and life cycle of Bacteria, Virus and Algae.
3. To know the harmful and useful aspect of these microorganisms in daily life and in food, diary, medicines and biotech industries.

Practical's outcome:

4. After hand on practical knowledge, on sterilization technique, isolation of microbes, pure culture technique makes the student confident for a job of Laboratory Technician.

COURSE OUTCOME OF CORE -1 MICROBIOLOGY & PHYCOLOGY

On completion of the course the students are expected to know

Course Outcome 1:

a) About microbial world, their nutrition and metabolism.

Course Outcome 2:

a) Reproduction of Bacteria and genetic recombination in Bacteria.

b) Economic Importance of Bacteria in Agriculture and Industry.

Course Outcome 3:

a) Structure of thallus in Algae

b) Reproduction in Algae.

c) Economic importance of Algae in Agriculture, Biotechnology and Industry.

Course Outcome 4:

a) Structure of thallus, reproduction, heterocyst, economic importance of cyanobacteria (*Nostoc*)

b) General characters, thallus structure, reproduction and life cycle of *Clamydomonas, Volvox, Oedogonium, Coleochete etc.*

Course Outcome 5:

a) General characters, thallus structure, reproduction and life cycle of *Chara, Voucheria, Phaeophyta, Fucus, Ectocarpus and Polysiphonia.*

PROGRAMME SPECIFIC OUTCOMES OF CORE - 2

BIOMOLECULES & CELL BIOLOGY

After completion of this course, students will be eligible to understand following:

1. Gain knowledge on cell Structure, Plasma membrane, different organelles and their functions.
2. The sequences of cell division and growth of organisms.
3. Learn scope and importance of bio-molecules in molecular biology.
4. To know the biochemical nature of nucleic acids, their role in Living systems, experimental evidence of DNA as genetic material.
5. To understand the process of Protein synthesis and role of Genetic code in polypeptide formation.

Practical's outcome :

6. Students will be able to know the Presence of carbohydrate, Protein & fat in different food stuffs.
7. Study cell structure, measure cell size by Micrometry, counting cells numbers by Haemocytometre , cytoplasmic movement etc.
8. Study the division of vegetative cells and reproductive cells (Mitosis & meiosis)

COURSE OUTCOME OF CORE -2 BIOMOLECULES & CELL BIOLOGY

On completion of the course the students are conversant:

Course Outcome 1:

a) About types and significance of chemical bonds.

b) Structure and properties of different types of Carbohydrates (Monosaccharide, disaccharides and polysaccharides.

c) Lipids, Fatty Acids and triglycerides

d) Proteins, Amino Acids and Nucleic Acids

Course Outcome 2:

a) Bioenergetics, Laws of thermodynamics, free energy concepts, chemical reactions, ATP structures and their roles.

b) Structure, Classification, mechanism of action of enzymes and factors affecting enzyme activity.

Course Outcome 3:

a) Cell structure of Prokaryotes and Eukaryotes, Endosymbiotic theory.

b) Models of Cell Wall and Plasma Membrane and their funcion

Course Outcome 4:

a) Electron micrograph structure of Cell, nucleus chromatin structure and function,

b) Semi-autonomous nature of Mitochondria and Chloroplast

c) Structure of Endoplasmic Reticulum, Golgi Apparatus and Lysosome.

Course Outcome 5:

a) Cell Cycle in Eukaryotes

b) Types of Cell Division and regulation of Cell Cycle.

SEMESTER- II

PROGRAMME SPECIFIC OUTCOMES OF CORE 3

MYCOLOGY &PLANT PATHOLOGY

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

- Have a definite idea about the characteristic features of Fungi, identify its different divisions, know about their structure, life cycle economic and ecological importance.
- Understand the role of bacterial, viral and fungal pathogens and control measures used for disease management.

COURSE OUTCOMES OF CORE -3-(MYCOLOGY &PLANT PATHOLOGY)

On completion of the course the students are expected to

Course Outcome 1:

- Know about general features, diversity and classification of Fungi, affinities with other groups.
- General Characters of Chytridomycetes, Zygomycota and Asocomycota
- Structure, life cycle, economic importance of some genera like *Rhizopus, Saccharomyces, Aspergillus, Penicillium, Alternaria, Neurospora* and *Peziza*.

Course Outcome 2:

- Understand the general Characters of Basidiomycota and Oomycota and slime molds
- Study the ecology structure, life cycle, economic importance of important genera like *Puccinia, Agaricus, Phytophthora* and *Albugo.*

Course Outcome 3:

- Develop a working knowledge on lichen biology and characterize the different forms of lichen and know about their range of thallus organization.
- Understand the nature of symbiotic association of fungi with other plant groups as in case of Lichens and Mycorrhizae and their significance.

Course Outcome 4:

- Understand the importance of Fungi in nature and in the practical activities of man.
  Know about the role of fungi in biotechnology, food industry, fermentation, production of enzymes, mycoproteins and secondary metabolites.
- Learn about the application of fungi in agriculture, pharmaceutical industry and biological control of pests.

Course Outcome 5:

- Know about principles of plant pathology, diseases that affect plants, microbiology and host parasite interactions.
- Gain knowledge of select diseases caused by bacteria, viruses and fungi and their control measures.

PROGRAMME SPECIFIC OUTCOMES OF CORE - 4 (ARCHEGONIATES)

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

- Understand the general characters and classification of three plant groups under Archegoniates i.e. Bryophyta, Pteridophyta and Gymnosperms.
- Know about the structure and life cycle of important genera as well as their ecological and economic importance

COURSE OUTCOME OF CORE 4- Archegoniates

Course Outcome 1:

- Describe the basic concepts of archegoniates and unifying characters of Bryophyta, Pteridophyta and Gymnosperms.
- Know about the evolutionary history regarding transition to land habit.

Course Outcome 2:

- Know about the general characteristics of Bryophytes and their classification.
- Describe the range of thallus organization.
- Understand about the structure, reproduction and evolutionary trends *Riccia, Marchantia, Pellia, Porella, Anthoceros* and *Funaria*.
- Gain knowledge about their economic and ecological Importance.

Course Outcome 3:

- Know about the general characteristics of Pteridophytes and their classification.
- Describe morphology, anatomy and reproduction of *Psilotum, Selaginella, Equisetum* & *Pteris.*
- Decscribe the phenomena of Apogamy and apospory, heterospory and seed habit.
- Develop understanding about basic concept of telome theory.
- Describe the different types of stele and its evolution.
- Gain knowledge about the ecological and economic importance of Pteridophytes.

Course Outcome 4:

- Know about the general characteristics of Gymnosperms and their classification.
- Describe morphology, anatomy and reproduction of *Cycas, Pinus, Ginkgo, Gnetum* & *Pteris.*
- Gain knowledge about the ecological and economic importance of Gymnosperms.

Course Outcome 5:

- Develop an understanding of the Geological Time Scale sequence in which different plant groups developed through time and the changes in their anatomy and complexity.
- Describe the different types of fossils and the process of fossilization.
- Describe the anatomy and affinities of fossil plants like *Rhynia, Calamites, Lepidodendron, Lyginopteris* and *Cycadeoidea*.

Practical's outcome:- Students were encouraged to conduct several practicals related to the topics.

SEMESTER- III

PROGRAMME SPECIFIC OUTCOMES OF CORE- 5 (Anatomy of Angiosperms)

On completion of the course, students are able to understand:

(i) The characteristic features of different types of tissues and their organization.

(ii) The anatomical structure of stem, root, leaf and able to identify them.

(iii) Understand the structure and function of vascular cambium, xylem, phloem and periderm.

(iv) Understand the structure and importance of epidermal tissue system and secretory tissue system.

Practical:- With Practical knowhow of the structure of wood, students can apply them in future to choose the career in wood technology, furniture manufacturing, Dendro-chronology etc.

COURSE OUTCOME OF CORE- 5(Anatomy of Angiosperms)

Course Outcome 1:

On completion of the course students will be able know:

a) Different types of tissues and their organizations in Plants.
b) About Secondary growth, epidermal and Secretory tissue system.

Course Outcome 2:

On completion of this course students learn:

a) Different theories to explain the organization of root and shoot apical meristem.
b) Internal structure of dicot and monocot stem, leaf and roots and types of vascular bundles..

Course Outcome 3:

Completion of this course gives idea on:

a) Structure and function of vascular cambium.
b) Normal and abnormal secondary growth in stems and roots.
c) Stellar and extra stellar Secondary growth, Periderm and dendrochronology..

Course Outcome 4:

On completion of this course students learn:

a) Epidermal tissues, cuticle, trichome and stomata.
b) Anatomical adaptation of xerophytes and hydrophytes.

Course Outcome 5:

On completion of this course students gain knowledge on:

a) Different types of Secretory tissues.
b) Function of hydathodes, lithocysts and laticifers.

PROGRAMME SPECIFIC OUTCOMES OF CORE- 6 (Economic Botany)

Students are able to:

(i) Learn about the concept of origin of species, plant domestication, reasons for loss of genetic diversity and importance of genetic diversity.

(ii) Know about origin, morphology, processing and uses of wheat, rice, legumes, millets & potato with special emphasis on the uses of byproducts of sugarcane.

(iii) know the morphology and economic importance of fennel, saffron, clove, black pepper, tea, coffee, *Cinchona* and different drug yielding plants.

(iv) Learn about morphology, extraction method and uses of groundnut coconut, mustard and a brief account about essential oil.

(v) Know the tapping, processing, uses of rubber, morphology, uses of teak, pine and morphology, extraction and uses of fibres.

Practical's outcome:- Students with practical knowledge on economic use of cereals, legumes, spices, condiments, edible oil and essential oil, alkaloid, fibers, timbers, medicinal drug yielding plants.

COURSE OUTCOME OF CORE OF CORE- 6 (Economic Botany)

Course Outcome 1:

On completion of the course students will be able know:

a) About the concept of origin of different crops and plant domestication.
b) About reasons for loss and importance of genetic diversity.

Course Outcome 2:

On completion of this course students learn:

a) About origin, morphology, processing and uses of wheat, rice, legumes, millets and potatoes.
b) Morphology and processing of Sugarcane and uses of their byproducts.

Course Outcome 3:

Completion of this course gives idea on:

a) Morphology and economic importance of fennel, saffron, clove, black pepper, tea and coffee.
b) Structure and therapeutic value, use and health hazards of *Cinchona*, *Digitalis*, *Pappaver*, *Cannabis, Tobacco* etc.

Course Outcome 4:

On completion of this course students learn:

a) About morphology, extraction of oil and use of Groundnut, Coconut, Linseed, Mustard.
b) About essential oils, their extraction and uses..

Course Outcome 5:

On completion of this course students gain knowledge on:

a) Tapping processing and uses of Rubber.
b) Timber yielding plants e.g. Teak, Pines etc.
c) Morphology and extraction in process of Cotton and Jute.

SEMESTER –III

PROGRAMME SPECIFIC OUTCOMES OF CORE-7 (GENETICS)

On completion of the course, students are able to gain Knowledge on:

(i) Mendelian genetics and its extension, role of autosomes and sex chromosomes.
(ii) Extra-chromosomal inheritance of Chloroplast & Mitochondrial Mutations.
(iii) The Cytoplasmic Inheritance pattern of shell coiling in snails and Kappa Particles in *Paramecium*.
(iv) Linkage, crossing over and chromosomes mapping and variation in chromosome number and structure and their effect.
(vi)The physical/ chemical mutagens and role of transposons in mutation and mechanism of DNA repair.

Practical's outcome:-

Study of meiosis through sqashing technique, Chromosome mapping using test cross data. Analysis of pedigree for dominant and recessive autosomal and sex linked traits with charts.

COURSE OUTCOME OF CORE OF CORE- 7 (GENETICS)

Course Outcome 1:

- Understand Mendelism and its deviation,

- Study of incomplete and co-dominance, multiple alleles, Lethal alleles, epistatis, pleiotropy, polygenic inheritance.

Course Outcome 2:

- Understand extra chromosomal inheritance Chloroplast mutation, variegation in four 'o' clock plant. Mitochondrial mutation in Yeast.
- Maternal effect in Shell coiling in Snail and Kappa particle in *Paramecium.*

Course Outcome 3:

- Understand linkage and crossing over, chromosome mapping, recombination frequencies, two and three point crosses.
- Know about interference and coincidence, solve numerical based on gene mapping.

Course Outcome 4:

- Understand the effect of variation in chromosome number and structure i.e. deletion, duplication, inversion, translocation, position effect, Euploidy and Aneuploidy.
- Gene mutation, types of mutation
- Physical and chemical mutagens, detection of mutagens- CIB method
- Role of transposons and DNA repair mechanism.

Course Outcome 5:

- Understand fine structure of gene, classical vs molecular concepts of gene.
- Structure of phage T4, rII Locus.
- Allele frequencies, genotype frequencies, Hardy-Weinberg Law, Role of natural selection, genetic drift, variation and speciation.

PROGRAMME SPECIFIC OUTCOMES OF CORE- 8 (Molecular Biology)

On completion of the course, students are able to understand:

(i) DNA as the carrier of genetic information.
(ii) The detailed molecular structure of DNA and its replication mechanism.
(iii) The process of transcription and translation in prokaryotes and Eukaryotes.
(iv) Regulation of gene Expression is prokaryotes and Eukaryotes.

Practical's outcome -

Students were encouraged to conduct practicals related to the topic
Prepare DNA model, preparation of LB medium and raise *E. coli,*
Isolation of DNA by Orcinol method, DNA replication through photographs

COURSE OUTCOME OF CORE OF CORE - 8 (Molecular Biology)

Course Outcome 1:

- Understand DNA as genetic material.
- Griffith, Avery, Hershey-Chase experiment.

Course Outcome 2:

- Understand the detailed molecular structure of DNA and RNA.
- Mechanism of DNA replication.

Course Outcome 3:

- Understand the central dogma and mechanism of transcription in prokaryotes.
- Split gene and RNA editing.

Course Outcome 4:

- Understand translation in prokaryotes.
- Post translational changes.

Course Outcome 5:

- Regulation of transcription in Prokaryotes and Eukaryotes
- Gene silencing.

SEMESTER -IV

PROGRAMME SPECIFIC OUTCOMES- CORE-9

(PLANT ECOLOGY & PHYTOGEOGRAPHY)

On completion of the course, students are able to understand following:

(i) Introduction and types of ecology, components of ecology.

(ii) soil and role of climate in soil development.

(iii) factors of ecosystem and adaptation of plants.

(iv) biotic interactions and population ecology.

(v) plant communities and about succession process.

Practical's outcome:-

After getting practical knowledge, students are able to study about

(i) Functional aspects of ecosystem and about different ecological cycles.

(ii) To study about different terrestrial biomes, about phytogeographical division of India, knowledge about continental drift, theory of tolerance.

COURSE OUTCOMES OF CORE- 9

(PLANT ECOLOGY & PHYTOGEOGRAPHY)

On completion of the course the students are expected to understand:-

Course Outcome -1:

(i) Concept of ecology, types of ecology, components of ecology.

(ii)Concepts of hydrosphere and lithosphere.

Course Outcome -2:

(i) Definition, origin, formation, composition of soil.

(ii) Role of climate in development.

(iii) Importance of water, water cycle.

(iv) Factors of ecosystem, adaptations of plants to their variation.

Course Outcome -3:

(i) Study about biotic interactions, population ecology & Ecological specification,

(ii) About plant communities.

(iii) About succession processes.

Course Outcome -4:

(i) Functional aspects of ecosystem.

(ii) Biogeochemical cycles.

Course Outcome -5:

(i) Different terrestrial biomass.

(ii) Phytogeographical division of India.

(iii) Continental drift, theory of tolerance.

PROGRAMME SPECIFIC OUTCOMES- CORE-10 (PLANT SYSTEMATICS)

After completion of this course, students will be eligible to understand following:-

(i) Plant systematic, various aspects of herbarium, Botanical gardens, Journals & Keys.

(ii)Taxonomic hierarchy , ICBN, typication, principles of priority.

(iii) Evidences of systematic s & system of classification.

(iv) Numerical taxonomy, OTUS, Cluster analysis. Phenograms, cladograms.

(v) Phylogeny of angiosperms & evolution of angiosperms.

Practical's outcome: After getting practical knowledge, students care able :-

(i) To study about different families of monocots & dicots.

(ii) To know about the preparation of herbarium.

COURSE OUTCOMES OF CORE-10 (PLANT SYSTEMATICS)

On completion of the course the students are expected to understand:

Course Outcome - 1:

(i) Plant systematic, different aspects of herbarium.

(ii) About botanical gardens, journals & keys.

Course Outcome - 2:

(I)About taxonomic hierarchy, ICBN, typification, & principles of priority.

Course Outcome - 3:

(i) About evidences of systematic.

(ii) About systems of classification.

Course Outcome - 4:

(i) Regarding numerical taxonomy.

(ii) Regarding cluster analysis, phenerograms, cladograms.

Course Outcome -5:

(i) Regarding phylogeny of angiosperms, origin & evolution of angiosperms.

SEMESTER - V

PROGRAMME SPECIFIC OUTCOMES OF CORE-11 (REPRODUCTIVE BIOLOGY OF ANGIOSPERMS)

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

- Know about the Historical development and scope and applications of embryology
- Understand the structure of anther, process of microsporogenesis and megasporogenesis, development of male and female gametophytes, embryo and endosperm.
- Possess definite idea on pollination and fertilization, seed and its dispersal and concept of self incompatibity.

COURSE OUTCOMES OF CORE 11- (REPRODUCTIVE BIOLOGY OF ANGIOSPERMS)

On completion of the course the students are expected to

Course Outcome 1:

- Know about the historical background, scope and applications of embryology.

Course Outcome 2:

- Understand the structure of anther, the process of microsporogenesis, microgametogenesis, pollen biology, palynology and its scope.
- Know about the abnormal features in pollen.

Course Outcome 3:

- Have a clear concept on structure of ovule, process of megasporogenesis and mega gametogenesis, development of female gametophyte.
- Develop good understanding on organization of embryosac, structure and development of endosperm, embryogeny and development of embryo in monocots and dicots.

Course Outcome 4:

- Understand the concepts of pollination and process of fertilization.
- Have good idea on the basic concepts of self incompatibility, in-vitro fertilization.

Course Outcome 5:

- Know about the structure and dispersal mechanisms of seed.
- Understand the concept and applications of 9pomixes and polyembryony, types of germline transformation.

PROGRAMME SPECIFIC OUTCOMES OF CORE-12 (PLANT PHYSIOLOGY)

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

- Have a clear idea on the general concepts of plant water relationships, absortion of water, ascent of sap, transpiration, minerals nutrition and deficiency symptoms, phloem translocation.
- Understand the growth regulators, their roles and physiology of flowering.

COURSE OUTCOMES OF CORE - 12 (PLANT PHYSIOLOGY)

On completion of the course the students are expected to

Course Outcome 1:

- Understand the plants and plant cells in relation to water, mechanism of absorption of water and movement of sap in the plant body.
- Have clear concept on the process of transpiration and mechanism of translocation in phloem.

Course Outcome 2:

- Understand the concept of mineral nutrition in plants
- Know the essential elements, macro and micro nutrients, their roles and deficiency symptoms.

Course Outcome 3:

- Develop understanding on nutrient uptake in plants.
- Have definite idea on the mechanism of active and passive and transport of ions across cell membrane.

Course Outcome 4:

- Know the different types of phytohormones and understand growth and development processes in plant.
- Understand their basic structure, bioassay and physiological roles.

Course Outcome 5:

- Have a clear idea on the physiology of flowering.
- Understand the process of photoperiodism, vernalization and seed dormancy.
- Know about phytochrome and florigen concept..

SEMESTER – VI

PROGRAMME SPECIFIC OUTCOMES OF CORE- 13 (PLANT METABOLISM)

After completion of this course, students will be eligible to understand following:

1. The concepts of Plant Metabolism and role of enzymes.
2. The catabolic processes of sucrose and starch in plant.
3. The role of lipid during seed germination.
4. The physiology and biochemistry of nitrogen fixation.

Practical's outcome: After getting practical knowledge, students are able to

1. Separate different types of pigments by using chromatography technique.
2. Know the effect of light intensity, carbon dioxide concentration on the rate of photosynthesis by Wilmott's bubbler.

COURSE OUTCOMES OF CORE- 13 (Core- 13: PLANT METABOLISM)

On completion of the course students are expected to understand

Course Outcome 1:
1. Different metabolic pathways and their regulation.
2. Role of regulatory enzymes like allosteric, isozymes etc.
3. Synthesis and catabolism of carbohydrates.

Course Outcome 2:
1. Details about photosynthesis, photosynthetic pigments and their role, photochemical reactions etc.
2. Photosynthetic electron transport, photorespiration and C_4 pathways.
3. Factors affecting CO_2 reduction.

Course Outcome 3:
1. Carbon oxidation, TCA cycle, mitochondrial electron transport.
2. Oxidative photophosphorylation and ATP synthesis.

Course Outcome 4:
1. Lipid metabolism and role of mobilisation of lipids during seed germination.
2. What is oxidation.

Course Outcome 5:
1. Nitrogen Metabolism
2. Mecahanism of signal transduction.

PROGRAMME SPECIFIC OUTCOMES OF CORE -14 (PLANT BIOTECHNOLOGY)

After completion of this course, students will be eligible to understand following:
1. Various techniques regarding plant tissue culture.
2. Molecular Biotechnology and its applications.
3. Role of recombinant DNA technology in genetic engineering.

Practical's outcome: After getting practical knowledge, students are able to
1. know the methods of gel electrophoresis.
2. get knowledge of genetic engineering.
3. prepare NS media.
4. construct a map of DNA.

COURSE OUTCOMES OF CORE- 14
(Core- 14: PLANT BIOTECHNOLOGY)

On completion of the course students are expected to understand:

Course Outcome 1:
1. Different media composition, culture techniques.
2. Role of vitamins and hormones.

Course Outcome 2:
1. Tissue culture applications like haploid production, cryopreservation, secondary metabolite production etc.
2. protoplast isolation and culture.

Course Outcome 3:
1. Restriction Mapping, types of cloning vectors.
2. Biological role and application of Restriction Endonucleases.
3. Gene cloning and PCR techniques.

Course Outcome 4:
1. Construction of genetic and DNA libraries.
2. Different methods of gene transfer.

3. Uses of selectable marker and reporter gene.

Course Outcome 5:

1. Applications of Biotechnology. How it is useful for pest resistant, herbicide resistant, Industrial enzyme etc?
2. Role of transgenics in bioremediation.

C-1 INORGANIC CHEMISTRY

UNIT I – Atomic Structure

Bohrstheory of atom and its failure with the theory of de-broglieand Heiserbergsundertaintyprinciple schrodingerswave function with shape of orbitals.

Unit –II Periodicity of Elements

Periodicity of elements : s, p, dp block elements, the long form of periodic table.

Detailed discussion of the following properties of the elements i) Effective nuelear charge shielding or screening effect. Slater rules, variation of effective nuclear charge in periodic table etc.

Unit – III Chemical Bonding - I

Ionic bond : General characteristics, valence bond theory molecular orbital theory fajan's rule.

Unit-IV Chemical bonding II

Metallic band, semiconductors and insulators, hydrogen banding Redox reactios.

C-2 PHYSICAL CHEMISTRY

Unit- I Gaseous State

Kinetic molecular model of a gas, postulates and derivation of the kinetic gas equation collision frequently: collision i) diameter etc.maxwelldistribution ii) and its use in evaluating molecular velocities

Unit-II Liquid State

Qualitative treatment of the structure of liquid state of physicalpropertiesof liquids vapourpressure surface Tension, coefficient of viscosityetc.

Ionic Equilibria-I

Strong, moderate and weak erletrolytes, degree of ionizationfactors affecting degree of ionization

Unit- III : Solid state

Nature of the solid state ; law of constancy of interfacial angles, law of rational indices, miller indices, elementary ideas of symmetry x-ray diffractions; Braggs law

Unit –IV : Ionic equilibria– II

Salt hydrolysis –calculation of hydrolysis constant, degree of hydrolysis and P_H for different– staffs.Buffer solutions; derivation of Hednersonequation and its applications.Theory of acid base indicators; selection of indicators and their limitations.

C-3 Organic Chemistry

Unit- I Basics of organic chemistry

Electronic displacements : Inductive, electromeric, resonance and mesomericeffects, hyperconjugation and their applications Dipole moment; organic acids and bases; their relative strength, stability of carbocations, carbanions. Introduction to types of organic reactions and their mechanism.

Carbon –carbon sigma Bonds

Chemistry of alkenes, Formation of alkenes, Halogerationrelative reactively and selectivity.

Unit- II Stereochemistry

Fischer projection; Newmannand saw rorseprojection formulae; Geometrical isomersim? Cistransand syn-anti isomerism.E/Z notations with C.I.P rules. Enantiomers DistereoisomersRelative and absolute configuration: D/L and R/S designations.

Unit – III: Chemistry of Aliphatic Hydrocarbons:

A. carbonyls bonds:

Formation of alkenes and alkenes by elimination reaction, mechanism of E_1, E_2, E_1cbreactions,saytzeffand Hofmann eliminations. Reactions of alkenes: Electrophilic additions their mechanisms Nucleophilicadditions Hydration to form carbonylscompounds.

B. Cycloalkenesand conformational analysis :

Types of cycloalkenesand their relative stability energy diagrams of cycolhexane:

Unit – IV Aromatic hydrocarbons

Aromatility:Hu”ckelrule, aromatic character of areas, cyclic carbocations/carbanionsand heterocyclic compounds with suitable examples.

C – 4

Physical Chemistry – II

Unit-I Chemical thermodynamics:

Intensive and extensive variables, state and path functions isolated, closed and open systems, Zeroth law of thermodynamics. First law: concept of heat, q, work, w, internal energy, U, and statement of first law enthalpy, H, relation between heat capacities, calculations of q, w, u and H for reversible, irresversible and free expansion of gases. Thermochemistry: Heats of reactions : Standard states; enthalpy of formation of molecules and ions and etnthalpyof combination and its applications.

Unit- II : Second Law:

Concept of entropy, thermodynamic scale of temperature, statement of the second law of thermodynamics; molecular and statistical interpretation of entropy.Calculation of entropy change for reversible and irreversible process.Third Law : statement of third law, concept of residual entropy, calculation of absolute entropy of molecules. Gibbsand Helmhottz energy, Gibbs- Helmholtz equation.

Unit- III Systems of variables composition

Partial molar quantities, dependence of thermodynamic parameters on composition; Gibbs Duhemequation, chemical poitentialof ideal

mixtures, change in thermodynamic functions in riving of ideals gases. Equilibrium constants and their quantitative dependence on temperature, pressure and concentration free energy of mixture and spontaneity.

Unit- IV Solutions an Colligative properties:

Dilute solutions, lowering of vapourpressure, Raoults and Henrys Laws and their applications. Thermodynamicderivation using chemical potential to derive relations between four colligative properties and amount of solute.

C_5

Inorganic Chemistry

Unit-I General Principles of Metallurgy :

Chief modes of occurrence of metals based on standard electrode potentials.Ellingham diagrams for reduction of metal oxides using carbon and carbon monoxide as reducing agent. ElectrolyticReduciton, Hydrometallergy.

Acids and Bases

Bronsted- Lowry concept of acid-base reactions, solvated proton, relative strength of acids, types of acid-basereactions ; Lewis acid-base concept.

Unit –II Chemistry of sand p Block elements –I Inert pair effect, Relative stability of different oxidation states, diagonal relationship and anomalous Allotropy and catenation.

Unit- III :Chemistry of sand p Block elements – II

Study of the following compounds with emphasis on structure, bonding, preparation, properties and uses.Boric acid and borates, boron nutrides, borohydrides, carborancesand graphitic compounds, silanls.

Unit – IV: Noble Gases

Occouranceand cases rationalization of intergasesof noble gases,caltheres, preparation and properties xef_2, xef_4 and xef_6.

Inorganic Polymers

Types of inorganic polymers, comparisionwith organic polymers, synthesis, structural aspects and applications of silicones and siloxanes.

C_6 ORGANIC CHEMISTRY II

Unit – I Chemistryof Halogenated Hydrocarbons :

Alkyl halides : Methods of preparation, nucleophilicsubstitution reactions SN_1, SN_2andSN_3 mechanism with stereochemicalaspects and effect of solvent etc.nucleophilic substitution vs elimination Aryl Halides preparation, including preparation from diazonicm salts, nucleophilicaromateesubstitutions.

Unit – II Alcohols, phenols, Ethers and Epoxides :

Alcohols: preparation, properties and relative reactivity of 1, 2, 3 alcohols ,Bourvaelt- BlaneReduicaiton; preparation and properties of glycols: oxidation by periodic acid and lead tetralltate, pinacol-pinalculonerearrangement Phenols : preparation and properties.

Unit – III Carbonyl Compounds

Structure reactively and preparation, Nucleophilic additions, Nucleophileaddition- elimination reactions with ammonia derivatives with mechanism. Mechanism of AldoandBenzoin condensation,Knoevenagel condensation, perkincannizzaro and witting reaction etc.

Unit- IV CarbohylicAcids and their derivatives :

Preparation, physical properties and reactions of monocarboxylic acids, Typical reactions of dicaboxylicacids hydroxyl acids and unsaturated acids: sucinic, lactic, malic tartaric, citric, maleic and fumalicacids, preparation and reactions of acid chlorides , anhydrides esters and amides etc.

Sulphurcontaining compounds

Preparation of thiolsthioethersand reactions.

C_7 Physical Chemistry III

Unit – I PhaseEquilibria– I

Concept of phases, components and degrees of freedom derivation of Gibbs Phase Rule for non reactive and reactive systems, clauses-clapreonequation and its applications to solid liquid, liquid – vappourand solid-vapourequilibria, phase diagram for one component system.

Unit –II Phase Equilibria– II

Three component systems, water- chloroform acetic acid system, triangular plots, Binary solutions,, Nearest distribution etc.

Unit- III Chemical kinetics

Order and mole-cularityof a reaction, rate laws in terms of the advancement of a reaction, differential and integrated form of rate expressions up to the second order reactions, experimental methods of t eh determinations of orders, kinetiesof complex reactions, Arrhenius equation, activation energy. Collosiontheory of reaction rates.

Unit- IV Catalysis

Types of catalyst, specificity and selectivity, mechanism of catalyzed reactiosnat solid surfaces effect of pariclesize.

Surface chemistry

Physical adsorption, chemisorptions, adsoption isotherms

C_8

INORGANIC CHEMISTRY III

Unit- I Co- ordination chemistry

Wernerstheory, valence bond theory, electro neutrality principle and back bonding, crystal field theory, measurement of CFSE weak and strong fields pairing energies, factors affecting the magnitude of 10 Dg in octahedral VsvetrahedralCo-ordination, tetragonal distortions from octahedral geometry

Unit- II Transition Elements – I

General group trends with special reference to electronic configuration, colourvariable valency, magnetic and catalytic properties, abilityto form complexes.

Unit –III Transition Elements –II

Chemistry of Ti, v, cr, Mn Fe and co in various oxidation states.

Unit – IV Lanthanoidsand Actinoids

Electyronicconfiguration, oxidation states, colourspectral and magnetic properties lanthanide contraction, separation of lanthanides.

Bianorganicchemistry

Metal ions present in biological systems, clarification of elements according to their action in biological system. Na/Kpump, carbonic anhydrase and carboxy peptidase.

C -9

Organicchemistry – III

Unit- I Nitrogen Containing functional groups :

Preparation and important reactions of nitro and compounds nitriles. Amines: Effect of substituent and solvent on basicity; preparation and properties Gabriel phthalimidesynthesis ,carbylamines reaction, Mannichreaction.

Unit- II Diazoniumsalts:

Preparation and their synthetic applications

PolynuclearHydrocarbons :

Reactions of naphthalene and anthralene structure preparation and structure elucidaitonand important derivatives of naphthalene and anthracene.

Unit- III Heterocyclic compounds

Classification and nomenelature, structure, aromaticityin 5-numbered and 6- member rings containing pyrrole, Thiphine, pyridine (Hanizsch Synthesis)fischa, indol, synthesis and madelung.

Unit- IV Alkaoids:

National occurrence, General structural features Isolation and theirphysiological action, Hoffmannsexhaustive methylation, Emdes modification, structure erividatione and synthesis of Hygrineand Nicotine.

C – 10: Physical Chemistry

Unit- I Conductance –I

Arrhenius theory of electrolytic dissociation.Conductivity, equivalent and molar conductivity and their variation with dilution for weak and strong electrolytes.Molar conductivity at infinite dilution.Kohlrauschlaw of independent migration of ions.

Unit – II Conductance – II

Ionic velocities, mobilitiesof and their determinations, transference numbers and their relation to ionic mobilities, determination of transference numbers using Hittorf and moving boundrymethods.Applications of conductance measurement (i) Degree of disociaitonof weak electrolytes.

Unit-III Electrochemistry – I

Quantitative aspects of faradays laws of electrolysis, rules of oxidation/ reduction of ions based on half tell potentials, applications of electrolysis in metallurgy and industry chemical cells, reversible and irreversible cells with examples. Electromotive force of a cell and its measurement.

Unit- IV Electrochemistry – II

Concentration cells with and without transference, liquid junction potential, determination of activity coefficients and transference numbers. Qualitative discussion of potentiometric poprations (acids- base, redox, precipitation)

C-11

Unit- I NuclicAcids

Components of nucleic acids, Nucleosides and nucleotides, structure, synthesis and reactions of Adenine, Guanins Cytosine.

Enzymes

Introduction, classification and characteristics of enzymes. Salient features of active site of enzymes. Mechanism of enzyme action (taking trypsin as example), factors affecting enzyme action, coenzymes and cofactors and their role in biological reactions, specificity of enzyme action.

Unit II Amino Acids, Peptides and proteins

Amino acids, Peptides and their clarification – Amino acids-Synthesis, ionic properties and reactions.Zwitterions, PKa values, isoelectric point and electrophoresis.Study of peptides determination of peptides.

Unit III Lipids

Introduction to ails and fats, common fatly acids present in oils and fats. Hydrogenation of fats and oils, saponification value, acid value, iodine number.

Concept of Energy in BiOSyscems :

Cells obtain energy by the oxidation of foodstuff. Introduction to metabolism.Overview of catabolic pathways of fat and protein.

Unit IV Pharmaceutical Compounds :

Structure and importance Classification structure and therapeutic uses of antipyretics, Paraccitamol, Analgesics, Ibuprofen, Antimalarial chlorine.An elementary treatment of Antibiotics.

C-12

Physical Chemistry- V

Unit-I Meantime Chemistry

Postulates of Quantum mechanics, Quantum mechanical operators, Schrodinger equation and its approach zero point energy and Heisenberg uncertainty principle, wave functions probability distinction functions nodal properties. Extension to thee dimensional boxes, separation of variables, degeneracy qualitative treatment of simple harmonic oscillator model of vibrational motion.

Unit II Chemical Bonding

Covalent bonding values bond and molecular approaches LCAO-MO treatment of H_2+ .Bonding and antibineling orbitals. Qualitative extension

to H_2 comparison of LCAO-MO and VB treatments of (One wave functions, detailed solution not required) and their limitations.

Unit III Molecular Spectroscopy –I

Interaction of electromagnetic radiation with molecular and various types of speetraj Born-Oppenheimer approximation. Ration spectroscopy seta

Molecules isotopic subtraction

Vibrational spectroscopy classical equation of vibration computation of force constant, amplitude of diatomic molecular vibration anharmoniaity. Morse potential dissociation energies, fundamental frequents.

Unit IV Molecular Spectroscopy II

Electronic spectroscopy : Frank-coneon principle, Electronic transistors, Single and triplet states, horoscopes.

Photochemistry

Characteristics of electromagnetic radiation lambert beers law and its limitation & physical significations of absorption coefficient laws of photochemistry, quantum yield actinomila. Example s of law and high quantum yields. Photochemical equilibrium and the differential rate of photochemical reactions.

C-13

INORGANIC CHEMISTRY-IV

Unit-I Organometallic Compounds –I

Definition and classification of organometallic compounds on the basis of bond type. Concept of hapticity of organic ligands. Metal carbonyls : 18 electrion rule, electrons current of mononuclear, Polynuclear and substitutes metal carbonyls of 3rd series. General methods of preparation (drivel-combination, reductive carboxylation, thermal and photochemical decomposition)

Unit-II Organometallic Compounds-II

Concept of multicenter bonding Role of triethylaluminium in polymerization of eihine. Species present in the solution of Grignard reagent and their structures.

Unit-II Theoretical Principals in Qualitative Analysis

Basic principles involved in analysis of cations and anions and solubility products, common in effect. Principles involved in separation of cations into group reagents.

Unit-IV Reaction Kinetics and mechanision:

Introduction to inorganic reaction mechanisms substitution reactions in square planar complexes, Trans effect and its applications, theories of trans effect.

C-14

ORGANIC CHEMISTRY – IV

Unit I Organic Spectroslopy

U.V spectroscopy : Types of electronic transitions, max, chromophoresand Auxichromes, Bathochromic and Hypsochromicshifts, Intensity of absorption: Application of woodwardrules for calculation of

max for the following systems : the unsathoratedaddehydes: ketones carboxylic acids and esters , conjugated diens.

Unit – II Organic spectroscopy – II

NMR Spectroscopy : Basic principles of proton magnetic resonance , chemical shift and factors influencing it; spin-spin coupling and coupling constants Anisotropic effects in alkene, alkyne, aldehydes and aromatics. Interpretation of NMR spectra of simple compounds.

Unit – III Carbohydrates

Occurrence, classification and their biological importantsmonosaccharide's. Constitution and absolute configuration of glucose and fructose, epimers and anomers, mutarotationdetermination of ring size of glucose and fructose, Haworth projections and conformational structures.

Dyes

Classification, colourand constitution; mordant and vat dyes chemistry of dyeing synthesis and applications of AZO dyes methyl orange and congored (mechanism of Diazocoupling)

Unit – IV Polymers

Introduction and classification including diblcoktriblockand amphiphilicpolymers, number average molecular weight, weightaverage molecular weight degree of polymerization polydispersityindes. Polymerisaitonreactions– Addition and condersation– mechanism of cationic, anionic and free radical addition polymerzaiton.

COURSE OUTCOMES

CO – 1: Module– I :

This unit explains the basic principles of economics, different branches of economics, how economists think like scientist, economic models, economist as policy advisor, and uses of graphs in economics.

Basic principles include how people make decisions, how people interact and how the economy as a whole works. The fundamental lessons about individual decision making are that people face trade-offs among alternative goals, that the cost of any action is measured in terms of forgone opportunitiesa, that rational people make decisions by comparing marginal costs and marginal benefits, and that people change their behavior in response to the incentives they face.

The fundamental lessons about interactions among people are that trade and interdependence can be mutually beneficial, that markets are usually a good way of coordinating economic activity among people, and that the government can potentially improve market outcomes by remedying a market failure or by promoting greater economic equality.

The fundamental lessons about the economy as a whole are that productivity is the ultimate source of living standards, that growth in the quantity of money is the ultimate source of inflation, and that society faces a short-run trade-off between inflation and unemployment.

Economists try to address their subject with a scientist's objectivity. Like all scientists, they make appropriate assumptions and build simplified models to understand the world around them. Two simple economic models are the circular-flow diagram and the production possibilities frontier.

The field of economics is divided into two subfields: microeconomics and macroeconomics. Micro economists study decision making by households and firms in the marketplace. Macro economists study the forces and trends that affect the economy as a whole.

A positive statement is an assertion about how the world is. A normative statement is an assertion about how the world ought to be. When economists make normative statements, they are acting more as policy advisers than scientists.

Economists who advice policymakers offer conflicting advice either because of differences in scientific judgments or because of differences in values. At other times, economists are united in the advice they offer, but policymakers may choose to ignore it.

This module helps a student to analyze the basic foundation of economics and creates interest in him to make carrier in economics.

CO – 2 :Module– III :

This unit explains the basic concept of derivative, slope of a curve, rules of differentiation and application of derivatives such as total, average and marginal functions. Derivative explains the rate of change in the dependant variable due to small change in independent variable. In economics, we come across many variables which are related. There is also cause and effect relationship. With the help of derivatives, economists try to explain the rate of change in many economic variables due to small changes in related variables.

Without understanding the above content one can't understand the applicability of economics. This module exposes the mathematical knowledge of a student to understand theory in detail.

CO – 3 :Module– I :

This unit discusses about Macro economics but distinguishing it from Micro economics. It explains the importance of macro economics. It tries to explain the basic concepts of macro economics such as stock and flow variables, equilibrium and disequilibrium, partial and general equilibrium, comparative statics and dynamics. Then it tries to explain the subject matter of economics. National income, different concepts related to National Income are discussed. It lays the basic structure of macro economics.

This module describes the basic content of macro economics which helps the students to understand the objective of macro economics and how it is helpful in making national policies.

CO – 4 : Module– IV :

This mainly deals with the problem of optimization. Optimisation is the basic objective of economics where we try to achieve maximum welfare with the available scare resources. Optimization problem is dealt with the use of simple derivative or partial derivative keeping in view whether it is one independent or more than one independent variables respectively. Both the necessary and sufficient conditions are tested to determine relative maxima or minima or point of inflexion. Then it also tests for convexity or concavity of a function. This theory is applied to determine maximum profit, revenue and also minimum cost or loss.

In economics there are many variables which are either to be maximized or to be minimized. The students utilize the derivatives to optimize the variables.

CO – 5 : Module– III :

This unit mainly deals with production analysis both in short run and long run with the help of law of variable proportion or laws of returns to scale, isoquants, marginal rate of technical substitutions. Apart from that it deals with four simple functions such as linear, fixed proportion, Cobb – Douglas, CES. These concepts evaluates the practical aspect of production analysis.

CO – 6 :Module– I :

Macro economics has two main aspects such as consumption function and investment function. Consumption analysis explains consumption function – both classical and Keynecian, factors affecting consumption function and the measures to raise the consumption functions. After explaining these fundamental issues, it extends to explore different income hypothesis such as Absolute, relative, permanent and Life – cycle Hypothesis.

It helps the student to identify the factors responsible to take decision regarding his consumption.

CO – 7 : Module– I :

Data, primary or secondary, are the basic inputs of statistics which are highly useful for economic research. So the discussion is started with the idea of collection of data. Once data is collected, then data are arranged into different series on the basic of the principle of frequency distribution. Then data are presented either diagrammatically or graphically. Then the analysis of data begins with the basic instrument of measures of central tendency or average. Different types of averages, their merits, demerits and uses are discussed which makes the student very analytical. Then averages of second order that is dispersion is studied. It examines the deviation of items from the average. Also the idea of skewness and peakedness of data distribution is analyzed thoroughly.

The above content is the basic pillar of economic research.

CO – 8 : Module– V :

Game theory is the study of mathematical models of conflict and cooperation between intelligent rational decision makers. It is mainly used in economics. Originally, it addressed zero sum games, in which one person's gains result in issues for the other participants. Modern game theory began with the idea regarding the existence of mixed strategy equilibrium in two person zero sum games. It also deals with simultaneous game and sequential game. Two important concepts are explained such as Nash Equilibrium and prisoner's Dilemma. In game theory, the Nash Equilibrium, named after American mathematician John Forbis Nash Jr. is a solution concept of a non – cooperative game involving two or more players in which each player is assumed to know the equilibrium strategies of the other players and no player has anything to gain by changing only his strategy. It also gives basic idea about prisoner's dilemma. The prisoner's dilemma is a standard example of a game analyzed in game theory that shows why two completely rational individuals might not cooperate, even if it appears that it is in their best interests to do so.

The idea of game theory enhances the students ability to take decision in many conflicting issues which will benefit him.

CO – 9 : Module – II :

The balance of payments (BOP) is the single most important aspect of international economy that matters most in macro economics analysis. This unit discusses the meaning and purpose of BOP, the accounting methods of BOP, the causes and kinds of disequilibrium in BOP, methods of correcting disequilibrium in BOP under free market system and policy regime.

Then it explains about foreign exchange market and foreign exchange rate, how the foreign exchange rate is determined. The purchasing power parity theory is explained. Then a comparison is mode between the fixed exchange rate and flexible exchange rate.The short run open economy model is represented through Mundell Flemming Model. Then a basic idea is given on inter national financial markets.

It is content exposes the students about international aspects of macro economics.

CO – 10 : Module – I :

This module introduces the paper by explaining the meaning, definition and scope of public finance. To make it more specific a distinction is made between public finance and private finance. Then it is extended by distinguishing between public good and private good. It builds up the foundation of the study of public finance as a separate branch of economics. Then the basic objective of public finance is discussed that is the principle of maximum social advantage which frames the principle which maximizes the welfare of the society. Then the supply of public goods becomes the central theme. It can not be provided by the market and hence intervenes supply it. Without this module, it becomes difficult to understand the other aspects of public finance.

The above contents stimulates the students mind regarding Govt. finance and it's necessity in public life.

CO – 11 : Module – I :

After theory the next task was to apply economics in the Indian content which gives rise to the study of Indian Economy. In this module an analytical study is made by tracing the history of Indian Economy from the Pre-British period which signifies the rich economy of India. Colonialism started after Britishers came to India. Its consequences made India a poor economy. Traditional agriculture was transformed into commercial

agriculture. Colonial exploitation resulted in the decline of handicrafts and rural economy. This led to the underdevelopment of India.

This module helps the students analyze the economic history of India from the pre-British period till now. It helps him to identify the factors responsible for the poverty of India and build of his vision for a strong state.

CO – 12 : Module – I :

Development economics is introduced by distinguishing from economic growth. Then characteristics of underdeveloped countries are explained. Vicious circle of poverty remains as the core of discussion. An enquiry is made to find out the causes or obstacles to economic development and policies suggested to overcome it. Then an attempt is made to measure economic development by different index such as national income, per capita income, basic needs approach, capabilities approach, PQLI, HDI, HPI, MDPI, GDI. Finally the role of capital formation in economic development is emphasized. This gives a clear picture about economic development which is the problem of underdeveloped countries like India. It encourages the students to find ways to overcome the problem of unemployment, poverty etc.

The student grows with the content of the module. He analyzes the problems of underdeveloped economies more specifically. He can himself try to innovate different indexes to measure economic development.

CO – 13 : Module – I :

It explains the agricultural status of India – its nature, importance, contribution and trends in agricultural production and productivity. Then an enquiry is made to determine the factors responsible for low productivity in India. In 1960's introduction of new agricultural strategy has resulted in Green Revolution in India. Then the basic requirements of agricultural development is traced in land reform, rural credit, marketing and ware housing. This has really opened the windows which are to be looked into by the policy makers.

This module demonstrate that a country can not grow without attaining self sufficiency in agriculture. This opens up the mind of the student toward rural economy and reminds him that farmer is the backbone of the country.

CO – 14 : Module – III :

Environment has become a new ingredient of economic development. Defining environment is not a small task from economic point of view. Environment and human life are integrated. Economic activity and environment are also inter-linked. Rural as well urban development depend on environment. But environment is a public good. Externality works with other problems like common property resources, free – rider etc. Different methods arte indicated to measure environmental values. Finally sustainable development becomes the objective of environment. So basic ideas explained about the current issue of climate change. This module not only indicates about policy issues but also aims at changing human behavior and activities.

PROGRAMME SPECIFIC OUTCOMES

ECONOMICS (CORE ECONOMICS)

PSO – 1 : Introductory Micro Economics:

This course is designed to expose the students to the basic principles of micro economic theory. The emphasis will be on thinking like an economist and the course will illustrate how micro economic concepts can be applied to analyse real – life situations.

PSO – 2 : Mathematical Methods for Economics:

The objective of this course is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on micro economic theory, macro economic theory, statistics and econometrics. Particular economic models are used for illustrating the method of applying mathematical techniques to economic theory in general.

PSO – 3 : Introductory Macro Economics :

Macro economics deals with the aggregate economy. This course highlights the preliminary concepts associated with the determination and measurement of aggregate macro economic variables like saving, investment, GDP, money, inflation and the balance of payments.

PSO – 4 : Mathematical Methods for Economics :

This course is the second part of a compulsory two course sequence, the objective of which is to teach the body of basic mathematics to the undergraduate students so as to enable them to study economic theory specifically the courses on micro economic theory, macro economic theory, statistics and econometrics. The level of sophistication at which the material is to be taught is indicated by the contents of the prescribed textbook.

PSO – 5 : Micro Economics (I) :

The course is designed to provide a sound training in micro economic theory to formally analyze the behavior of individual agents like consumer, producer and competitive firm. Mathematical tools are used to facilitate understanding of the basic concepts.

PSO – 6 : Macro Economics (I) :

This course introduces the students to formal modelling of a macro – economy in terms of analytical tools. It discusses various alternative theories of output and employment determination in a closed economy both in short run and medium run. It also introduces the students to various theoretical issues related to an open economy.

PSO – 7 : Statistical Methods for Economics :

This course introduces some basic concepts and terminology that are fundamental to statistical analysis and inference. It is followed by a measure of relationship between variables, discussion on index numbers, time series, notion of probability, probability distributions, normal distribution, etc.

PSO – 8 : Micro Economics (II) :

This course emphasizes or giving conceptual clarity to the student along with the use of mathematical tools and reasoning. It covers market, general equilibrium and welfare, imperfect markets and topics under information economics.

PSO – 9 : Macro Economics (II) :

This course introduces the students to the long run dynamic issues like growth and technical progress. It provides the micro – foundations to the various aggregative concepts used in the previous course.

PSO – 10 : Public Economics :

Public economics studies government policy in order to ensure economic efficiency and equity. It deals with the nature of government intervention and its implications for allocation, distribution and stabilization. The subject encompasses a host of topics including government taxation, expenditures, public goods, market failures and externalities.

PSO – 11 : Indian Economy (I) :

This course uses appropriate analytical frameworks to review major trends in economic indicators and policy decisions in India in the post independence period with particular emphasis on paradigm shifts and turning points. The subject covers a study of basic characteristics of Indian economy, human resource4s, national income and economic planning in India as well as current challenges facing the Indian economy.

PSO – 12 : Development Economics (I) :

This course discusses about alternative conceptions of development, aggregate models of growth and cross-national comparisons of the growth experience, measures of inequality, the role of the state in economic development and the informational and incentive problems that affect state governance.

PSO – 13 : 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.

PSO – 14 : Development Economics (II) :

This course studies basic demographic concepts and their evolution during the process of development. The structure of markets and contracts is linked to the particular problems of enforcement experienced in poor countries. The governance of communities and organizations is studied and this is then linked to questions of sustainable growth. The course also highlights the role of globalization and increased international dependence on the process of development.

Education (Honours)

Programme Specific Outcomes :

Core-1 BASICS IN EDUCATION :

- **P.S.O.1. –**These are the following programme specific outcomes for core -1:
- Through bringing philosophy in the classroom the primary concern is to improve the educational practices and provide opportunities for the disadvantaged.
- Philosophical enquiry develops speaking and listening skills vital for literacy and emotional development, helps children who find it difficult to access other classes, and encourages critical and creative thinking essential in the 21st Century.
- And it will prepare students to apply knowledge, sensibility, skills and dispositions of philosophical inquiry, analysis, and interpretation to educational practices.

Core-2 EDUCATION AND SOCIETY :

- **P.S.O.2.-** The education system in any given society prepares the child for future life and instils in him those skills that will enable him to live a useful life and contribute to the development of the society.
- Education plays an important role towards social change, national integration and international understanding in a diverse social context.

Core -3 THE LEARNER AND LEARNING PROCESS :

- **P.S.O.3-** Educational Psychology enables the learners to understand the Childs' innate potentialities and apply educational psychology in teaching learning process. It plays a pivotal role in understanding Childs' unique character in teaching learning process.

Core-4 PEDAGOGICAL SKILLS :

- **P.S.O.4-** This advocates learning to live together by developing an understanding of other people and an appreciation of interdependence – carrying out joint projects and learning to manage conflicts in a spirit of respect for the values of pluralism, mutual understanding and peace.
- It enables the children to develop critical reasoning power, justify their views, independent decision making power, expression of thoughts, and empathy to others' feelings.
- It empowers the prospective teachers to cope up with emerging pedagogies and to promote higher order learning of the learners like, creative expression, authenticity, abstraction of ideas, and multiple thinking, etc.

- It gives insight to the students on importance of pedagogy in education.

Core-5 TECHNOLOGY AND INNOVATIONS IN EDUCATION :

- **P.S.O.5.-** Educational technology is a powerful tool towards developing explanatory reasoning and higher order skills. It enables students to access sources of knowledge, interpret them and create knowledge rather than be passive users.
- It enables the teachers to promote flexible models of curriculum transaction. It should encourage to use flexible curriculum content and flexible models of evaluation as well.
- It gives an exposure to students to understand the meaning, nature and scope of educational technology. They will be sufficiently oriented about nuances of communication and their implications in educational context. They will understand the underlying principles of instructional design.
- Students will develop the ability to prepare lesson plans based on constructivist approach. They will be oriented about the need and importance distance education in India.

Core-6 PEDAGOGY OF SCHOOL SUBJECTS :

- **P.S.O.6-** Methods of teaching of different language subjects will enable us to preserve and enrich our language and culture forever by developing language skills among learners. The learners will also be equipped with the skills to prepare Odia lesson plans by using constructivist approach.
- The pedagogical knowledge of mathematics will help the learner to effectively transact the mathematical concept and apply the effective strategy to assess the learner.
- Through the subject history our students will respect our culture, traditions and heritage.
- The students, on completion of the course , are expected to develop scientific thinking, adapt methods and materials to the needs of students and conduct assignments in line with constructivist perspective.
- Geography provides a conceptual link for children between home, school and the world beyond. Geographers study how people enteract with the environment and with each other from place to place and they classify the earth into regions. It helps us to be better citizen.

Core-7 STATISTI CS IN EDUCATION :

- **P.S.O.7**-The fundamental principles and techniques of statistics provide a firm foundation to all those who are pursuing courses in education, psychology and sociology.
- The basic knowledge of statistical method is very vital for conducting any survey, research and project work. Students at undergraduate level must have to develop the basic knowledge of statistical methods used in education.

Core-8 CURRICULUM DEVELOPMENT & EDUCATIONAL GUIDANCE:

- **P.S.O.8-** Educational guidance is helpful for all categories of learner There are different services available to provide guidance to students .
- It emphasizes the study of various concepts of guidance and counseling and its importance in teaching learning process.

Core-9 EDUCATIONAL ASSESSMENT & EVALUATION :

- **P.S.O.9-** It helps the teacher to record the growth of their students, planning for instructional strategy and most importantly helps to assess their own growth over the years. An effective method of assessment in the classroom helps to create conducive learning environment and a teacher must have to it helps the teacher to record the growth of their students, planning for instructional know different techniques of assessment which may improve students' learning.
- The key issues that involve in assessment are how to assess, when to assess, and what will be its implication on students learning.

Core-10 INTRODUCTION TO EDUCATIONAL RESEARCH:

- **P.S.O.10-** Students will be exposed to different methodology of research in education. Students can use appropriate tools and techniques for the collection of data and understand concept of sampling. A brief overview of different types of research in education will be given to the students.

Core-11 HISTORY OF EDUCATION IN INDIA:

- **P.S.O.11-** The students of Education need to learn the system of education starting from the ancient India till the today's globalised knowledge society through the hierarchy of time. This will develop a sense of appreciation and pride about the Indian Cultural and Educational heritage.

Core-12 COMPARATIVE EDUCATION:

- **P.S.O.12-** It aims at the analytical study of education in all countries with a view to perfecting national systems with modification and changes, which the circumstances and local conditions would demand.

Core-13 EDUCATIONAL PLANNING, ADMINISTRATION AND MANAGEMENT:

- **P.S.O.13-** It deals with various concepts, principles and functions of educational management. It emphasizes on educational planning, finance and school management and

focuses on trends in educational management. The paper will develop an interest towards the educational management . It will develop an interest towards the educational management.

Core-14 CONTEMPORARY CONCERNS IN INDIAN EDUCATION:

- **P.S.O.14-** The intent of this course is to familiarize learner to historical roots of Universalisation of Elementary education and initiative so far taken by Govt. to materialize this reality. Further, paper generally discusses the effort of Govt. to extend the provision of free and compulsory education at secondary level and developing a sound approach to dealing with the rapid pace of reform and change from the teacher's perspective.

+3 1st Year EDUCATION(Hons) COURSE OUTCOMES

Core-1 TITLE-BASICS IN EDUCATION

C.O.1-After completion of the paper, student shall be able to:
C.O.2-Explain the concept of education and its relationship with philosophy.
C.O.3-List areas of philosophy and narrate their educational implications.
C.o.4-Describe the contribution of philosophy to the field of education.

C.O.5-Appreciate the contribution of various Indian schools of philosophy to the field of education.

C.O.6-Evaluate the impact of western philosophies on Indian education.

C.O.7-Narrate the contribution of the great Indian thinkers.

CORE-2 TITLE-EDUCATION AND SOCIETY

COURSE OUT COMES

C.O.1-Justify education as a social process and explain its function.

C.O.2-Describe the aims of education from sociological perspective.

C.O.3-List various agencies of education and their function.

C.O.4-Justify education as a sub-system of society and how other sub-systems affect education.

C.O.5-Appreciate the importance of education for social change.

CORE-3 TITLE-THE LEARNER AND LEARNING PROCESS

COURSE OUTCOMES

C.O.1-Establish relationship between education and psychology.

C.O.2-Understand various methods use to study individual behaviour.

C.O.3-Explain the application of educational psychology in teaching learning process.

C.O.4-Understand individual difference from intelligence, creativity, and personality point of view.

C.O.5-Explain the concept of learning and factors affecting learning.

C.O.6-Reflect the contribution of various learning theories in teaching learning process.

CORE-4 TITLE-PEDAGOGICAL SKILLS

COURSE OUTCOMES

C.O.1-Explain the concept of pedagogy

C.O.2-Differentiate pedagogy from other allied concepts.

C.O.3-Define different type of task of teaching.

C.O.4-Establish relationship between teaching and learning.

C.O.5-List out different approaches and methods of teaching.

+3 2nd YEAR EDUCATION(Hons)

CORE-5 TITLE-EDUCATIONAL TECHNOLOGY

COURSE OUTCOMES

C.O.1-Understand the meaning, nature and scope of educational technology.
C.O.2-Explain with examples various approaches to educational technology.
C.O.3-Describe systems approach and its application in educational context.
C.O.4-Explain the concepts, princeples, modes, process and barriers of communication And their implications in educational context.
C.O.5-Explain the instructional design and its underlying principles.
C.O.6-Describe different models of teaching and their use in effective class room teaching.

CORE-6 TITLE-PEDAGOGY OF SCHOOL SUBJECTS
COURSE OUTCOMES

C.O.1-Describe the concept of mother tongue.
C.O.2-Describe various pedagogical approaches of language teaching.
C.O.3-Prepare subject specific lesson plan for improvement of language skills.
C.O.4-List out different techniques of teaching.
C.O.5-Discuss different types of teaching learning materials in different subjects.

CORE-7 TITLE-STATISTICS IN EDUCATION
COURSE OUTCOMES

C.O.1-Describe the importance of statistics in the field of education.
C.O.2-Convey the essential characteristics of a set of data by representing in tabular and graphical forms.
C.O.3-Compute relevant measures of average and measures of variation.
C.O.4-Spell out the characteristics of normal probability of distribution.
C.O.5-Examine relationship between and among different types of variables of a research study.

SUBJECT- EDUCATIO(HONS)

CORE- 8

On the completion of this course, the students shall be able to

1. Define and explain the concept of curriculum.
2. List different types of curriculum with examples.
3 . Suggest bases of curriculum such as philosophical, psychological and sociological.
4. Describe different considerations for curriculum planning.
5. Identify major issues and trends in curriculum.
6. Explain the role of teacher in curriculum development.

CORE- 9

EDUCATIONAL ASSESSMENT AND EVALUATION

After the completion of the course, students shall be able to

1. Describe the role of assessment in Education.
2. Differentiate measurement, assessment and evaluation.
3. Establish the relationship among measurement, assessment and evaluation.
4. Explain different forms of assessment tools and techniques and construct these appropriately.

CORE-10

INTRODUCTION TO EDUCATIONAL RESEARCH

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

Describe the nature, purpose, scope of research in Education

Identify types of research in Education.

Select and explain an appropriate method for a research study.

Select appropriate tools and techniques for the collection of data.

CORE-11

HISTORY OF EDUCATION IN INDIA

After the completion of this course, students shall be able to:

1. Narrate the concept of education in the context of Indian heritage.
2. Describe education in ancient India, particularly, Vedic education.
3. Critically examine the education system in medieval India.

4.Elaborate the role of teacher, school and community in preservation of Indian heritage and achievement of national goals.

5. Evaluate the education system during British period with special emphasis on the commissions and committees.

CORE-12 COMPARATIVE EDUCATION

Course Objectives

On completion of this course, students shall be able to

1. **Explain the scope of comparative education.**
2. **List out the factors of comparative education.**
3. **Compare the structure, curriculum and evaluation system of India with that of China, Japan, O.k. and U.S.A.**

CORE- 13

EDUCATIONAL PLANNING, ADMINISTRATION AND MANAGEMENT
COURSE OBJECTIVES

On the completion of the course the students shall be able to

1. Explain the concept, nature and scope of educational management.

2. Describe the functions of educational management and administration.

3. List down various types of educational administration.

4. Elaborate the principles of educational management.

5. Explain different types of administration.

CORE-14 CONTEMPORARY CONCERNS IN INDIAN EDUCATION

Course objectives

On the completion of the course the students shall be able to-

1. Explain the concept of universalization of elementary education.

2. Describe universalization of elementary education.

3. Describe present position of secondary education.

4. Explain the challenges of secondary education.

5. Explain present scenario of higher education and agencies for improvement.

GENERIC ELECTIVE – G.E. 1

Vision of Education in India; Issues and concerns

Course objectives

On the completion of the course the students shall be able to

1. Explain normative vision of Indian thinkers on Education.

2. Explain the view points of Indian thinkers on Education.

GENERIC ELECTIVE G. E -2 ASSESSMENT AND EVALUATION TECHNIQUES

Course objectives

1. Students will describe the role of assessment in Education.

2. Differentiate measurement, assessment and evaluation.

DEPARTMENT OF ENGLISH

+3 CBCS COURSE

COURSE OUTCOME – 1

It deals with 14th Century poetry and the spirit of Renaissance in the Elizabethan Drama. In Chancre's wife of Bath's an unmistakable sense of "modern" is brought out. It studies the works of renowned British Poets like Thomas Campion, Sir Philip Sidney, Ben Jonson and William Shakespeare and dramatist like Shakespeare, Marlowe and Thomas Dekker.

COURSE OUTCOME – 2

It deals with the 17th Century, which was the period of the English Revolution, also known as the Jacobean period which studies metaphysical poetry; Cavalier Poetry; Comedy of Humours; Mosques and Beast Fables.

It deals with the 18th Century Puritanism; Restoration; Neo-Classicism; Heroic Poetry; Restoration Comedy and Comedy of Manners. It thus deals with the works of John Milton, John Donne, Alexander Pope, Robert Burns and John Dryden.

COURSE OUTCOME – 3

It deals with British Literature of the 18th Century. It consists of Restoration, Glorious Revolution, Neo-Classicism and Enlightenment. It studies the works of Joseph Addison and Rickard Steele, Daniel Defoe, Oliver Goldsmith, Samuel Johnson and Thomas Gray.

COURSE OUTCOME – 4

It deals with India writing in English at the time of East India Company's arrival in India, India's first war of Independence and promotion of Western Education. The focus is on the travel writings of Den Mohammed, Indian English Writings of Toru Dutt and Henry Derezio who excel in poetry and prox fictions by Bankim Chandra Chatterjee and Lal Behari Dey.

COURSE OUTCOME – 5

It deals with the Romantic Revival also known as the Age of Revolution because it owes its origin to the French Revolution of 1789. The emphasis was on individual liberty and unbridled desire free from the shackles of classicism. It studies the works of William Blake, William Wordsworth, Coleridge, John Keats, Shelley.

COURSE OUTCOME – 6

It deals with major socio – political developments like industrialization, technological advancement and large – scale mobilization of people rom rural to the urban centres. As a result these prosaic activities needed the medium of prose for expression. Politically it was also known as the Victorian period (19th Century) which also witnessed cultural and ocial debate through the works of Charles Lamb, Leigh Hunt Tennyson, Robert Browning, Mary Shelley, Jane Austen, Charles Dickness and Mathew Arnold.

COURSE OUTCOME – 7

It deals with the genesis and evolutions of American Literature. It studies the works of American writers like Harriet Jacobs, H.D. Thoreau, James Fennimore Cooper, Herman Melville, poets like Walt Whitman, Emily Dickenson, Robert Front and Wallace Stevness and dramatist like Euqene O'Neil and Amiri Baraka.

COURSE OUTCOME – 8

It deals with developments in society and economy leading to the First World War which influenced the writings of the early 20th Century. The students are to be informed about Modern Consciousness such as Marx's concept of class struggle, Freud's theory of unconsciousness, Bergson's duree, Nietzsche's will to power and Einstein's theory of relativity. The works of poets like T.S. Eliot, W.B. Yeats, Ezra Pound, War poets like Wilfred Owen and Siegred Sasson, social poet like W.H. Auden, Stephen Spender and Louis Mac Weice are to be studies, along with novelist like Virginia Woog and James Joyce.

COURSE OUTCOME – 9

It deals with European Classical Literature. It includes ancient Greece and the rise and decline of the Roman Empire. It also attempts to acquaint the students with the cultural history of Greco-Roman World Centred on the Mediterranean Sea. The students have to study Epic Poetry of Homer and

Virgil, tragedies by Sophocles and Aeschylus, comedies by Aristophanes and Plautus and critical writings by Plato, Aristotle, Horace and Longinus.

COURSE OUTCOME – 10

It attempts to study women's writings which deals works of eminent woman writes like Mary Wollstonecraft, Sarala Devi who write about the rights of women. It deals with works of woman writes who have women as central characters in their novels like Charlotte Bronte, Emily Bronte, Jean Rhys and Dorris Lessing. It also deals with woman poets from across the world like Kamala Das, Shanta Acharya, Eunice de Souza, Sylvia Plath, Margaret Atwood and Teskani Doshi. Literary criticism by women like Virginia Woog and Simon de Beauvoir is also studies.

COURSE OUTCOME – 11

This attempts to study modern European drama which deals with politics, social change and the stage. It also deals with Realism and Beyond in European drama along with Tragedy and Heroism. It also attempts to study the Theatre of the Absurd. It deals with the works of Henric Ibsen, August Strindberg, Samuel Beckett, Bertolt Brecht and a few others.

COURSE OUTCOME – 12

It deals with India Classical Literature which includes Vedic Literature, Epic Literature, Sanskrit drama, Aesthetics and Maximus. The literary works

include Samjnana Sukta from Rig Veda and some chapters from Yajur Veda; Kalidasa's Abhijnana Sakuntalam and Mrichakatika by Sudraka.

COURSE OUTCOME – 13

It deals with Post Colonial Literature – its definition and characteristics which include resistant description, appropriation of the colonizer's language, reworking colonial art forms, etc. It also studies the scope and concerns of post colonial literature which focuses on reclaiming spaces and places, asserting cultural integrity and revisiting history. The course includes works of writers like Raja Rao, R.K. Narayan among India writers; V.S. Naipaul and Chinua Achebe among Cariffean and African writers; Nadine Gordimer and J.M. Coetzee among South African writers.

COURSE OUTCOME – 14

This deals with popular literature. It aims at acquainting the students with the concept of popular literature. It aims at acquainting the students with the concept of popular literature stressing on its definition, the debate between popular and high cultures, definition of Genre fiction and he debate between genre fictions and literary fiction. It includes the works of Sherlock Holmes, Agatha Christie among detective fiction; Shobha De and Nicholas Sparks in Romance; Chetan Bhagat and David Lodge under campus fiction and finally rewriting mythology through the works Amish Tripathy and Anuja Chandra Mouli.

DEPARTMENT OF ENGLISH

+3 CBCS COURSE

PROGRAM SPECIFIC OUTCOME – 1

This Paper seeks to introduce the students to British Poetry and drama from the 14th Century to the 17th Century. It offers the students an exploration of certain texts that set the course of British Poetry and Plays.

PROGRAM SPECIFIC OUTCOME – 2

The objective of this paper is to acquaint the students with the Jacobean and the 18th Century British Poetry and drama, the first a period of the acid satire and the comedy of humours; and the second a period of supreme static poetry and the comedy of manners.

PROGRAM SPECIFIC OUTCOME – 3

The objective of the paper is to acquaint the students with two remarkable forms of literature : Essay and novel. The period is also known for its shift of emphasis from reason to emotion.

PROGRAM SPECIFIC OUTCOME – 4

This paper attempts to introduce the students to the field of India writing in English has been the fastest growing branch of India Literature. It has delivered a rich and vibrant body of writing spanning all genres. As a 'twice form' form of writing it partakes of both the nature and alien perspectives and has an inherent inclination to be postcolonial.

PROGRAM SPECIFIC OUTCOME – 5

This paper aims at acquainting the students with the Romantic period nd some of its representative writes. At the same time one of the chief objectives of the paper is to give the students a broad idea of the social as well as historical contexts that shaped this unique upheaval.

PROGRAM SPECIFIC OUTCOME – 6

This paper seeks to expose students to the literature produced in Britain in the 19th Century. The focus is mainly on prose (fictional and non-fictional0 and criticism. The 19th Century embraces three distinct period of the Regency, Victorian and Late Victorian.

PROGRAM SPECIFIC OUTCOME – 7

This paper seeks to give the students a sense of how the great American themes of self-reliance, individualism, sin and redemption and multi culturalism were shaped through its rich and varied literature. It deals with the genesis and evolution and the defining myths of American Literature.

PROGRAM SPECIFIC OUTCOME – 8

This paper aims to familiarize the students with the new literature of Britain in the early decades of the 20th Century. The course will mainly focus on the modernist canon, founded on Ezra Pound's idea of 'make it new', and will also cover war poetry, social poetry of the 1930s and literacy criticism.

PROGRAM SPECIFIC OUTCOME – 9

The objective of this paper is to introduce the students to European Classical Literature, commonly considered to have begun in the 8th Century B.C., in ancient Greece and continued until the decline of the Roman Empire in the 5th Century A.D. The paper seeks to acquaint the students with the origins of the European Canon.

PROGRAM SPECIFIC OUTCOME -10

The course aims to acquaint the students with the complex and multifaceted literature by women of the world, reflecting the diversity of women's experiences and their varied cultural moorings. It embraces different forms of literature : poetry, fiction, short fiction and critical writing. In certain respects, it interlocks concerns of women's literacy history, women's studies and feminist criticism.

PROGRAM SPECIFIC OUTCOME – 11

This paper which deals with Modern European Drama aims at introducing the students to the best of experimental and innovative dramatic literature of modern Europe.

PROGRAM SPECIFIC OUTCOME – 12

This paper which deals with Indian Classical Literature aims at creating awareness among the students of the rich and diverse literary culture of ancient India.

PROGRAM SPECIFIC OUTCOME – 13

This paper seeks to introduce the students to post colonial literature – a body of literature that responds to the discourses OF European Colonialism and empire in Asia, Africa, Middle East, the Pacific and elsewhere. By focussing on representative texts situated in a variety of locations, the paper aims to provide the students with the opportunity to think through and understand the layered response – compliance, resistance, mimicry and sub version that colonial power has provoked from the nations in their search for a literature of their own.

PROGRAM SPECIFIC OUTCOME – 14

This paper which deals with popular literature seeks to introduce the students to genres such as romance, detective fiction, campus fiction, fantasy / mythology, which have a mass appeal, and can help us gain a better understanding of the popular roots of literature.

Student Teacher Mentoring Ratio:12:1

B.A (HONS) HINDI COURSE

1-HDSCC : HINDI DISCIPLINE SPECIFIC CORE COURSE

Semester - 1, Core - 1

Hindi Sahitya ka Itihas (Part - I)

Program Specific Outcomes of Core -1

The objective of this paper is to help students to acquire fundamental knowledge about the History of Hindi Literature. This paper mainly based on Hindi Sahitya Ke Itihas ki Bhumika, Adikal, Bhaktikal Aur Ritikal ki Prusthabhumi.

Course Outcomes of Core -1

C.O-1 : To provide knowledge about Hindi Sahitya ke pramukh Itihasgranth (only Introduction), Kal Bibhajan Aur Namkaran.

C.O-2 : To provide knowledge about Adikal ki Prusthabhumi, Adikal ke Pramukh Kavi, Adikal ki Bhumika, Rachnayein & Adikal ki Pramukh Kavya Prabrutiyan.

C.O-3 : To provide knowledge about Bhaktikal Samanya Parichaya, Nirgun Kavyadhara (Gyanmarga ebam Premmarga), Nirgun Kavyadhara ke Pramukh Kavi ebam Rachanayen.

C.O-4 : To provide knowledge about Sagun Kavyadhara, Ram Bhakti Sakha, Krusha Bhakti Sakha ke Pramukh Kavi ebam Rachanayen.

C.O-5 : To provide knowledge about Ritikal Ki Prusthabhumi, Riti Kavya ka Samanya Parichaya, Ritibaddha ebam Riti mukta Kavya ke Pramukh Kavi Aur Rachanayen, Kavya Prabrutiyan.

Semester - 1, Core - 2:

Bhaktikalieen Hindi Kavita (Nirgun Ebam Rambhakti Kavyadhara)

Program Specific Outcomes of Core -2

The objective of this paper is to help students to acquire knowledge about Bhaktikaleen Hindi Kavita, Nirgun ebam Rambhakti Kavyadhara.

Course Outcome of Core -2

C.O-1 : To provide knowledge about Nirgun Bhakti Kavya ka Swaroop, Rambhakti Kavya ka Swaroop, Pramukh kavi Aur Prabrutiyan.

C.O-2 : To provide deep knowledge specially Kabeer ke Pad.

C.O-3: To provide knowledge about Kabeer ki Saskhi.

C.O-4 : To provide knowledge about Mallick Muhammad Jayasi specially his "Nagmati Viyog - Varnan."

C.O-5 : To provide knowledge about Tulsidas ki Bharat Mahima.

Semester - II, Core - 3

Hindi Sahitya ka Itihas (Part - 2)

Program Specific Outcomes of Semester - II, Core - 3

The objective of this paper is to help students to acquire knowledge about the History of Hindi Literature. This paper is mainly based on Modern Hindi Literature and History forms.

Course Outcome of Core -3

C.O-1 : To provide knowledge about Adhunik Kal Samajik Sanskrutik ebam Rajnaitik Prusthabhumi, Hindi Gadya ka udbhav ebam Vikas and Khadi boli ka Sahitya.

C.O-2 : To provide knowledge about Bharatendu yugin Kavya, Dwibedi Yugin Kavya tatha Chhayavadi Kavita.

C.O-3: To provide knowledge about Pragativad Prayogvad, Nayee Kavita & Samkalin Kavita (Only Kavya Prabrutiyan)

C.O-4: To provide knowledge about Gadya ki Pramukh vidhaon ka vikas : Upanyas Aur Kahanee.

C.O-5 : To provide knowledge about Natak, Ekanki, Nibandha (Udhav Aur Vikas) & Asmita Vimarsh about Dalit & Stree.

Semester - II, Core - 4

Krushna Bhakti Ebam Ritikaleen Hindi Kavita

Program Specific Outcomes of Semester - II, Core -4

The objective of this paper is to help students to acquire knowledge about Krushna Vakti & Ritikaleen Hindi Kavita.

Course Outcome of Core -4

C.O-1 : To provide knowledge about Krusna bhakti kavya ka swaroop,

Krushn Bhakti ke pramukh Kavi Surdas.

C.O-2 : To provide knowledge about Kavi Raskhan.

C.O-3 : To provide knowledge about Ritikaleen Kavya ka Swaroop, Ritikaleen Pramukh Kavi ki Pramukh Viseshataen.

C.O-4 : To provide knowledge about Kavi Biharilal.

C.O-5 : To provide knowledge about Kavi Ghanananda.

Semester - III, Core - 5

Anuvad Siddhant

Program Specific Outcomes of Semester - III, Core -5

The core objective of this paper is to help students to acquire knowledge about the theory of translation. This paper is mainly based on the defination, meaning and type of translation, steps of translation and different theories of translation. What is literary translation and official and technical translation they will learn. Some Hindi to English translation work and English to Hindi of official drafting and Noting they have to done in this paper.

Course Outcome of Core - 5

C.O-1 : To provide knowledge about the meaning, scope and nature of translation.

C.O-2 : To provide knowledge about the steps of translation and theory of translation.

C.O-3: To provide knowledge about the types of translation (Anuvad) like - Literary Translation, Official or Technical Translation.

C.O-4 : To provide knowledge about the Practical translation of Paragraph - English to Hindi. (official-matters only)

C.O-5 : To provide knowledge about the Practical translation of Paragraph - Hindi to English (Official matters only)

Semester - III, Core - 6

Hindi Katha Sahitya (Upanyas)

Program Specific Outcomes of Semester - III, Core - 6

The core objective of this paper is to help students to acquire knowledge about the origin and development of Hindi novel and the importance of Premchand in Hindi novel writing. Students will also learn the literary contribution of Premchand and the main problems of Indian Society in his novels. They will more know about the Literary contribution of Bhagavaticharan Verma. Students will study 'Karmabhumi' Novel by Premchand and 'Chitralekha' novel by Bhagavaticharan Verma.

Course Outcomes of Core-6

C.O-1 : To provide knowledge about the novel in Hindi. Its origin and development. Contribution of Premchand to novel writing knowledge about his all novels etc.

C.O-2: To provide knowledge about the 'Karmabhumi' novels problems and movement of Independence of India.

C.O-3: To provide knowledge about the novels of Bhagavaticharan Verma about his novel 'Chitralekha' and its problems (paap & punya ki talash).

C.O-4 : To provide knowledge about the novel 'Karmabhumi' by Premchand.

C.O-5 : To provide knowledge about the 'Chitralekha' novel, written by Bhagabaticharan Verma.

Semester - III, Core - 7

Hindi Katha Sahitya (Kahanee)

Program Specific Outcomes of Semester - III, Core - 7

The objective of this paper is to help students to know about the selected short stories of Hindi literature. The best short stories of eminent short story writers of Hindi Literature are collected in this paper for the students.

Course Outcomes of Core-7

C.O-1 : Two short stories written by Chandradhar Sharma Guleri, 'Usne kaha tha' and 'Puraskar' by prasad.

C.O-2 : Two short stories. One is 'Poos ki Raat" written by Premchand and another is "Mughalon ne Saltanat Bakhsh Di", written by Bhagabaticharan Verma.

C.O-3: Two short stories, One is 'Punchlight' by Phanishwarnath Renu and the other is 'Bholaram ka Jeev' by Harishankar Parsai.

C.O-4: Two short stories. ie- "Kalaakar" by Rajendra Yadav and "Maan Sarobar ke Hans" by Kamaleshwar.

C.O-5 : Two short stories ie- "Vapsi" written by Usha Priyambada and "Raani Maa ka Chabutara" written by Mannu Bhandari.

Semester - IV, Core - 8

Katha Ittar Gadya Sahitya

Program Specific Outcomes of Semester -IV, Core - 8

The core objective of this paper is to help students to acquire knowledge about the Biography, Auto-Biography, Sketch and Hindi Essays by eminent Hindi Writters.

Course Outcomes of Core-8

C.O-1 : To provide knowledge about the literary form Biography (Jeevani). The aims and objectives and significance of Biography. Its origin and development of Biography.

C.O-2 : To provide knowledge about the literary form Auto-biography. The aims and objective and features of Auto-biography.

C.O-3 : To provide knowledge about the literary form Sketch "Raja" written by Ram brukhs Benipuri and 'Raama' by Mahadevi Verma.

C.O-4 : To provide knowledge about the Hindi Essay. ie- "Nakhun kyon Badhte Hein' written by Hajariprasad Dwivedi and 'Naye Barsh ke Subh Sankalp" written by Rambilas Sharma.

C.O-5 : To provide knowledge about the Hindi Nibandha or Essay ie - "Amarnath ki Mahayatra" written by Kanheiyalal Nandan and

"Chhayavadi Kabya Shaili" written by Namvar Singh.

Semester - IV, Core -9

Adhunik Hindi Kavita (Part-1)

Program Specific Outcomes of Semester -IV, Core - 9

The core objective of this paper is to help students to acquire knowledge about Aadhunik Hindi Kavita. Specially Dwivedi Yugeen Kavita and Chhayavadiyugeen Kavita.

Course Outcomes of Core-9

C.O-1 : To provide knowledge about the Maithili Sharangupt's poetries. ie- 'Ghum Raha Hai Kaisa Chakra', 'Sakhi we Mujhse Kah kar Jate' etc from 'Yoshodhara' Khanda Kavya.

C.O-2 : To provide knowledge about the poetries of Jayashankar prasad ie- 'Aansu' and 'Le chal Mujhe Bhulawa Dekar'.

C.O-3 : To provide knowledge about the poetries of Nirala ie- (i) Todti pathar (ii) Badal Rag (iii) Sandhya Sundari.

C.O-4 : To provide knowledge about the poetries of Sumitranandan Pant ie- Pratham Rashmi, Taaj & Geet Bihag.

C.O-5 : To provide knowledge about the poetries of Mahadevi Verma ie- 'Mai Neer Bhari Dukh ki Badli', 'Panth Hone Do Aparichit' & 'Madhur Madhur Mere Deepak Jal' etc.

Semester - IV, Core -10

Bhasa Vigyan Aur Hindi Bhasa

Program Specific Outcomes of Semester -IV, Core - 10

The core objective of this paper is to help students to acquire fundamental knowledge about the defination, Significance of linguistics. This paper mainly based on "Bhasha ki Paribhasha Ebam Swaroop, Bhasha Paribartan ke karan, Dakhimi Hindi Bhasha ka Sahitya Khadiboli aur Sahityik Bhasha ke roop me Hindi ka Udbhab aur Vikash etc.

Course Outcomes of Core-10

C.O-1 : To provide knowledge about the Bhasha ki Paribhasha Ebam

Swaroop, Bhasha Paribartan ke Karan.

C.O-2 : To provide knowledge about the Bhasha Bijyan Ki Paribhasha ebam Swaroop, Jyon ki Anya Shakhaon se Sambandh.

C.O-3 : To provide knowledge about the Dakhini Hindi Bhasha ka Sahitya khadiboli aur Sahityik Bhasha ke roop men Hindi ka Udbhab aur Bikash.

C.O-4 : To provide knowledge about the Fort William College ki Bhasha - Niti.

C.O-5 : To provide knowledge about the Bhasha ke Bibidh Roop: Rajbhasha, Rastrabhasha, Sampark Bhasha, Sanchar Bhasha.

Semester - V, Core -11

Hindi Natak Aur Rangmanch

Program Specific Outcomes of Semester -V, Core - 11

The core objective of this paper is to help students to acquire fundamental knowledge about the Drama and one Act play of Hindi Literature. This paper mainly based on "Hindi Natak tatha Bharatiya Rangmanch aur Paschatya Rangmanch", Chancragupt, Aashadh ka Ek Din, Bhor ka Tara, Aurangjeb ki Akhiri Rat, Subhrapurush, Julush, Nind kyon Rat Bhar Nahin Aati, Dhire Baho Ganga etc.

Course Outcomes of Core-11

C.O-1 : To provide knowledge about the Hindi Natak aur Rangmanch ka parichay, Bharatiya Rangmanch, Paschatya Rangmanch.

C.O-2 : To provide knowledge about the Drama "Chandragupt" written by Jayshankar Prasad.

C.O-3 : To provide knowledge about the Drama "Aashadh ka Ek Din" written by Mohan Rakesh.

C.O-4 : To provide knowledge about the one Act play "Bhor ka Tara" - by Jagadish Chandra Mathur, "Aurangjeb ki Akhri Rat" - by Ramkumar Verma, "Shubhra Purush" - by Sumitra Nandan Panth.

C.O-5 : To provide knowledge about the one Act play "Julush" - by Kanadi Rishi Bhatnagar, "Nind kyoun Rat Bhar Nahin Ati" - by Surendra Verma, "Dhire Baho Ganga" - by Laxminarayan Lal.

Semester - V, Core -12

Bharatiya Kavya Shastra

Program Specific Outcomes of Semester -V, Core - 12

The objective of this paper is to help students to acquire fundamental knowledge about the defination of Poetry, Ras, Riti, Alankar and Chhand. This paper mainly based on "Kabya Lakhyan, Kabya Prayojan, Shabda Shakti and defination, feature, type of Ras, Riti, Alankar, Chhand etc.

Course Outcomes of Core-12

C.O-1 : To provide knowledge about the Kabya Lakhyan, Kabya Prayojan and Shabda Shakti.

C.O-2 : To provide knowledge about the Ras Siddhant : Paribhasha Ebam Swaroop, Ras ke prakar.

C.O-3 : To provide knowledge about the Riti Siddhant : Paribhasha Ebam swaroop, Riti ke ved and Alankar : Paribhasha Ebam Swaroop, Pramukh ved.

C.O-4 : To provide knowledge about the Alankar : Lakhyan Ebam Udaharan: Upama, Rupak, Anupras, Utprekhya, Anyokti, Yamak, Slesh, Bhrantiman, Atishayokti, Vakrokti.

C.O-5 : To provide knowledge about the Chhand : Lakhyan Ebam Udaharn : Doha, Chowpai, Sabaiya, Rola, Chhappaya, Barabei, Shoratha, Mandakranta, Dhanakhyari, Kundaliya.

Semester - V, Core -13

Adhunik Hindi Kavita (Part -2)

Program Specific Outcomes of Semester -V, Core - 13

The core objective of this paper is to help students to acquire fundamental knowledge about the Modern Hindi Poetry. This paper mainly based on "Jantantra ka Janm." "Abhinab Manushya" - by Ramdhari Singh Dinkar, "Path ki Pahechan" by Bachhan, "Hiroshima", "Kalgi Bajre ki"- by Anjyeya, "Geet Farosh", "Abhibyakti", "Hona to unka hai" - by Bhabani Prashad Mishra, "Tuta pahiya" "Kashbe ki sham"

by Dharmabir Bharati, "Bahut Dino ke baad" by Nagarjun, "Mochiram"- by Dhumil and "Ramadas" by Raghubir Sahaya.

Course Outcomes of Core-13

C.O-1 : To provide knowledge about the poem "Jantantra ka Janm", "Abhinab Manushya" - written by Ramdhari Singh Dinkar.

C.O-2 : To provide knowledge about the Poem "Path ki Pahechan" written by Hari Bansh Roy Bachhan and 'Hirosima", "Kalgi Bajre ki" -written by Anjyeya.

C.O-3 : To provide knowledge about the "Geet Farosh", "Abhibyakti", "Abhibyakti" written by Bhawani Prasad Mishra.

C.O-4 : To provide knowledge about the "Tuta Pahiya", "Kasbe ki Sham" written by Dharmbir Bharati and "Bahut Dino ke Baad" written by Nagarjun.

C.O-5 : To provide knowledge about the "Mochiram" written by Dhumil and "Ramdas" written by Raghubir Sahaya.

Semester - VI, Core -14

Paschatya Kavya Shastra

Program Specific Outcomes of Semester -VI, Core - 14

The objective of this paper is to help students to acquire fundamental knowledge about western poetics. This paper mainly based on Plato: Kabya Satya aur Anukaran, Arastu:Birechan Siddhant, Longinus : Kabya men Udatta, William wordsworth : Kabita kya hai tatha kabita ka swaroop. Mathew Arnold : Kabita aur Jeeban, Kabita aur Samaj, I.A. Richards : Mulya Siddhant, Bimbabad, Pratikbad, Swachhandatabad, Marxbadi Alochana etc.

Course Outcomes of Core-14

C.O-1 : To provide knowledge about the plato : Kabya Satya aur Anukaran and Arastu : Birechan Siddhant.

C.O-2 : To provide knowledge about the Longinus : Kabya men Udatta and Willium wordsworth : Kabita kya hai tatha kabita ka swaroop.

C.O-3 : To provide knowledge about the Mathew Arold : Kabita aur Jeeban,

Kabita aur Samaj and I.A. Rechards : Mulya Siddhant.

C.O-4 : To provide knowledge about the Bimbabad and Pratikbad.

C.O-5 : To provide knowledge about the Swachhandatabad and Marxbadi Alochana.

AECC : Hindi (MIL) Semester - II

Kavita, Gadya, Shabda Aur Samanya Gyan

Program Specific Outcomes of Semester -II

The core objective of this paper is to help students to acquire knowledge about Hindi Literature and Grammar. This paper is mainly based on Ancient and Modern Hindi Poetry, Hindi Essay and Grammar.

Course Outcomes

C.O-1 : To provide knowledge about some poetry of Kabeer, Tulsi, Prasad, Nirala & Ajyenyan.

C.O-2 : To provide a brief knowledge about some Hindi Essay's like "Utsaha" of Acharya Ram Chandra Shukla, "Kutaj" of Hajari Prasad Dwibedi & "Sadachar ka Tavij" by Hari Shankar Parasai.

C.O-3: To provide knowledge about Hindi Shabda Gyan. This unit is specially based on correct the words & sentence, synonym words & Antonymf words.

C.O-4 : To provide knowledge about Hindi Essay writting.

* * *

+3 1ST YEAR SCIENCE, 1ST SEMESTER

MATHEMATICS (HONOURS)

SL. NO	NAME OF THE STUDENTS	GENDER	STUDENT I.D. NO.	Email I.D.	Adhar I.D. No.	CONTACT NO.
1	ADITYA PRADHAN	M	BS17-17	Pradhan.aditya06@gmail.com	3125 7658 2321	8249293213
2	ANSUMAAN ROUT	M	BS17-31			
3	JAYASHREE BEHERA	F	BS17-54	Jayashree.behera20@gmail.com	3862 3572 0615	8658686336
4	RAJESH KUMAR BEHERA	M	BS17-57			
5	SIMANTA ROUT	M	BS17-90	Simantarout5@gmail.com	3302 1828 8061	8117937147
6	SATYAJIT BEHERA	M	BS17-95	Sipusatya99@gmail.com	5825 8304 4126	7540870864
7	PADMANAVA OJHA	M	BS17-100			
8	CHINMAYEE PRADHAN	F	BS17-103	pradhanchinmayee@gmail.com	3753 3746 0545	8917589441
9	AMAN PRADHAN	M	BS17-105			9583170335
10	PRAGNYA PARNA BEHERA	F	BS17-107	Pragnya034@gmail.com	2689 4562 2781	9337295608
11	SUDHANSU SEKHAR BARIK	M	BS17-114	Sudhansusekharbarik750@gmail.com	5423 3990 2382	9178195468
12	BHABANI SANKAR SAHOO	M	BS17-122	Bhabanirainadj03@gmail.com	3268 4734 5772	7381891666
13	ASUTOSH SAHOO	M	BS17-128			
14	TANMAYA PRADHAN	M	BS17-130	Tanmayapradhan88@gmail.com	4302 1173 5215	8596844533
15	DHARMENDRA MOHARANA	M	BS17-131			
16	ABHISEHEK DEY	M	BS17-136	adeyabhishek@gmail.com	5860 6905 9885	9437936550
17	BIMAL KUMAR BARIK	M	BS17-137	bimalbhaijan@gmail.com	9201 2269 8290	7327954113
18	SP SOVAN KRISHNA	M	BS17-140	spsovank@gmail.com	6615 3360 3337	9583314352
19	SOUMYA RANJAN ROUT	M	BS17-142	routsoumyaranjan61@gmail.com	8389 4116 9623	7681088487
20	JAGANNATH MOHANTA	M	BS17-144	jagannathmohanta1999@gmail.com	9770 7728 3904	9776549345
21	ABINASH PADHI	M	BS17-145	abinashpadhi85@gmail.com	8352 6184 1747	9078580691
22	SUJIT KUMAR SATAPATHY	M	BS17-148			
23	GAYATRI LAXMIPRIYA PATRA	F	BS17-154	gayatripatra2000@gmail.com	2541 4413 8869	7790009006
24	SMRUTIREKHA PANDA	F	BS17-155	smrutirekhapanda00@gmail.com	3189 3200 6655	9658773901
25	CHANDAN JENA	M	BS17-159	chanduramesh11223344@gmail.com	7529 2339 8822	9337061103
26	SUBHANSHU SOHAN LENKA	M	BS17-160	subhanshusohan@gmail.com	4287 7129 8168	8763083369
27	AMARNATH SAHOO	M	BS17-165	amarsahoo163@gmail.com	4126 3088 9858	7873546562
28	NATASHA BARIK	F	BS17-175	natashabarik863@gmail.com	886179096027	9439955474
29	BIKASH KUMAR PANDA	M	BS17-179	pandabikash511@gmail.com	4985 7018 8378	7609938612
30	SUSANT KUMAR DASH	M	BS17-180	susantkumardash@gmail.com	4748 1977 5083	9583275221
31	PRANGYA PANDA	F	BS17-186	Prangya990@gmail.com	809206903102	8342987119
32	SANDEEP KUMAR SAHOO	M	BS17-202			
33	BIBHU PRASAD ROUT	M	BS17-204	Bibhuprasad2018@gmail.com	3638 6812 2910	9090092857

MATHEMATICS (HONOURS)

SL. NO.	NAME OF THE STUDENTS	GENDER	STUDENT I.D. NO.	Email I.D.	Adhar I.D. No.	CONTACT NO.
1	RAJESH TARAFDAR	M	BS16-011	er.rajeshtarafdar@gmail.com	2839 3627 2216	9078529293
2	SURYA NARAYAN SENAPATI	M	BS16-028			
3	HITESH KUMAR GHADEI	M	BS16-68	T.C.		9439036578
4	SHREYAS PATTANAIK	M	BS16-117			7381183388
5	AMIT KUMAR SAHOO	M	BS16-135	amitkumarsahoo232@gmail.com	5094 2682 6642	7873692649
6	JNANA RANJAN BISWAL	M	BS16-144			7735827604
7	ANKITA CHOUDHURY	F	BS16-152			9658844095
8	SAIRAJ BARIK	M	BS16-155			
9	SURABHI DIGAL	F	BS16-157			8763956862
10	SMRUTI RANJAN MISHRA	M	BS16-158			8908964553
11	DEBASISH DASH	M	BS16-162			9853244327
12	ANURADHA MOHAPATRA	F	BS16-165			9853037819
13	SHUVASHRI P.RANA	F	BS16-168			9778108354
14	JASHOBANTA MOHANTY	M	BS16-170			7538913920
15	SUMIT KUMAR SAHOO	M	BS16-172			8908569960
16	JAYASHREE MOHAPATRA	F	BS16-175			9937690138
17	AMIYA JYOTI SAHOO		BS16-178			7077276501
18	SUSHRIABHIPSA PATRA	F	BS16-179	sushriabhipsapatra@gmail.com		8908585072
19	ITISHREE PRIYADARSINI BISWAL	F	BS16-182	rimuni789@gmail.com	4418 3844 0552	9853876225
20	GANESH CHANDRA PATRA	M	BS16-183			9777783895
21	SMARNIKA NAYAK	F	BS16-184	T.C.		8895061968
22	DEBASMITA JENA	F	BS16-185			9078552502
23	RAHUL NAYAK	M	BS16-186			7205139923
24	DEEPAK KUMAR SAMAL	M	BS16-187			8280088628
25	RUPESH KUMAR MISHRA	M	BS16-192			9938319937
26	LOKANATH DASH	M	BS16-199			8908678728
27	PRIYANKA BHUTIA	F	BS16-200			9861882899
28	SOMEN BISWAL	M	BS16-201			7504664590
29	BISWADEV BANARJEE	M	BS16-202			9439637086
30	SUPRIMAPRIYADARSINI PANDA	F	BS16-205			
31	**PRATIKSHYA MOHANTY(ARTS)**	**F**	**BA16-023**			7789923309

+3 3RD YEAR SCIENCE/ARTS

MATHEMATICS (HONOURS)

SL. NO.	NAME OF THE STUDENTS	GENDER	STUDENT I.D. NO.	Email I.D.	Adhar I.D. No.	CONTACT NO.
1	ESHA GAMANGO	M	BS15-42	@gmail.com		9692261358
2	BITU DEBNATH	M	BS15-80			7377296447
3	DEBASIS JENA	M	BS15-86			9040413200
4	SRIKANT DASH	M	BS15-93			8457836782
5	TAPAS KUMAR BHUYAN	M	BS15-113			9776150217
6	KAHNU CHARAN BISWAL	M	BS15-117			9668250997
7	JYOTISMITA BHAGAT	F	BS15-119	jyotismitabhagat@gmial.com	4489 8942 6027	8093593805
8	SRIKANT PRUSTY	M	BS15-120			9853616212
9	ABHIPSA ALOKITA PATTANAIK	F	BS15-133			9658203177
10	MONALISHA BARIK	F	BS15-135		5721 6646 1278	9438492128
11	GOPINATH MOHAPATRA	M	BS15-141			7538906624
12	NARAYAN PARIDA	M	BS15-148			9090815154
13	SUPRIYA PRIYADARSHINI NAYAK	F	BS15-153			9437101204
14	DEBASIS BEHERA	M	BS15-158			9078458245
15	DISHA DAS	F	BS15-164			9861313784
16	PRABHAT KUMAR BISWAL	M	BS15-168			7377849670
17	PRAJNASMITA DASH	F	BS15-170			7539003981
18	RITESH BARIK	M	BS15-171			9776068689
19	HIMANSU SEKHAR SWAIN	M	BS15-173			9692035107
20	GYANA RANJAN DASH	M	BS15-177			7205773974
21	PRABHU PRASAD LENKA	M	BS15-179			9937180095
22	SRABANI PADHI	F	BS15-180			9439959425
23	TAPAS KUMAR SAHOO	M	BS15-181			9938116623
24	SWORUPA SEKHAR MOHANTA	M	BS15-182			7894393547
25	NAZREEN BEGUM	F	BS15-183			7809877580
26	SOUBHAGYA RANJAN BARIK	M	BS15-186			7684923734
27	SOUMYA RANJAN PANDA	M	BS15-187			9658034915
28	BISWAJIT PRASAD SAHA	M	BS15-188			9778882190
29	DIPTIMAYEE SAHOO	F	BS15-189		9552 7829 9015	7539034158
30	SHAHIMA PARWEEN	M	BS15-190			9040147850
31	PUSPA YADAV	F	BS15-192			9938160360
32	SOMANATH DAS	M	BS15-193			9437441912
33	SMITA RASMI JOJO	F	BS15-194			9853459959
34	SAGAR KUMAR RATH	M	BS15-195			9853270346
35	JAYSHREE PRADHAN	F	BS15-196	Jayashree.p255@gmail.com	4079 9569 9068	9437737397
36	ANITYA NITYANADA BEHERA	M	BS15-197			9861119629
37	ROUMYA RANDOM BEHERA	M	BS15-198			9853544004
38	ABHIJIT SWAIN	M	BS15-200			9583647724
39	**AMIT KHILAR (ARTS)**	**F**	**BA15-348**			**9938550521**

Core-1(Calculus I)

Course Objectives and Course Outcomes : -Upon successful completion of Calculus , a student will be able to:

- Compute limits and derivatives of algebraic, trigonometric, and piece-wise defined functions,
- Compute definite and indefinite integrals of algebraic and trigonometric functions using formulas and substitution,
- Use the derivative of a function to determine the properties of the graph of the function and use the graph of a function to estimate its derivative,
- Solve problems in a range of mathematical applications using the derivative or the integral,
- Apply the Fundamental Theorem of Calculus,
- Determine the continuity and differentiability of a function at a point and on a set, and
- Use appropriate modern technology to explore calculus concepts.
- Define, graph, compute limits of, differentiate, and integrate transcendental functions,
- Examine various techniques of integration and apply them to definite and improper integrals,
- Approximate definite integrals using numerical integration techniques and solve related problems,
- Model physical phenomena using differential equations,
- Define, graph, compute limits of, differentiate, integrate and solve related problems involving functions represented parametrically or in polar coordinates,
- Distinguish between the concepts of sequence and series, and determine limits of sequences and convergence and approximate sums of series, and
- Define, differentiate, and integrate functions represented using power series expansions, including Taylor series, and solve related problems.
- Represent vectors analytically and geometrically, and compute dot and cross products for presentations of lines and planes,
- Analyze vector functions to find derivatives, tangent lines, integrals, arc length, and curvature,
- Compute limits and derivatives of functions of 2 and 3 variables,
- Apply derivative concepts to find tangent lines to level curves and to solve optimization problems,
- Evaluate double and triple integrals for area and volume,
- Differentiate vector fields,
- Determine gradient vector fields and find potential functions,
- Evaluate line integrals directly and by the fundamental theorem, and
- Use technological tools such as computer algebra systems or graphing calculators for visualization and calculation of multivariable calculus concepts.

Core-2(Algebra I)

Course Objectives and Course Outcomes : -Upon successful completion of Algebra I, students will be able to:

- Solve systems of linear equations,
- Analyze vectors in R^n geometrically and algebraically,
- Recognize the concepts of the terms span, linear independence, basis, and dimension, and apply these concepts to various vector spaces and subspaces,
- Use matrix algebra and the related matrices to linear transformations,
- Compute and use determinants,
- Compute and use eigenvectors and eigenvalues,
- Determine and use orthogonality, and
- Use technological tools such as computer algebra systems or graphing calculators for visualization and calculation of linear algebra concepts.

Perform algebra with complex numbers

- Compute sums, products, quotients, conjugate, modulus, and argument of complex numbers.
- Write complex numbers in polar form.
- Compute exponentials and integral powers of complex numbers.
- Find all integral roots and all logarithms of nonzero complex numbers.

Core-3(Analysis-I)

Course Objectives and Course Outcomes : - Upon successful completion of Real Analysis -I,

students willbe able to:

- Describe the real line as a complete, ordered field,
- Determine the basic topological properties of subsets of the real numbers,

- Use the definitions of convergence as they apply to sequences, series, and functions,
- Determine the continuity, differentiability, and integrability of functions defined on subsets of the real line,
- Apply the Mean Value Theorem and the Fundamental Theorem of Calculus to problems in the context of real analysis, and
- Produce rigorous proofs of results that arise in the context of real analysis.
- Write solutions to problems and proofs of theorems that meet rigorous standards based on content, organization and coherence, argument and support, and style and mechanics.

Core-4(Differential Equations)

Course Objectives and Course Outcomes : -Upon successful completion of Theory of Ordinary Differential Equations, a student will be able to:

- Solve differential equations of first order using graphical, numerical, and analytical methods,
- Solve and apply linear differential equations of second order (and higher),
- Solve linear differential equations using the Laplace transform technique,
- Find power series solutions of differential equations, and
- Develop the ability to apply differential equations to significant applied and/or theoretical problems.

CORE-5 (ANALYSIS-II)

Course Objectives	Course Outcomes
Have the knowledge of real functions-limits of functions and their properties.	Define and recognize the real functions and its limits . Interpret how to Know the real functions using the internet .
Studying the notion of continuous functions and their properties.	Define and recognize the continuity of real functions . Interpret how to Know the continuity using the internet .
Studying the differentiability of real functions and related theorems .	Define and recognize the differentiability of real functions and its related theorems . Interpret how to Know the differentiability and related theorems using the internet .
Studying about maxima & minima of functions with related theorems and series expansions of functions.	Define and recognize the maxima & minima of functions and its related theorems . Illustrate how to find the series expansions of functions using Taylor's series . Interpret how to Know the series expansions using the internet .

CORE-6(Abstract Algebra II)

Course Objectives and Course Outcomes : -

The main objective of this course is to provide students with a solid understanding of the most important algebraic systems: groups and commutative rings. They should understand about permutation groups,cyclicgroups,centraliser,normaliserand center of a group,Lagrangestheorem.Use Cauchy's theorem in finite abeliangroups.Also they should know about properties of homomorphism and isomorphism.

Time permitting they should have some idea about nilpotent groups and Cayleys theory. A student who successfully completes this course will:

1. be able to manipulate these systems and prove basic facts about them

2. have the skill to use the basic theorems about these systems to solve theoretical exercises and to construct examples and counter-examples

3. understand the basic proof techniques of these subjects and be able to apply them

4. have an appreciation of some of the open questions in these subjects and the role of such questions in the development of the theory

5. have an appreciation of the beauty of these structures and their historical significance.

Course Objectives and Course Outcomes : -

Upon successful completion of Ordinary and Partial Differential Equations, the student will be able to:

1. Identify an ordinary differential equation and its order
2. Verify whether a given function is a solution of a given ordinary differential equation (as well as verifying initial conditions when applicable)
3. Classify ordinary differential equations into linear and nonlinear equations
4. Solve first order linear differential equations
5. Find solutions of separable differential equations
6. Model radioactive decay, compound interest, and mixing problems using first order quations
7. Model population dynamics using first order autonomous equations
8. Apply first order equations to problems in elementary dynamics
9. Find solutions of exact equations
10. Find the general solution of second order linear homogeneous equations with constant coefficients
11. Understand the notion of linear independence and the notion of a fundamental set of solutions
12. Use the method of reduction of order to find a second linearly independent solution of a second order, linear homogeneous equation when one solution is given
13. Use the method of undetermined coefficients to solve second order, linear homogeneous equations with constant coefficients
14. Use the method of variation of parameters to find particular solutions of second order, linear homogeneous equations
15. Use second order linear equations with constant coefficients to model mechanical vibrations
16. Compute the Laplace transform of a function
17. Use shift theorems to compute the Laplace transform and inverse Laplace transform
18. Use the Laplace transform to compute solutions of second order, linear equations with constant coefficients
19. Use the Laplace transform to compute solutions of equations involving impulse functions 20. Perform standard operations on vectors in R2 and 2×2 matrices
21. Recognize linearly independent vectors in R2
22. Find eigenvalues and eigenvectors of 2×2 matrices
23. Use the eigenvalue-eigenvector method to find the general solution of first order linear 2×2 homogeneous systems with constant coefficients
24. Use the method of separation of variables to reduce some partial differential equations to ordinary differential equations
25. Find the Fourier series of periodic functions
26. Find the Fourier sine and cosine series for functions defined on an interval
27. Apply the Fourier convergence theorem
28. Find solutions of the heat equation, wave equation, and the Laplace equation subject to boundary conditions

Course Objectives and Course Outcomes :-

Many applications in engineering , physics, geology and other specifications containing a complicated problems that need one of numerical methods to be solved , and this course teaching the student the classification of many of these problem and the numerical methods suitable for solving it by finding an approximated solution with desired accuracy, also the student will learn how to apply each method in this course and how to design a suitable algorithms and write a MATLAB program for each of which, and applying this programs in the computer laboratory to solve many selected problems.

1. Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.
2. Apply numerical methods to obtain approximate solutions to mathematical problems.
3. Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.
4. Analyse and evaluate the accuracy of common numerical methods.
5. Implement numerical methods in Matlab.
6. Write efficient, well-documented Matlab code and present numerical results in an informative way.

CORE-9(Riemann Integration and Series of Functions)

Course Objectives and Course Outcomes :-Upon successful completion of Real Analysis II, a student will be able to:

- Determine the Riemann integrability and its properties of a bounded function and prove a selection of theorems concerning integration,
- Convergence of beta & gamma Functions.
- Recognize the difference between pointwise and uniform convergence of a sequence of functions,
- Illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability, and
- Illustrate the convergence properties of power series.

CORE-10(Ring Theory &Linear Algebra-III)

Course Objectives and Course Outcomes :-Upon successful completion of Ring Theory &Linear Algebra III, a student will be able to:

- Analyze finite and infinite dimensional vector spaces and subspaces over a field and their properties, including the basis structure of vector spaces,
- Use the definition and properties of linear transformations and matrices of linear transformations and change of basis, including kernel, range and isomorphism,
- Compute with the characteristic polynomial, eigenvectors, eigenvalues and eigenspaces, as well as the geometric and the algebraic multiplicities of an eigenvalue and apply the basic diagonalization result,
- Compute inner products and determine orthogonality on vector spaces, including Gram-Schmidt orthogonalization, and
- Identify self-adjoint transformations and apply the spectral theorem and orthogonal decomposition of inner product spaces, the Jordan canonical form to solving systems of ordinary differential equations.
- Study properties of ring and field.

CORE-11(MULTIVARIATE CALCULUS)

Course Objectives and Course Outcomes :-

To present the fundamental concepts of multivariable calculus and to develop student understanding and skills in the topic necessary for its applications to science and engineering.

Course outcomes:- Upon completion of this course, students should be able to

1. Manipulate vectors to perform geometrical calculations in three dimensions.

2. Calculate and interpret derivatives in up to three dimensions.

3. Integrate functions of several variables over curves and surfaces.

4. Use Green's theorem and the Divergence theorem to compute integrals.

5. Communicate Calculus and other mathematical ideas effectively in speech and in writing.

CORE-12(Probability and Statistics)

Course Objectives and Course Outcomes :-Upon successful completion of Elements of Probability and Statistics, a student will be able to:

- Organize, present and interpret statistical data, both numerically and graphically,
- Use various methods to compute the probabilities of events,
- Analyze and interpret statistical data using appropriate probability distributions, e.g. binomial and normal,
- Apply central limit theorem to describe inferences,
- Construct and interpret confidence intervals to estimate means, standard deviations and proportions for populations,
- Perform parameter testing techniques, including single and multi-sample tests for means, standard deviations and proportions, and
- Perform a regression analysis, and compute and interpret the coefficient of correlation.

CORE-13(METRIC SPACES & COMPLEX ANALYSIS)

Course Objectives and Course Outcomes :-Upon successful completion of METRIC SPACES, a student will be able to:

give students an understanding of metric spaces and concepts and more general notions of topology.

Having successfully completed this module you will be able to:

- Recall the defining properties of a metric space, and determine whether a given function defines a metric
- State and prove the Contraction Mapping Theorem
- Recall the definition of a topological space, and be able to verify the axioms in examples
- Apply the Contraction Mapping Theorem to problems in differential equations and numerical analysis
- Determine whether or not a given subset of a metric space is open or closed; determine the interior, closure, and boundary of a given set
- Prove straightforward results concerning open and closed sets
- Understand the construction and basic properties of the Cantor set
- State and prove the Heine-Borel theorem and use it to determine compactness of subsets of R^n
- Understand the concepts of subspace and product topologies
- Recall the definition of homeomorphism
- Recall the definitions of connectedness and compactness
- State Tychonov's theorem and be able to use it in examples
- Be able to determine if a given space is Hausdorff, connected, path-connected, compact

Upon successful completion of Complex Analysis, a student will be able to:

- Represent complex numbers algebraically and geometrically,
- Define and analyze limits and continuity for complex functions as well as consequences of continuity,
- Apply the concept and consequences of analyticity and the Cauchy-Riemann equations and of results on harmonic and entire functions including the fundamental theorem of algebra,
- Analyze sequences and series of analytic functions and types of convergence,
- Evaluate complex contour integrals directly and by the fundamental theorem, apply the Cauchy integral theorem in its various versions, and the Cauchy integral formula, and
- Represent functions as Taylor, power and Laurent series, classify singularities and poles, find residues and evaluate complex integrals using the residue theorem.

CORE-14(Linear Programming)

Course Objectives and Course Outcomes :-Upon successful completion of Linear Programming , a student will be able to:

- Formulate and model a linear programming problem from a word problem and solve them graphically in 2 and 3 dimensions, while employing some convex analysis,
- Place a Primal linear programming problem into standard form and use the Simplex Method or Revised Simplex Method to solve it,
- Find the dual, and identify and interpret the solution of the Dual Problem from the final tableau of the Primal problem,
- Be able to modify a Primal Problem, and use the Fundamental Insight of Linear Programming to identify the new solution, or use the Dual Simplex Method to restore feasibility,
- Interpret the dual variables and perform sensitivity analysis in the context of economics problems as shadow prices, imputed values, marginal values, or replacement values,
- Explain the concept of complementary slackness and its role in solving primal/dual problem pairs,
- Classify and formulate integer programming problems and solve them with cutting plane methods, or branch and bound methods, and
- Formulate and solve a number of classical linear programming problems and such as the minimum spanning tree problem, the assignment problem, (deterministic) dynamic programming problem, the knapsack problem, the XOR problem, the transportation problem, the maximal flow problem, or the shortest-path problem, while taking advantage of the special structures of certain problems.

PROGRAMME SPECIFIC OUTCOMES

DEPARTMENT OF PHILOSOPHY

PSO-1: General Philosophy:

This course is designed to expose the students to the general philosophy. Which is explained the basic concept and problems of philosophy.

PSO-2: Logic & Scientific Method:

This course provides the logical principles to make proper arguments. There different scientific methods are procedures are includes in this course.

PSO-3: Systems of Indian Philosophy:

This course is concerned with the different views of traditional Indian philosophical school. It is concerned with the orthodox and heterodox school, the theory of causation, liberation, law of karma, epistemology, metaphysics, and soul theory.

PSO-4: Introduction to Symbolic logic:

This course designed to provide Morden techniques which were help to proof arguments.

PSO-5: Systems of Indian Philosophy:

This course introduces the Indian Philosophical theory of *Brahman, Atman, Jiva, Isvara,* Liberation, *Maya* &etc. This course discuses Pramanas of *Nyāya* Philosophy, the seven categories of *Vaisesika*. It also provides the concept of *Upanisadic* Philosophy.

PSO-6: Ethics:

This course introduces ethical principles and concepts which will develops moral thinking .It also provides the relation of ethics with Sociology, Politics the relation of ethics with sociology, politics and Religion. It is also discuss various punishment theories to students.

PSO-7: History of Greek Philosophy:

The objective of this course is to provide the origin and development of the Philosophy on the Greek sphere. The Pre-Socratic, Platonic and Aristotelian conception of

epistemology, ethics, causation, theory of ideas, theory of forms and matters and etc in Greek philosophy.

PSO-8: Contemporary Indian Philosophy:

This course is emphasizing on the Morden Indian philosophical concepts. The advantages of this course are that which provides the concept of God, man nature of world Religion, Reality, *Maya* and etc.

PSO-9: History of modern European Philosophy:

This course introduces some basic concept of the Western Philosophy. This is emphasizing on the theory of Substance, the sources of knowledge, reconciliation between Empiricism and Rationalism, space and time and etc.

PSO-10: Philosophy of Language:

This objective of this course is that it helps to improve the understanding of the word meaning and sentence meaning. This course provides the concepts truth, analytic-synthetic, apriori-aposteriori difference.

PSO-11: Study of Western Classic (Mediations of Rene Descartes):

This course is completely based on Rene Descartes's six mediations. This is based on the concepts of mind and body, primary and secondary quality, existence of God, will, intellect, theory of ideas, clear and distinct perceptions and etc.

PSO-12: *Isa Upanisads* with *Sankara's* Commentary:

This course is based on the one of the *Upanisad* among the ten *Upanisads*. This course will help the student to know how to give a commentary on the verses *Upanisad* after knowing the *Sankara's* comenatry.

PSO-13: Social and Political Philosophy:

This course will enhance the knowledge of the students regarding the philosophy thought over the society and politics. This course discusses political Ideals, justice, liberty and equality. It also provides the origin and development and human rights.

PSO-14: Applied Ethics:

The objective of this course is the application of ethical rules and principles which can apply for well being of the society. This course designed for the theory of animal rights, abortion, euthanasia, ecology, doctor- patient relationship, business ethics and etc.

COURSE OUTCOME

CO-1: Module-I:

This unit concerned with the questions of how one should live (ethics); what sorts of things exist and what are their essential natures (metaphysics); what counts as genuine knowledge (epistemology). This is an introductory module for Philosophy.

This field explains the ultimate nature of existence, reality, knowledge and goodness, as discoverable by human reasoning. The problem of metaphysic is important problem in philosophy. It emphasizes the problem of substance, universal, mind and body.

This course analyse the ethical problems like theories of goodness and theories of conduct. The fundamental problem in philosophy which is known as problem of being will discusses in this course. Those who believe in one reality they are coming under the group of monism. The problems in monism leads to dualism and the problem in dualism give rise to pluralism.

This module will help the beginners of philosophy which designed to understand the basic concepts and problem in Philosophy which is definitely improves the interest of the students.

CO-2: Module-II:

This unit deals with logical concept principles. The procedure to make sound arguments. In logic we need proposition to make arguments. So this is help to student to know that what are the methods to testing validity of arguments.The logical problems are there which help to students to make rational judgements.

CO-3: Module-III:

The fundamental of this course is to enhance the knowledge of classical Indian Philosophy. There is a division between the two philosophy system Astika & Nastika. According to this the school of Indian Philosophy differed. The law of Karma and the concept of purusartha occupy most important place in philosophy.

The metaphysical, epistemological concept and its problem are discussed here. The theory of causation and theory of elevation provides the knowledge to the student about the classical Indian philosophical understanding about the creation of the world.

CO-4: Module-I:

The fundamental of this course is the modern form of the traditional logic. It is the developed form of traditional logic. It consumes less time to prove the validity and invalidity of arguments with the less time which is working by the help of some basic rules and principles.

CO-5: Module-II:

The aim of this course is to improve the moral thinking among students. This course provides the moral principles and concepts which will help student's behaviour and action in social sphere.

The relation of ethics with politics, sociology and religion are also discussing here. The moral, nonmoral, actions, moral and factual judgements are also present in the course. This course also includes the punishment theory and it also describes retributive, reformative and preventive theory of punishment.

CO-7: Module-II:

This unit deals with the pre-Socratic philosophical thought. The essence of everything from which entering is origin is the main subject matter of this course .It helps the students to know the pre-Socratic philosophers like Thales, Heraclitus and Democritus view regarding the origin of this universe.

CO-8 Module –IV:

The unit deals with the samkara Vedanta conception of *Bramhan,Maya ,Jiva ,Isvara* and Liberation. It is designed to enhance the knowledge of the student on the Indian Philosophical tradition.

CO: Module –IV:

The fundamental of this unit is to develop the idea regarding Gandhian philosophy .The Gandhian concept of truth, God, non-violence *satyagraha* and *sarvodaya*. The aim of this course is to motivate them toward the non-violence action. That will help to built change their behaviour towards others.

CO-9: Module-II:

This unit explains the Spinoza theory on substance, attribute and modes psychophysical parallelism. The substance is that conception of which doesn't required the conception of another

thing in order to its formation. This course is designed to develop the philosophical knowledge and trend them to develop philosophical thought.

This model also analyse the Leibnitz theory of Monads, pre-established harmony, this opens up the mind of the student toward modern.

CO 10: Module-I:

It is easy to understand meaning of a word but it is difficult to understand in which sense it is use in a statement. This unit helps student to know the 'meaning' of the word which may be vagueness and ambiguity. This module analyzes the meaning of the language.

CO 11: Module-III:

This unit deals with the Descartes third meditation which disuses the clear and distinct perception, theory of ideas, existence of God. This course gives scope to student that how we can get clear and distinct perception which cannot be doubted.

CO 12: Module-I:

This unit explains the *Upanisadic* philosophy in Indian context. *Upanisad* is considered as the last phase of the *Vedic* period because they reveal the final aim of the *Veda*. Out of the eleven important *Upanisad Isabhāsya Upanisad* is one of them. The aim of this course is to improve the *Upanisadic* ideas among students. This also can use in practical life because it teaches us not to covet others wealth and not greedy.

CO 13: Module-II:

This unit deals with the fundamental theory of political ideals. It includes the theory of justice, liberty, equality. This unit also discuss the political doctrines of Humanism, Secularism, Feminism and Ecology. The above content stimulates the students to understand the political thought and the work of philosophy in it.

CO 14: Module- III:

This unit explains the application of the ethical principles in social life. Theory of Euthanasia talks about taking human life is justified or not. It deals with arguments against and support of Euthanasia.

This unit also contains Abortion is justified or not. There are also arguments in the support and against for abortion is available that which will help to develop the argument skill of

the students. These are the social issues which is very useful for the students to know how to apply ethical rules and principles.

DEPARTMENT OF PHYSICS
COURSE OUTCOMES

SEMESTER-I

Core-1

- Students will have a sound knowledge of mathematical physics ((Calculus, Vector Calculus, orthogonal curvilinear co-ordinates, vector differentiation and vector integration) and be able to apply this knowledge to analyze a variety of physical phenomena.

- Students will be capable of oral and written scientific communication and will prove that they can think critically and work independently.

Core-2

- Students will have a thorough knowledge of rotational dynamics, non-inertial systems, elasticity, fluid motion, gravitation and central force motion, special theory of relativity and enable them to apply the above knowledge to analyze a variety of physical phenomena.

- Students will be capable of oral and written scientific communication and will prove that they can think critically and work independently.

PHYSICS LAB C-I

- Students will have a good laboratory skills, enabling them to take observations and measurements in a physics laboratory and analyze the results to draw valid conclusions.

- Students will learn the use of operating system Linux or Microsoft windows to solve problems relating to physics.

LAB C-II

- Students will have a thorough laboratory skills, enabling them to take observations and measurements in a physics laboratory and analyze the results to draw valid conclusions.

SEMESTER- II

C-3

- Students will have a sound knowledge of Electric Field and Potential, Magnetic field, Electrical circuits and be able to apply this knowledge to analyze a variety of physical phenomena.

- Students will be capable of written scientific communication and will prove that they can think critically and work independently.

C-4

- Students will have a thorough knowledge about Geometrical optics, wave optics, wave motion, interference, diffraction etc. and be able to apply the above knowledge to analyze various aspects of a physical phenomena.

PHYSICS LAB C-III

- Students will have a good laboratory skills, enabling them to take observations and measurements in a physics laboratory and analyze the results to draw valid conclusions.

PHYSICS LAB C-IV

- Students will develop a good laboratory skills, which help them to take observations and analyze the results to draw conclusions.

SEMESTER-III

C-5

- Students will have a sound knowledge in mathematical physics (Fourier series, Frobenius method, Special Functions, Some special Integrals, Partial differential equations) and be able to apply this knowledge for a proper understanding of physics.

C-6

- Students will have a thorough knowledge of Thermal physics and be able to study of different physical phenomena.

PHYSICS LAB-C-V

- Students will have a good knowledge of computer programming and numerical analysis but to emphasize its role in solving problems in physics.

LAB-C-VI

- Students will have a good laboratory skills which will help them to take observations and measurements in a physics laboratory and to draw valid conclusions.

C-7

- Students will have a sound knowledge of Digital system and applications, and be able to apply this knowledge to analyze a variety of physical phenomena.

LAB-C-VII

- Students will have a thorough laboratory skills enabling them to take observations and measurements in a physics laboratory and to analyze its results.

SEMESTER-IV

C-8

- Students will have proficiency in mathematical physics (Complex analysis, Integral transform, Laplace transform) and the mathematical concepts needed for a proper understanding of physics.

C-9

- Students will have a good knowledge of modern physics, nuclear physics and be able to apply this knowledge to analyze a variety of physical phenomena.

- Students will be capable of oral and written scientific communication and will prove that they can think critically and work independently.

C-10

- Students will have a sound knowledge of analog systems and its applications, which will help them to analyze different physical phenomena.

PHYSICS LAB- C-VIII

- Students will develop computing skills relating to Scilab based simulations experiments based on mathematical physics.

PHYSICS LAB -C-IX

- Students will have a thorough laboratory skills, enabling them to take observations in a laboratory and to draw conclusions.

LAB-C-X

- Students will have a good laboratory skills, enabling them to take observations and measurements in a physics laboratory and analyze the results to draw valid conclusions.

SEMESTER-V

C-11

- Students will have a thorough knowledge of quantum mechanics and its applications, and be able to apply the knowledge to analyze different physical problems.

- It is helpful for students to develop oral and written scientific communication relating to physics.

C-12

- Students will have a sound knowledge of solid state physics and be able to apply this knowledge to analyze a variety of physical phenomena.

C-13

- Students will have a good knowledge of electromagnetic theory and be able to apply this knowledge to analyze different problems relating to physics.

C-14

- Students will have a thorough knowledge of statistical mechanics and be able to apply this knowledge to analyze a variety of physical phenomena.

PHYSICS LAB-C-XI

- Students will have a sound knowledge on C/C++/Scilab for solving various problems based on Quantum mechanics.

LAB-C-XII

- Students will have a good laboratory skills which will help them to take observations and measurements in a physics laboratory and to draw valid conclusions.

LAB-C-XIII

- Students will have a thorough laboratory skills enabling them to take observations and to analyze its results and to draw valid conclusions.

C-15

- Students will have a good knowledge of statistical mechanics and be able to study and analyze a variety of physical phenomena.

DEPARTMENT OF PHYSICS

PROGRAMME OUTCOMES

1. Students are expected to acquire a core knowledge in physics, including the major premises of mathematical physics, classical mechanics, quantum mechanics, electromagnetic theory, electronics, optics, special theory of relativity and modern physics.

2. Students are also expected to develop a written and oral communication skills in communicating physics related topics.

3. Students would be able to learn how to design and conduct an experiment (or series of experiments) demonstrating their understanding of the scientific method and processes. They are expected to have an understanding of the analytical methods required to interpret and analyze results and draw conclusions as supported by their data.

4. Students will develop the proficiency in the acquisition of data using a variety of laboratory instruments and in the analysis and interpretation of such data.

5. Students will realize and develop an understanding of the impact of physics and science on society.

6. Students can apply conceptual understanding of the physics to general real-world situations.

7. Students will have to describe the methodology of science and the relationship between observation and theory.

8. Students will have to discover the different concepts of physics relating to other disciplines such as mathematics, computer science, engineering and chemistry.

9. Students will have to analyze the various physical problems and develop correct solutions using natural laws.

10. Students can appear different competitive examinations like IAS, IPS, Indian Forest Service, OAS and some defence services taking physics as a major subject and can score good marks in physics.

11. After completion of this programme students can join masters' programme in physics or applied physics by qualifying the entrance examinations for these programmes of different universities and technical institutions of India.

DEPARTMENT OF PSYCHOLOGY

INTRODUCTORY PSYCHOLOGY (CORE-1)

PSO-1.

1. The course is designed to provide the student a basic understanding of the psychology of human behaviour.
2. The students will be given exposure to concepts, terminology, principles and theories that are a part of Introductory psychology.

CO 1.

1) To help the students know the source and processes of development of modern scientific psychology.
2) To help student develop a scientific temperament in studying.
3) To understood human behaviour.
4) To understand the physiological land biochemical links of human behaviour.
5) To gain knowledge of scientific methodology the variety of ways in which psychological data are gathered and evaluated and interpreted.

BASIC DEVELOPMENTAL PROCESSES (CORE – 2)

PSO 2.

1. The course in designed to expose students to a basis understanding about the fundamental concerns of developmental psychology and provides example of the following three dimensions of development – growth, differentiation and orderly progression.

CO 2.

1) To gain key ideas about human development and the perspectives to understand such development.
2) To help the students understand the significance of prenatal period for human development.
3) To help the students understand the developmental preparations of the childhood and the implications of developmental milestones for the normal human development.
4) Understand the processes of formation of life and development during pre and post-natal periods.
5) To understand about the different aspects of preparation for future life.

Basic Psychological Processes (Core-3)

PSO 3.

1.The course in deigned to provide the student a basic understanding of the psychological process from sensation to thought and communication.

2. The student will be given exposure to the concepts, terminology, principles and theories relating to each of the mental processes that constitutes human psychology.

CO 3.

1. To help the students understand the mental process to begin with sensation and perception up to low it result in thoughts and communication.
2. To help students gather knowledge about the structural and functional dynamic of each of the mental processes and their interconnectedness.
3. To understand the structural and functional properties of language and way it helps thought, communication, problem solving and decision making thought development of concept, cards, images and so on.
4. To understand the bases sensory actions and the process of integration of sensory actions in creating and interpreting perceptual events.
5. Gain knowledge of the important process and principles of human learning as well as the structural functional attributes of human memory to help conserve the learning outcome.

Process of Human Empowerment (CORE 4)

PSO 4.

1.Human empowerment is ultimately an individual condition of gaining power to control and moderate changes in ones own life those are considered important to ones identify and adjustment .

2. The purpose of the course in to introduce to the students the basis of human development and how the empowerment processes are strengthened and improved.

CO 4.

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

3. To help students gain insight into human behavior as products of empowerment.
4. To know the structural components and functional dynamics of both intelligence and personality.
5. Understand the significant aspect of social behavior as resulting in happiness, well being and personal growth.

Psychological Statistics (CORE 5)

PSO 5

1 The course in designed to equip students with knowledge in the fundamentals of statistics and research method so that they understand the application of statistics to different research problems in psychology.

CO 5

1. To help students develop knowledge and understanding of the application of statistics with psychology.
2. To help student develop critical thinking for application of appropriate statistical analysis in psychological research.
3. To understanding the nature of psychological variables and how to measure them using appropriate scale.
4. The processes of describing and reporting statistical data.
5. To understand the method of drawing inferences and conclusion for hypothesis testing by using appropriate statistical analysis.

Social Psychology (CORE 6)

PSO 6.

1. It in the scientific study of the nature and causes of human behavior in a social context.
2. It also explains how social psychologists think about and study human behavior to introduce the body of knowledge and underline principles that currently exist in the field to encourage reflection about the implications of social psychology for the situation we encounter in everyday life.

CO 6.

1. To help student develop awareness of the concepts, problems and issues in the discipline of social psychology.

2. To make students understand the individual and groups in respect to patterns of social behavior and attitudes.
3. To help students gain insight in to the dynamics of inter group relationships conflicts, prejudice and cooperation.
4. Understand the signification of social cognition, attitudes, stereotypes and prejudices in explaining human behavior in the social contexts.
5. Understand the significant aspects, group behavior and social influences that constitute the core of human relationship.

Environmental Psychology (CORE 7)

PSO 7

1. Environmental psychology in an inter discipline field focused on the interplay between individuals and their surroundings.
2. The field defines the term environmental broadly learning environment and informational environments.

CO 7

1. To highlight the simultaneous mutual interaction of environment and behavior.
2. To delineate psychological approaches to the study of environment.
3. To discuss the impact of ecological degradation and the need for enhanced awareness programmes.
4. To understand the interactional relationship between environment and behavior.
5. To understand different psychological approaches to the study of man-environment relationship.

PSYCHOPATHOLOGY (CORE 8)

PSO 8

1. It refers to the study of mental illness.
2. It is designed to exposé students to the key concepts in psychopathology as well as the major theories associated with the etiology and treatment of psychology disorders and disabilities.
3. Students will be able to understand the distinction between normal and abnormal and the qualities that an used to

differentiate what in typical versus atypical through citation of different disorders.

CO 8

1. To help students define and understand the basic concepts underlying psychopathology and the perspectives which contribute to the development of modern pathology.
2. To help understand the assessment techniques for identifying and classifying maladaptive behavior and mental disorders.
3. To guide students gain specific knowledge about different types of mental disorders.
4. To understand the differences between normality and abnormality along with the perspectives explaining them.
5. To know the importance and the use of assessments techniques in indentifying different forms of maladaptive behavior.

Educational Psychology(CORE 9)

PSO 9

1. This course provides an introduction to concepts, theories and research in educational psychology.
2. The topics covered includes cognitive development during school years, classroom management, constructional approaches, motivation assessment and individual differences.

CO 9

1. To help students understand human development by using mainly on the year of formal education including those with ability differences.
2. To make students understand the ways that educators motivate their students to learn and strive for excellence.
3. To make students explore the ways that educators manage learning environment to maximize learning and social cohesion.
4. To understand the role of motivation on learning and classroom behavior.
5. To identify commonly used standardized lest, their strengths and limitation and use in school settings.

PSYCHOLOGICAL ASSESSMENT (CORE 10)

PSO 10

1. The course is designed to expose students to a basic understanding about approaches to psychological assessment .

2. To develop skills in the administration and interpretation of psychological tests.

CO 10

1. To train students in various psychological assessment techniques.
2. To impart skills necessary for selecting and applying different tests for different purposes such as evaluation, training and rehabilitation.
3. To understand the process of test construction and standardization.
4. Understand about the assessment of different types of skills and abilities.

Organizational Behavior (CORE 11)

PSO11.

1. The course provides an over view of the main field of organizational and personnel psychology.
2. It focuses on topic such as organizational system work behavior, attitudes and motivation as related to organizational set up.
3. Management of power and politics in the organization and finally development and evaluation of human resources for sustainable growth of an organization.

CO 11.

1. To help students able to understand the structure function and designs of different organization.
2. To make students understand the processes of group decision making and leadership function in different organization.
3. To make student understand the theories of work motivation and related issues of power and politics in the organizational set up.
4. To help students demonstrate professional skills in the evaluation management and development of human resources in the organization.
5. To identify steps manager can that to motivate employees in the perspectives of the theories of work motivation.

Health Psychology (Core 12)

PSO 12

1. It is a specialty area that focuses on how biology, psychology, behavior and social factor influence health and illness.

2. This course is designed to provide an introduction to the area of health psychology to help students understand how health psychology as a specially within psychology addresses the role of behavioural factors in health and illness.

CO 12

1. To help the students understand the issue of health psychology and how to address them by the bio-psychosocial models of health and illness.
2. To help the student to describe behavioral factors that influence health and illness.
3. To guide the student understand about health enhancing behavior including coping with illness.
4. To understand the significance of behavioral and psychological correlates of health and illness.
5. To understand the significant aspects coping and importance of health enhancing behavior.

Counseling Psychology (CORE 13)

PSO 13

1. The course is designed to develop entry level counseling psychologist who will be capable of understanding and demonstrating behavior and attitudes in the basic areas of professional counseling.

CO 13

1. To help students able to understand and integrate current scientific knowledge and theory in to counseling practice.
2. To make students learn the history and professional issues related to counseling psychology.
3. To help student integrate and convey information in their core areas of counseling practice.
4. To help students demonstrate professional behavior in their various rules as counseling psychological.
5. To understand the basics of counseling processes, counseling relationships and counseling ethics and how to counsel students ,families , couples, distressed and handicaps.

POSITIVE Psychology (CORE 14)

PSO 14

1. It is the scientific study of optimal human functioning to help people flourish.
2. It not only helps students to understand the core theories of positive psychology but also equips them with the helpful positive interventions in various areas of professional psychology such as clinical, health, education organization and community.

CO 14

1. To help students understand the rational behind positive psychology.
2. To guide students to identify and analysis the key conceptual and theoretical framework underpinning positive psychology.
3. To guide and encourage students to appreciate the contribution of scholars form a range of disciplines and their influence on developing a positive approach to mental issues.
4. To make student understand and apply a strength based approach to mental health issues.
5. To realize the goal of positive psychology and the basic behavior pattern that result in positive human growth from the point of view of leading positive psychologist.

Contemporary applied psychology (CORE 15)

PSO 15

1. Applied psychology in the use of psychological principles and theories to overcome problem in real life situation.
2. Mental health, organizational psychology ,counseling psychology, clinical psychology ,business management, education and law are just a few of the areas that have been influenced by the application of psychological principles and findings.
3. Some of the current areas of applied psychology include community psychology.
4. Psychology of the disadvantaged, psychology of economics development population psychology, gender psychology and defense .
5. The course in designed to help students understand the application of psychology to those new fields.

Dissertation/Research Project (CORE 16)

PSO 16

1. The research experience of students in greatly enriched by early exposures to conduct research.
2. They are better off in understanding published works determine an area of interest ,can discover their passion for research and may start their career as a researchers.
3. Student will also be able to develop ability for scientific enquiry and critical thinking ability in the knowledge base and communication of psychology.

CO 16

1. To help students to learn how to develop scientific research design.
2. To guide students to understand previous research in their fields of interest and review them to arrive at a research problem.
3. To encourage the students to learn ways to describe and measure human behavior.
4. To help student understand the logic of hypothesis testing and application of appropriate statistical analysis.
5. To help students learn the method of writing a research report.

Course Outcome 1 -14 :

C C 1 - Hitopadesa Mitralabha :

It helps us understand that wise and sincere friends may be poor but it is they who may help one achieve success in life. Students get to know that it is not words that define a good friend but their behaviour and actions.

C C 2 - Abhijnanasakuntalam :

It provides general guidelines for social conduct, fundamental rights, patriotism, rationality, sacrifice, individuality, equality, modesty and decency of women, the quality of forgiveness etc which influences society.

C C 3 - Dramaturgy : (Nandi, Prastavana, Nataka, Prakarana)

Dramaturgy offers a mythological account of the origin of theatre and it mainly addresses acting, audience, music, dance, props, drama etc.

C C 4- Chanda : (Presody)

The knowledge of 'Chandas' or prosody is essential to understand the metrical structure followed in almost all the poetical compositions in Sanskrit. The appropriate prosody has to be chosen with great care because each one has its own mood and movement which expresses any experience, feeling or emotion of the poetry.

C C 5 - Meghadutam :

Kalidasa's lyric Meghadutam has shown the graphical details of nature alongwith the deep insight of human life. It gives us an insight into the descriptions of Nature which is merged wonderfully with the human heart.

C C 6 - Sahityadarpana : (Alamkaras)

Alamkara shastras literally means 'science of figure of speech'. In Sanskrit literature Alamkaras have manifested the art of graceful speech and multiple meanings which is easy to understand through the proper knowledge of Alamkara.

C C 7 - Translations :

Most of the great literary works and religious texts are written in Sanskrit, which should reach out to people of different countries and who don't have knowledge of this language. So students should learn to

translate which further can help the valuable texts in Sanskrit reach out to all.

C C 8 - Inscriptions :

The importance of the inscriptions lies in the fact that they offer information about personages and events of Indian history, about which nothing is known from any other source. Political documents and inscriptions are also endowed with great cultural significance.

C C 9 - Lexicon :

Lexicon helps us understand the complete vocabulary of a language. It is an overview of names, essential terms and Sanskrit words. Amarakosha is such a Sanskrit lexicon (thesaurus) of Sanskrit written by scholar Amarasimha and this book contains words with their synonyms alongwith genders and other features arranged in 1500 shlokas.

C C 10 - Prose writing :

Prose writing in Sanskrit is introduced to help students develop their writing skills, vocabulary in Sanskrit, and become creative writer or logical thinker. When we write essay or prose, we learn to express ourself in a more logical way.

C C 11 - History of Sanskrit Literature :

Literature in Sanskrit, gives a clearer picture of the development of religious ideas, culture and social practices and tradition from the time of the Vedas till present. So the knowledge of its history is essential for all.

C C 12 - Vedas :

Veda shown be studied and understood by all because they are books of wisdom both material and spiritual. They are scriptures meant primarily for the liberation of the soul from the bondage of rebirth and secondarily for teaching the art of success in material life.

C C 13 - Manusmriti :

Manusmriti is an ancient legal text which gives us an insight into ancient Indian concept that includes duties, rights, laws, conduct, virtues, state craft and legal process etc. A proper knowledge of Manusmriti can help

us rectify the laws, state craft, social norms, rights code of conduct of today's world wisely.

C C 14 - Jyotisha :

Jyotisha or astrology remains an important facet in our lives where astrological concepts are pervasive in the organization of the calender and holidays, making decisions about marriage, opening a new business or moving into a new home etc. Jyotisha's knowledge is essential because we believe that heavenly bodies including planets have an influence throughout a human's life.

* * *

Core Specific Outcome :

C C 1 - Moral teachings and Basics of Sanskrit :

Sanskrit language is the mother of all Indian languages where we get the information of our ancient art and culture of a civilized society. It provides ideas on core principles of life and suggests alternatives for do's and dont's in life.

C C 2 - Drama and History of Sanskrit Literature :

Drama's aim is both to educate and entertain. Sanskrit Literature gives a clearer picture of the development of religious ideas, culture and social practices of Ancient India.

C C 3 - Drama and Dramaturgy :

Dramaturgy addresses acting, dance, music, architecture, make-up, the audience and offers a mythological account of the origin of theatre. Sanskrit drama imitates a particular state of mind, the aim is the attainment of eternal bliss.

C C 4 - Introduction to the technique of Paninian Grammar & Prosody :

The Paninian Grammar helps us understand sound patterns, compounding, tense, sandhi (euphonic combination), human speech, word roots etc. To understand the metrical structure followed in almost

all the poetical compositions in Sanskrit, the knowledge of prosody or 'Chandas' is essential

C C 5 - Poetry and History of Sanskrit Literature :

Poetry offers inspiration in piety for the pious, gields pleasure to pleasure-seekers, imparts knowledge to the ignorant and makes the mentally - disturbed steadfast. Literature represents a continuous cultural tradition from the time of the Vedas until the present.

C C 6 - Metarulas of Paninian Grammar, Poetics and Figurer of Speech:

Rules about rules in Grammar are Meta-rules. Panini uses symbols like ti, ghu, bha, ghe etc. to save words and letters in sentences. Poetics elaborates sentiment, figures of speech, gesticulation etc in Sanskrit literature.

C C 7 - Cases and case-endings in Paninian Grammar and Translation:

There are eight cases in Paninian Grammar which add 'to/towards', 'by/through/with', 'to/for', 'from/because', 'of', 'in/on' etc. meanings to nouns or adjectives in sentences. To understand and appreciate the usefulness of the 'structured' language Sanskrit, we should learn translation from Sanskrit to other languages.

C C 8 - Inscriptions, Upanisads & Bhagavad Gita :

Inscriptions offer informations about personages and events of Indian history and are endowed with great cultural significance. Upanisads contain the thoughts and insights of important spiritual figures. Spoken by Sri Krishna to his disciple Arjuna, Bhagavad Gita answers major questions of our lives, existence, death, rebirth etc.

C C 9 - Case & Case Endings of Paninian Grammar, Translation and lexicon :

Lexicon is an overview of names, essential terms and Sanskrit words. It helps us to understand the complete vocabulary of a language.

C C 10 - Ornate Prose & Prose Writing :

Prose writing makes the students aware of the construction of Sanskrit words and sentences. It helps them develop their skills of compositions, inflextion and derivation of words.

C C 11 - Ornate poetry in Sanskrit & History of Sanskrit Literature :

Ornate poetry helps the student understand and appreciate rpic poetry and evaluate the literary works in a critical point of view. History of Sanskrit helps us acquire a proper knowledge about the society and traditions of Ancient India.

C C 12 - Veda, Vedic Grammar & History of Vedic Literature :

Veda gives us knowledge about prayers, poems, mythological accounts and formulas which was observed by the people of vedic religion and without this knowledge Sanskrit language's understanding is considered to be incomplete and unfruitful.

C C 13 - Arthashastra, Dharmashastra and Ayurveda :

The study of Arthashastra is one of the significant ways in which we can become more self conscious about the strategic culture we have and in which we can contribute to its evolution. Dharmashastra helps us understand the codes of conduct and moral principles. Ayurveda offers methods of finding out early stages of diseases and aims to balance the body, mind and spirit.

C C 14 - Technical Literature in Sanskrit (Jyotisa & Vastu) :

Jyotisha gives us a philosophical understanding of human and cosmic existence because we believe that the cosmic intelligence guides our human existence. Vastu, the science of architecture, should be understood because it is believed to influence peoples health & wealth.

Program Specific Outcome

CORE PAPERS

(SOC-1) Introduction to Sociology

This introductory paper intends to acquaint the students with Sociology as a social science and the basic concepts used in the discipline. It also focuses on the social processes and the social institutions that man encounters as a member of the society.

Objectives: After studying these two papers, the student can

- Get to know the convergence and divergence of Sociology with other social science disciplines in terms of the subject matter, nature and scope of the discipline and its approach.
- Develop knowledge about its historicity.
- Can get acquainted with the basic concepts used in the subject.
- Can generate ideas about the social processes and social institutions man encounters as a member of the society.

Learning Outcomes: This paper is expected to clarify and broaden the student's notion about the subject, the basic concepts used and some universal societal processes. This will provide a wholesome picture about what the subject is all about.

(SOC-2) Indian Society

Every society has its own peculiar structure and there are some institutions universal to every society, but with their unique manifestations in each society. There are some change agents and initiatives that enable the society to change with the passage of time. This paper focuses on the structure of the Indian society and the changing aspects with the processes operating, change agents and initiatives.

Objectives:

After studying these two papers on Indian society, the student can

- Get an impression about the basic composition of Indian society, its historical moorings, basic philosophical foundations of the society and the institutions.
- Learn about the changing institutions, the processes, the agents and the interventions that bring about change in the Indian society.

Learning Outcomes: This paper is expected to bring familiarity in a student about Indian society. It will present a comprehensive, integrated and empirically –based profile of Indian society. It is hoped that the structure and processes operative in the society, the change agents operating in Indian society presented in this course will also enable students to gain a better understanding of their own situation and region.

(SOC-3) Sociological Thought

Sociology originated as an intellectual response to the crisis confronting the mid nineteenth century European society. Its development over two centuries has been influenced by a variety of socio-economic and political conditions. It is now established as a multi-paradigmatic academic discipline, with its body of theoretical knowledge enriched and its methodological techniques and procedures systemized. This paper is intended to familiarize the students with the social, political, economic and intellectual contexts in which sociology emerged as a distinctive discipline. It deals with the contributions of the forerunners of the discipline and with the contributions of the founders who gave a systematic shape to the subject.

Objectives: After going through these two papers, the student can

- Gain an understanding of some of the classical contributions in Sociology, and their contemporary relevance.
- Learn about the methodological shift in the discipline over the years.

Learning Outcomes: This paper is expected to clarify and broaden the student's knowledge about the theoretical and methodological contributions of the classical contributors to the subject and the contemporary relevance of these theories.

(SOC-4) Social Change and Development

Change is the law of nature and every society is subject to change. Social change has always been a central concern of Sociological study. Change takes different forms. Change has its pattern which is spelt out by various theories. Change is often propelled by various factors. This paper is designed to provide some ideas to the student about such process, theories and factors.

Objectives: After going through this paper, the student can

Derive knowledge about the meaning, nature, forms and patterns of change.

Get an idea about the theories that explain change and their adequacy in explaining so.

Get an impression about the factors that propel change in the society.

Learning Outcomes: This paper is expected to provide a wholesome idea to the students about the process of social change. They can relate their experience with the theoretical explanations.

(SOC-5) Research Methodology

Since the days of August Comte, a debate and a deliberate attempt has been initiated to provide a scientific character to social sciences. In this attempt empirical research has been introduced as an integral part of observing social reality and generalising it objectively without any subjective predisposition. Gradually, research methods have been developed and introduced in social sciences to bring it in par with scientific observations. The essence of this paper lies in introducing the students with these methods of research to ensure objectivity as far as practicable in social research.

Objectives: Bygoing through this paper, the student can

- Get an understanding of the nature of scientific methods, nature of social Phenomena and the way of attaining value neutrality.
- Have a grip over the basic steps involved in social research and the types of social research with their applicability,
- Develop an insight into the need and types of research design and the use of sampling method for attending objectivity and scientific study.

Learning Outcomes: This paper is designed and incorporated to acquaint the students with the scientific ways of studying social phenomena. This provides them with a research insight that will enable them to capture the most relevant data in an objective manner.

The market demand of this paper will be very high as the students well versed with this paper will be highly demanded in academics, fundamental research, and policy research undertaken both by Government and Non- Government agencies.

(SOC-6) Gender and Society

The biological basis to the differences between the sexes does not explain the inequalities faced by the sex groups in the society. In the society variations are marked in the roles, responsibilities, rights of and relations between sex groups depending on the social prescriptions relating to sex affiliations. The differences, inequalities and the division of labour between men and women are often simply treated as consequences of 'natural' differences between male and female humans. But, in reality the social norms, institutions, societal expectations play a significant role in deciding and dictating the behaviour of each sex group. This is the fundamental of the study of Gender and Society.

Objectives: After studying this paper, the student can

- Conceptualize what is "Gender" and what is "Sex" and draw a line of distinction between the two.
- Note the difference in gender roles, responsibilities, rights and relations.
- Trace out the evolution and institutionalization of the institution of "Patriarchy".
- Get to know the theories of Feminism that brought women issues and demands to the forefront.
- Assess the initiatives undertaken for gender development with the paradigm shift from time to time.

Learning Outcomes: This paper is expected to generate ideas and sensitivity about gender in a student which he/she can put into practice in daily life. This will lead to change the prevalent biases and gender practices and create a gender neutral social world where both men and women can enjoy their basic rights and cherish to achieve their dreams.

(SOC-7) Rural Sociology

Rural Sociology is a specialized branch of Sociology describing the society of villages and rural areas. As the rural areas or the villages mark the beginning of human civilization, this paper is designed to bring out the distinct features of the rural society with their typologies and typicalities. In the present paper an attempt is made to introduce the student with the development of this branch

overtime with its focus on the typicality of Indian villages, their structures, changing features and social problems faced by the rural people.

Objectives: After studying this paper, the student can

- Get an impression about the emergence of the sub discipline Rural Sociology and the forces contributing for its origin.
- Learn about the nature of this branch of knowledge, its subject matter and significance. Collect information and knowledge about the mooring of the sub discipline in the Indian context.
- Generate an idea about the typicalities of the rural society and the institutions operating therein and their dynamics.
- Derive ideas about rural social problems of the country.

LearningOutcomes: India thrives in her villages. By going through this paper, the student can have a grip on the grass roots of Indian society. This will enable the student to understand the society in a better manner, to note the heterogeneities in culture, institutions and their functions, changes, the contrasts found between the rural urban societies and the problems faced by the people.

(SOC-8) Globalization and Society

Globalisation is the dominant process of social change in the contemporary world. It has resulted in the sinking of time and space and collapse of borders. It is a new coinage for an old process. It has its own dimensions, distinct features and impacts on society. It has given birth to new role players. All these are the focal points of discussion of this paper.

Objectives: Bygoing through this paper, the student can

- Collect information about the meaning and nature of this process, its historical mooring.
- Amass knowledge about its dimensions and impacts, both positive and negative.
- Get introduced to the agencies that manage the process.

Expected Outcomes: This paper is expected to acquaint the student with an ongoing social process bringing tremendous changes in the nations.

(SOC-9) Marriage, Family and Kinship

This course provides a brief account of the classical approaches to the study of family and kinship. It exposes the students to the distinct aspects of these three interrelated institutions in the Indian context. Finally, it discusses some contemporary issues that pose a challenge to the normative model of these institutions.

Objectives: Bygoing through this paper, the student can

- Understand the three institutions that are the foundations of the society.
- Comprehend the theoretical perspectives on these institutions.
- Get to know the rules governing these institutions.
- Estimate the changes coming over these institutions with the process of social change.

Expected Outcomes: This paper is expected to instill knowledge about the foundational institutions, their governing principles and the continuity and change features of these institutions.

(SOC-10) Social Disorganization and Deviance

No society is fully organized in character. Disorganization is apt to occur from time to time. Disorganization is a manifestation of the deviant behavior found among some individuals. This deviance occurs when the individuals feel that the normative order of the society and its institutions are not need fulfilling in character. This present paper makes an attempt to provide an impression about the scenario of disorganization, its forms, causes and consequences with the theories explaining the situation.

Objectives: After going through this paper, the student can

- Understand the meaning, causes, consequences and forms of social disorganization.
- Learn about the theories explaining the disorganization situations.
- Comprehend the concept of crime and the existing theories of punishment.

Learning Outcomes: This paper is designed with an expectation to impress upon a student the concept of deviant behavior leading to social disorganization, forms, theoretical foundations and criminal activities which he encounters in real life situations.

(SOC-11) Political Sociology

Polity constitutes a vital part of every society. It helps in the system of governance. But the social variables to a great extent determine the course of polity. They decide and detect the system of governance, distribution of power, political institutions like parties and pressure groups, nature of political participation, political socialization. In the same vein, the political institutions, political processes, political culture influence the society and the course of its progress. The present paper highlights the close nexus between society and polity and how dynamism in one brings dynamism in the other.

Objectives: After going through this paper, the student can

- Comprehend the existing forms of states and their relative merits and demerits.
- Differentiate between power, authority and influence which guide and govern the political processes.
- Get to know about the political processes, participation types and determinants and the political institutions.

Learning Outcomes: The very aim of this paper is to generate an insight in the student about the political institutions, political processes, political culture he/she encounters in his/her daily life as a member of the society.

(SOC-12)Environment and Society

Environment and society are in constant interaction with each other. It is the environment which sustains life in society and it is the society that is responsible for the preservation and the degradation of the environment. In the recent years environmental challenges have posed a threat to the lives on the planet. Keeping this in view, the present paper tries to create awareness among the students about the major environmental issues and the efforts geared to tackle them.

Objectives: After going through this paper, the student can

- Derive knowledge about the close interaction between society and environment.
- Gain substantial idea about the environmental issues and their repercussions on humanity.
- Accumulate ideas about the ideological currents, issues that drive environment movements.
- Get aware about the global and national efforts to conserve environment.

Learning Outcomes: The very aim of this paper is to disseminate knowledge about the significance of environment for society, to change the practices that can protect and preserve the environment and to make the students participate in the mission to preserve, protect and promote the cause of environment.

(SOC-13)Urban Sociology

Urbanisation is an important social process that changed the face of human civilization. It was initiated with the process of modernization, transport revolution, coming up of river valley civilizations, establishment of trade links and industrial revolution. Urbanisation has brought both prosperity and problems. It is one of the earnest tasks of Sociology to trace out the evolution of the process, social; problems associated with it and policy planning and measures undertaken to overcome these challenges.This paper Urban Sociology concentrates upon these tasks.

Objectives: After going through this paper, the student can

- Understand the specific traits of urban areas, its historical patterns of growth.
- Develop knowledge about urban social institutions and problems
- Gain insight into urban development plans, programmes and efforts.

Learning Outcomes: The very aim of this paper is to acquaint the students with the process of urbanization, to give an impression about the pattern of evolution of cities, urban institutions, their contrasts with rural institutions, urban problems and the responses developed to arrest them.

Course Outcome

(CO-1) Introduction to Sociology

Unit-1: Sociology

The college-Level Sociology course is designed to introduce students to the sociological study of society. Sociology focuses on the systematic understanding of social interaction, social organization, social institutions, and social change. Major themes in sociological

thinking include the interplay between the individual and society, how society is both stable and changing, the causes and consequences of social inequality, and the social construction of human life.

Unit-2: Basic Concepts

Students will be familiar with the sociological perspective on human behavior and key concepts in sociology.

Unit-3: Individual and Society.

Explain how the self develops sociologically and to explain the reciprocal relationships between the individual and society.

Unit-4: Social Stratification

Social stratification encourage collegiality and discussion among sociologists interested in social stratification issues.

Unit-5: Social Control

It is essential for the continued existence of the society. On the basis of above analysis, the main objectives of social control study how to regulate the individual behaviour and avoid clash in the society.

(CO-2) Indian Society

Unit-1 : Composition of Indian Society :

Enable them to acquire Sociological understanding of these issues & problems over and above their commonsense understanding.

Unit-2: Hindu Social Organisation:

The religious concepts of the *Hindus* give us the ideological basis of the ways they organise their socio-economic activities, their festivals and rituals. ... Thus, our description of *social* life around marriage, family, inheritance, caste and festivals gives us a comprehensive picture of *Hindu social organisation*.

Unit-3 : Marriage and Family in India:

This lesson will introduce you to the sociological *study* of *families*.... Key social institutions in modern society include the *family*, *marriage*, religion....The *student* may well *benefit* from having this compromise made explicit....

Unit-4 : The Caste system in India:

In *India*, *the caste system* developed and is prevalent since ancient times and it ... *The caste system* finds *its* origin in functional groupings, Lessons should be included to teach the *students* that *the caste system* is manmade. ... Social Change to some extend people walk freely, *study* in same class,

Unit-5 : Social Change in Modern India

Any *change* in the *social* structure or *its* function is *social change*. .... In the *modern* world, it also gives idea about *Student* unrest, teacher unrest and unrest among the masses is because of politicalization.

(CO-3) Sociological Thought

Unit-1 :Auguste Comte

Sociologists develop theories to explain social phenomena. The sociological theory of Comte determine that, The truth only comes through scientific knowledge.The father of sociology Comte's provide the *students* with an understanding of some of the basic phenomena of sociology ... *social change*, modernization and futurology and *their* application to the ... Sociology as the scientific *study* of society.

Unit-2 : Herbert Spencer

Sociological theory is developed at multiple levels, ranging from *grand theory* to highly contextualized and specific *micro theories*. Because such theories are dependent on context and specific to certain situations, it is beyond the scope of this text to explore each of those theories. The purpose of this chapter is to introduce some of the more well-known and most commonly used …

Unit-3 : Karl Marx

Gain an understanding of some of the classical contributions in Sociology, and their contemporary relevance. Or Understand how patterns of thought and knowledge are influenced by social, political, economic structures.

Unit-4 : Emile Durkheim

This paper is expected to clarify and broaden the student's knowledge about the theoretical and methodological contributions of the classical contributors to the subject and the contemporary relevance of these theories.

Unit-5 : Max Weber

This unit is intended to familiarize the students with the social, political, economic and intellectual contexts in which sociology emerged as a distinctive discipline. It deals with the contributions of the forerunners of the discipline and with the contributions of the founders who gave a systematic shape to the subject.

(CO-4) Social Change and Development

Unit-1: Social Change : Meaning and nature. Social Progress, Evolutuion and Development.

- social change: In sociology, the alteration of mechanisms within the social structure, characterized by changes in cultural symbols, rules of behavior.

Unit-2: Theories of Social Change : Evolutionary theory, Cyclical theory, Conflict Theory, Functionalist theory.

- Evolutionary theory. Sociologists in the 19th century applied Charles Darwin's (1809–1882) work in biological evolution to theories of social change. According to evolutionary theory, society moves in specific directions. Therefore, early social evolutionists saw society as progressing to higher and higher levels.

Unit-3 : Factors of Social Change: Cultural, Economic, Technological, Ideological, Demographic .

- Physical Environment: Certain geographic changes sometimes produce great social change. ...
- Demographic (biological) Factor: ...
- Cultural Factor: ...
- Ideational Factor: ...
- Economic Factor: ...

- Political Factor:

Unit-4 : Economic Growth and Social Development : Indicators of Social Development, Human Development Index, Gender Development Index.

- Economic growth is defined "as increase in an economy's real level of output over time such as Gross National Product (GNP), per capita, etc.". Development implies "the reduction or elimination of poverty, inequality and unemployment within the context of a growing economy"

Unit-5 : Models of Development : Capitalist, Socialist, and Gandhian.

- Gandhian economics is a school of economic thought based on the spiritual and socio-economic principles expounded by Indian leader Mahatma Gandhi. ... Gandhi's economic ideas also aim to promote spiritual development and harmony with a rejection of materialism.

(CO-5) Research Methodology

Unit-1 : Meaning and Significance of Social Research, Nature of scientific Method, Applicability of scientific method to the study of social phenomena, Major steps in social research.

- Social research is a research conducted by social scientists following a systematic plan. ... Qualitative designs emphasize understanding of social phenomena through direct observation, communication with participants, or analysis of texts, and may stress contextual subjective accuracy over generality.

Unit-2 : Research Design, Types of Research Design: Exploratory, Diagnostic, Descriptive, and Experimental research Design.

- The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data.

Unit-3 : Hypothesis: Meaning, Characteristics, Types and sources of Hypothesis, Role of Hypothesis in Social Research Sampling: Meaning, and characteristics, Types: Probability and Non-Probability Sampling. Role of Sampling in Social Research Unit-4 : Qualitative social Research : Observation, Case Study, Content Analysis

- A supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.

Unit-4

Unit-5 : Quantitative methods in Social Research: Survey research, Questionnaires, Interview. Measures of Central Tendency: Mean, Median, Mode.

- Definition. Quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques.

(CO-6) Gender and Society

Unit-1 : Social Construction of Gender : Sex and Gender, Gender stereotyping and socialization, Gender Role and Identity. Gender stratification and Inequality, Gender discrimination and Patriarchy.

- Social construction of gender. The idea that gender difference is socially constructed is an academic construct present in feminist, philosophical and sociological theories about gender, and documents written by the World Health Organization (WHO).

Unit-2 : Feminism: Meaning, origin and growth of Feminist Theories. Theories of Feminism : Liberal, Radical, Socialist, and Eco-Feminism.

- Feminism is a range of political movements, ideologies, and social movements that share a common goal: to define, establish, and achieve political, economic, personal, and social equality of sexes.

Unit-3 : Gender and Development: History and Approaches, WID,WAD and GAD. Women Empowerment: Meaning and Dimensions. World Conference of Women, Mexico, Copenhagen, Nairobi and Beijing. Gender- Related Development Index (GDI) and Gender Empowerment Index (GEM).

- Gender and development (GAD) Theoretical approach. The Gender and Development (GAD) approach focuses on the socially constructed differences between men and women and the need to challenge existing gender roles and relations.

Unit-4: Status of Women in India : Ancient and Medieval period, women in pre- independence India, Social Reform movements, The Nationalist movement, Women in Independent India.

- Much of it includes women's positing in society, their education, health, economic position, gender equality etc. ... When the Indian Constitution was formulated, it granted equal rights to women, considering them legal citizens of the country and as an equal to men in terms of freedom and opportunity.

Unit-5 : Major Challenges and Issues Affecting Women in India: Women and Education, Women and Health, Women and Work. Policy provisions for women.

- Taking birth as a woman in the Indian society can be said as curse for the women. Women in India face lots of social issues and problems all through the life which are big struggle for them right from their beginning of life.

(CO-7) Rural Sociology

Unit-1 : Origin and Scope of Rural Sociology., Nature and Importance of Rural Sociology.

- Rural sociology is relatively novel branch of sociology. It Is originated in the United States of America in the form of systematic science in the year 1820. It has taken more than half a century to become established as a distinct academic need or professional study.

Unit-2 : Rural social Structure: Village Community, Agrarian Economy, Caste System, Mobility and Migration. Rural-Urban Contrast and Continuum.

- 'Social structure' is one of the central and basic concepts of sociology. After World War II, the concept of social structure became popular in social anthropological studies and since then, it is applied to almost any ordered arrangement of social phenomena.

Unit-3: Rural Social problems: Poverty, Unemployment, , Food Security, Landlessness, Indebtedness, Health care and Sanitation

- The significant characteristics of the rural areas in India which are associated with certain social problems are:
- People are directly or indirectly dependent on agriculture and a large number of landowners have small and medium-sized landholdings.

Unit-4 : History and Evolution: Community Development Programme, Land Reforms, Green Revolution. Cooperative Movement, Panchayati Raj Institutions- Constitutional provisions and Structure. Role of Panchayats in Rural Development.

- Changing the traditional and conservative outlook of the village people.

Unit-5: Rural Development Programmes: MGNREGA, SGSY, Indira AwasYojana, Livelihood Mission, Health Mission.

- The majority of population in India (about 73 per cent) is living in rural areas. Living conditions of the rural people are very poor. Under such a situation, development of rural areas must receive adequate attention in various schemes designed for the development of Indian economy.

(CO-8) Globalization and Society

Unit-1: Meaning and characteristics of Globalization. Historical context, Liberalization, Privatization and Globalization.

- Indian economy had experienced major policy changes in early 1990s. The new economic reform, popularly known as, Liberalization, Privatization and Globalization (LPG model) aimed at making the Indian economy as fastest growing economy and globally competitive.

Unit-2: Dimensions of Contemporary Globalization: Economic, Technological, Political and Cultural.

- Economic globalization is the intensification and stretching of economic interrelations around the globe
- Political globalization is the intensification and expansion of political interrelations around the globe.

Unit-3: Consequences of Globalization: Rising Inequality, Environmental impact, Consumerism, Health and Security. Emergence of Anti-Globalization movements.

- Interdependence. Globalization leads to interdependence between nations, which could cause regional or global instabilities, if local economic fluctuations end up impacting a large number of countries relying on them.
- National Sovereignty. ...
- Equity Distribution.

Unit-4: Globalisation and Indian Society: Understanding the concepts of liberalization, privatization and globalization in the Indian context; Growth of information technology and communication and its impact manifested in everyday life .

- Nayer and Stoudmann (Definitions of Globalization: A Comprehensive Overview and a Proposed Definition) saw globalization as a process that encompasses the causes, courses, and consequences of transnational and transcultural integration of human and non-human activities.

Unit-5: Impact of globalisation on Religion, Culture, Education, Family, Marriage, Women, Tribes.

- When we analyse this rich culture with the globalization point of view, we can find many punch holes of westernization and mixing of other traits and cultures into our beautifully woven blanket. Let us closely analyse the impacts of globalization on Indian culture:

(CO-9) Marriage, Family and Kinship

Unit-1: Theoretical Perspectives: Overview of theoretical developments Descent theory ,Alliance theory ,Recent theorizations and their implications

- The alliance theory, also known as the general theory of exchanges, is a structuralist method of studying kinship relations. It finds its origins in Claude Lévi-Strauss's Elementary Structures of Kinship (1949) and is in opposition to the functionalist theory of Radcliffe-Brown.

Unit-2: Marriage: Marriage as social Institutions, Functions of Marriage. Rules of Marriage: Endogamy, Exogamy; Monogamy and Polygamy; Levirate and Sororate; Hypogamy and Hypergamy. Dowry and Bride Price.

- Marriage is one of the universal social institutions established to control and regulate the life of mankind. It is closely associated with the institution of family. Infact both the institutions are complementary to each other.

Unit-3: The Family: Types of Family on the basis of Rules of Authority, Descent and Residence. Functions of Family. Contemporary changes and problems: Divorce and Family Disintegration.

- Monogamous Family
- Polygynous family
- Polyandrous Family
- Endogamous and Exogamous Family

Unit-4: Contemporary Issues: Changing demographic patterns Migration, Diasporas and Impact on Family Implications of new reproductive technologies Domestic violence Challenges to the normative model of family

- Although internal migration in India has been shaped by urbanization, its actual contribution vis-a-vis components of natural increase and rural to urban classification remains low (about 20 % of urban growth)

Unit-5 : The Kinship and Clan System: Meaning and Definition of Kinship and Clan. Types. Clan, Family, Lineage and Totemism and Taboos.

- The kinship-based bonds may be symbolic, whereby the clan shares a "stipulated" common ancestor that is a symbol of the clan's unity. ... Clans in indigenous societies tend to be exogamous, meaning that their members cannot marry one another.

(CO-10) Social Disorganization and Deviance

Unit-1 : Social Disorganization: Meaning and Nature. Family Disorganization and Personality Disorganization Causes and Consequences.

- In sociology, the social disorganization theory is one of the most important theories developed by the Chicago School, related to ecological theories. The theory directly links crime rates to neighborhood ecological characteristics; a core principle of social disorganization theory is that place matters.

Unit- 2: Theories of Deviant Behaviour : Contributions of Durkheim and Merton. Ecological theory, Delinquent Sub-Culture theory, Differential Association theory, Differential Opportunity theory.

- According to Merton, there are five types of deviance based upon these criteria: conformity, innovation, ritualism, retreatism and rebellion. Structural functionalism argues that deviant behavior plays an active, constructive role in society by ultimately helping cohere different populations within a society.

Unit- 3 : Crime and Punishment : Concepts of Crime and Delinquency. Causes and consequences. Theories of Punishment: Retributive, Deterrant,Reformative.

- Sociology of punishment. The sociology of punishment seeks to understand why and how we punish; the general justifying aim of punishment and the principle of distribution. Punishment involves the intentional infliction of pain and/or the deprivation of rights and liberties.

Unit-4: Social Problems: Poverty, Unemployment, Alcholism, Indebtedness,Terrorism

- The term "social problem" is usually taken to refer to social conditions that disrupt or damage society—crime, racism, and the like. ... In contrast, the sociology of social problems defines social problem differently and adopts a different analytic approach.

Unit-5: Atrocities against women, Domestic violence, Dowry, Divorce

- Male violence against women is a worldwide phenomenon. Although not every woman has experienced it, and many expect not to, fear of violence is an important factor in the lives of most women. It determines what they do, when they do it, where they do it, and with whom.

(CO-11) Political Sociology

Unit-1: State: Characteristics, Aristotle's classification of types of state: Theological, Monarchical, Aristocratic, Democratic and Totalitarian forms.

- Political sociology attempts to explore the dynamics between the two institutional systems introduced by the advent of Western capitalist system that are the democratic constitutional liberal state and the capitalist economy. While democracy

promises impartiality and legal equality before all citizens, the capitalist system results in unequal economic power and thus possible political inequality as well.

Unit-2: Influence, Power and Authority: Meaning and types of influence, characteristics of Power, distribution of power: the Constant sum and the Variable sum approach to power, theories of political elites, authority: Weberian classification of authority, different ways of acquiring legitimacy.

- The term authority is often used interchangeably with power. However, their meanings differ: while power is defined as "the ability to influence somebody to do something that he/she would not have done", authority refers to a claim of legitimacy, the justification and right to exercise that power.

Unit-3 Political culture and political socialization: Meaning and dimensions of political culture, meaning and types of political socialization agencies of political socialization and their role.

- Whereas culture refers to the customs, behaviour, historical linkages and general attitudes of a particular group of people, political culture is the attitudes, beliefs and norms that people have specifically developed towards government and politics.

Unit-4 Political participation: meaning and types of political participation, political apathy – reasons for political apathy, Determinants of political participation – psychological, social and political.

- The nine factors influencing political participation are as follows: 1. Psychological or cognitive traits 2. Social environment 3. Political environment 4. Level of modernization and urbanization 5. Political socialization 6. Modes of participation 7. Voting 8. Campaign activities 9. Co-operative activity.

Unit-5 Political parties and pressure groups: Political parties – features and functions, structures of political parties; meaning of pressure groups and their relationship with political parties, types of pressure groups and their role.

- explain the meaning of a political party;
- elaborate the main characteristics of political parties;
- classify the types of political parties in India;
- discuss the functions and role of political parties in a democratic government in India;

(CO-12)Environment and Society

UNIT – I Environment and its Concepts: Ecology, Eco-system, Environment and Society – their inter-relations; Eco-Feminism

- In this chapter, we will study social relationships with the environment as they have changed over time and as they vary from place to place.
- The term ecology denotes the web of physical and biological systems and processes of which humans are one element.

UNIT – 2 Environmental Issues: Sustainable Development, Industrialization and Development, Urbanization and Development, Environmental Degradation

- This unit is shown about different environmental issues like water pollution, air pollution, solid waste, soil pollution, climate pollution, global warming etc.

UNIT – 3 Environmental Movements: Chipko Movement, Narmada BachaoAndolan, Ganga BachaoAbhiyan; The Silent valley movement, Forest Rights.

- This unit shows environmental movement can be defined as a social or political movement, for the conservation of environment or for the improvement of the state of the environment. The terms 'green movement' or 'conservation movement' are alternatively used to denote the same.

UNIT – 4 Contemporary Environmental Problems: Problems of Water, Deforestation, Urban Wastes, Slums, Global-Warming and Climate Change.

- Overloading of the atmosphere and of ocean waters with carbon. Atmospheric CO2 absorbs and re-emits infrared-wavelength radiation, leading to warmer air, soils, and ocean surface waters - which is good: The planet would be frozen solid without this.

Unit-5 Environment protection efforts at the global level and the national level in India.

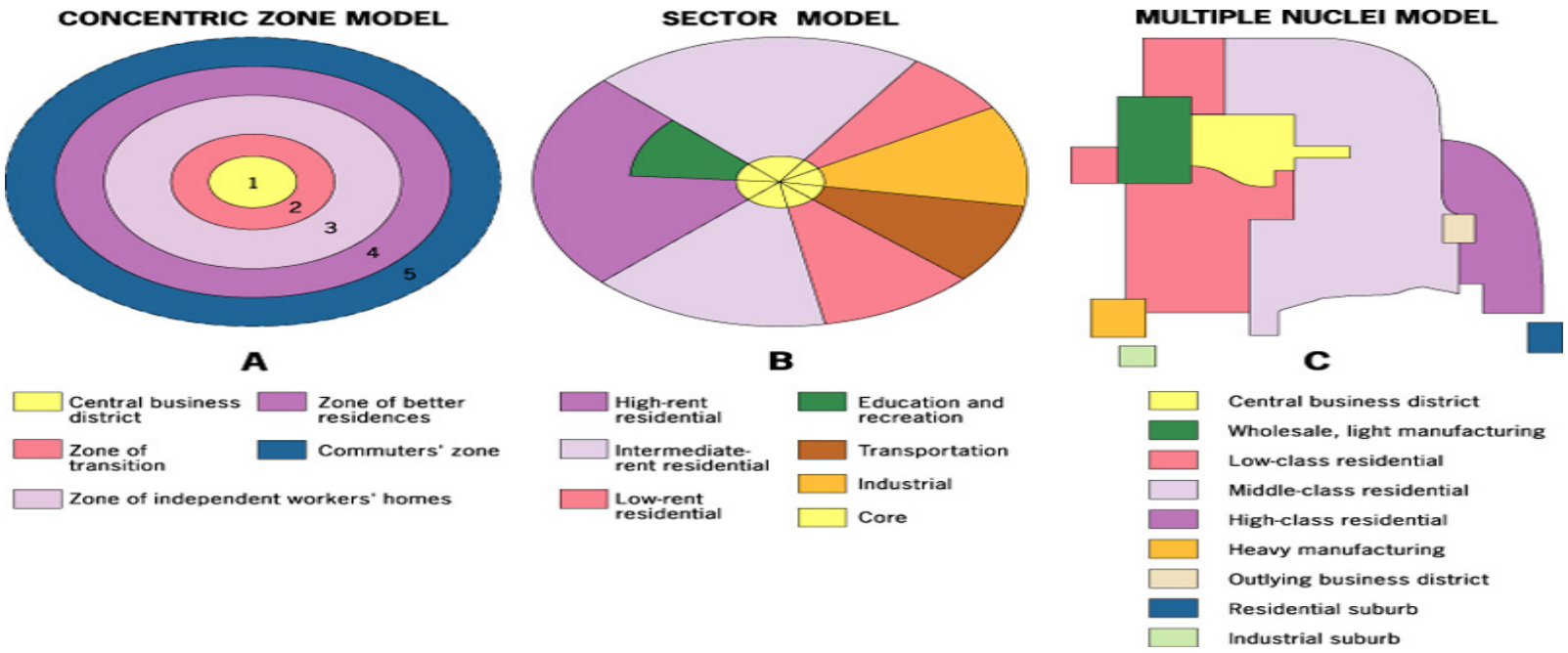
- Environmental protection is a practice of protecting the natural environment on individual, organisation controlled or governmental levels, for the benefit of both the environment and humans.

(CO-13)Urban Sociology

Unit-1 Meaning, Nature, Scope and importance of Urban Sociology, Rural Urban Differences: Specific traits of rural world vs. urban world- Socio-cultural differences, rurbanization, Urbanism as a way of life.

- Urban sociology is the sociological study of life and human interaction in metropolitan areas. It is a normative discipline of sociology seeking to study the structures, processes, changes and problems of an urban area and by doing so provide inputs for planning and policy making.

Unit-2 Theories of patterns of city growth: Concentric zone theory- Sector model- Multiple nuclei theory.



- These theories are meant for better understanding of city growth with various means.

Unit-3 Social institutions of Indian urban communities: Family, marriage and kinships in urban India – Caste in urban India – Urban politics and urban economy

- Discuss the meaning and definition of urban social structure explain the urban social structure in terms of kinship, religion, caste, and politics from a sociological point of view examine the changes in the urban social structure describe issues involved in the study of urban social structure in India.

Unit-4 Urban social problems: Crime and Juvenile delinquency, Slums, Beggary , Prostitution .This unit shows:-

- Conceptual analysis of Social Problem.
- Findings of the pattern of social problems, causes and extents.
- Social deviance – Features, causes of social deviance, types of social deviance in the process of Social Anomies and Maladjustment i.e. Juvenile delinquency, prostitution alcoholism, drug addiction, crime, family disorganisation etc.

Unit-5 Urban development in Indian plans, Urban development programmes, Slum development programmes, Urban Basic Services.

- This unit presents a review of the major aspects of urban planning in India. It makes a case for an integrated approach recognizing the interplay of factors which have a bearing on the urban condition for better living as well as better environment for economic growth, which should be inclusive and sustainable.

PSO's of B.Sc. Zoology

PSO 1 : Analyse the general characters, classification and evolutionary significance of non-chordates (Protista to pseudocoelomates).

PSO 2 : Understand the basic concepts of ecology, its components and biostatistics.

PSO 3 : Analysis the general characters, classification and evolutionary significance of coelomate non chordates.

PSO 4 : Understand the structural organization, histology, functions and mechanism of the life sustaining systems.

PSO 5 : Understand the origin, distribution, classification, characters and special features of all chordates starting from most primitive forms (protochordates) to the most advanced forms (mammals).

PSO 6 : understand the structure, histology and functioning of the controlling and co-ordinating systems.

PSO 7: Analyse the relationship between different vertebrate groups with respect to the anatomy of different systems.

PSO 8: Understand the biochemistry and various metabolic processes associated with organic compounds.

PSO 9 : Understand the structure and functions of various cellular organelles.

PSO 10 : Understand the concepts of Mendelian genetics, chromosomal mapping, mutations controlling our systems, mechanism of sex determination, extra chromosomal inheritance.

PSO 11 : Understand the different aspects of animal development at different embryonic stages and application of these concepts in modern fields of research biology.

PSO 12: Understand the structure of DNA, DNA replication, transcription, translation and regulatory factors controlling the above processes.

PSO 13 : Understand the basic concepts of human defense mechanism, the cells/organs and their secretions involved in the different immunological responses and the application of these concepts in modern biotechnology.

PSO 14 : Analyse the evolution of different forms of life and the forces controlling them.

Course outcomes

Core-1

Diversity and Evolution of Non-chordata (Protista to Pseudocoelomates).

CO 1 : Discuss about the general characteristics, classification upto classes, locomotion and reproduction in Protista. Give an account of life cycle, pathogenicity and prophylaxis of *Plasmodium vivax, Trypanosoma gambiens* and *Entamoeba histolytica.*

CO 2 : Describe the general characters and classification upto classes of phylum porifera and ctenophore. Give an account of canal system in sponges. Discuss about the general characters and evolutionary significance of parazoa and metazoa.

CO 3 : Discuss about the general characteristics and classification upto classes of phylum cnidarian, corals and coral reefs.

CO 4 : Give an account of the general characteristics and classification upto classes of phylum Platyhelminthes. Describe the life cycle, pathogenicity and prophylaxis along with parasitic adaptation of *Fasciola hepatica* and *Taeniasolium*.

CO 5 : Describe the general characteristics and classification upto classes of phylum nemathelminthes. Discuss about the life cycle, pathogenicity, prophylaxis and parasitic adaptation of *Ascarislumbricoides* and *Wuschereriabancrofti*.

Core-2

Perspective in Ecology and Biostatistics.

CO 1 : Write the relevance of studying ecology. Briefly describe the history of ecology. Discuss the laws of limiting factors. Describe light and temperature as ecological factors along with their effects. Write notes on food chain, food web, energy flow through the ecosystem and ecological pyramids.

CO 2 : Describe the characteristics of population. Give an account of different patterns of population growth. Discuss about population regulation and population interactions. Discuss Gause' Principle. Write a note on Lotka-Volterra equation for competition and predation.

CO 3 : Discuss the different characteristics of community. Write notes on ecotone and edge effect. Discuss ecosystem development (succession) with examples. Give an account of the theories pertaining to climax community. Write notes on nutrient and biogeochemical cycles.

CO 4 : Give an account of the different types of biodiversity and their significance. Discuss about causes of loss of biodiversity. Describe in detail about the different types of conservation strategies. Write note on endangered species concept. Discuss the role of ZSI, WWF, IUCN, Wildlife (protection) Act. 1972.

CO 5 : What is biostatistics. Discuss its concept and scopes. Discuss the measures of central tendency. Describe the measures of dispersion with relation to standard deviation. Write notes on Chi-square test, T test and Z test. Explain the analysis of correlation and regression. Write on data analysis using EXCEL programme.

Core-3

Diversity and Evolution of Non chordates (Coelomate Non chordates)

CO 1 : Describe the general characteristics and classification upto classes of phylum Annelida. Write notes on coelom, metamerism and excretion in Annelidas.

CO 2 : Write down the general characteristics and classification upto the classes of phylum Arthropoda. Discuss about vision and respiration in Arthropodas. Write notes on moulting, metamorphosis and social life in insects. Give an account of larval forms of crustacea.

CO 3 : Describe the general characteristics and evolutionary significance including affinities of peripatus.

CO 4 : Give an account of general characters and classification upto classes of phylum Mollusca. Describe respiration, torton and detorton in Mollusca. Write notes on pearl formation in bivalves and evolutionary significance of trochophore larva.

CO 5 :Discuss about the general characteristics and classification upto classes of phylum Echinodermata. Write notes on larval forms and evolutionary significance of Echinodermata. Give an account of water vascular system in Asteroids i.e. starfish.

Core-4

Physiology- life Sustaining Systems.

CO 1 : Describe the structural organization, histology and functions of alimentary canal and its associated glands. Discuss about the physiology of digestion and absorption of food.

CO 2 : Write down the histology of the respiratory organs and the mechanisms of respiration.

CO 3 : Discuss about the structure of the kidney and the mechanism of urine formation and its regulation.

CO 4 : Describe the composition and functions of blood. Write a note on the mechanism of blood coagulation and blood related disorders.

CO 5 : Discuss about the structure of the heart, coronary circulation, conduction of cardiac impulse, cardiac cycle. Write a note on nervous and chemical regulation of heart beat.

Core-5

Diversity and Distribution of Chordata.

CO 1 : Discuss about the different theories related to origin of phylum Chordata. Describe the different characteristics of the three different classes of subphylum Protochordata. Write notes on the larval forms of protochordates and retrogressive metamorphosis in Urochordata.

CO 2 : Give an account of the advanced features of vertebrates over protochordates. Identify the general characteristics and classification of Cyclostomes upto class. Write notes on the structural peculiarities and affinities of *Petromyzon* and *Myxine.*

CO 3 : Describe the general characteristics and classification of chondrichthyes, osteichthyes and Amphibia upto orders. Write notes on the types of parental care in fishes and amphibians. Discuss on migration, osmoregulation and scales of fishes. Write a note on origin of tetrapoda.

CO 4 : Identify the general characteristics and classification of clasessReptilia and Aves upto orders. Write a note on skull in Reptiles, affinities of *Sphenodon*, poison apparatus and biting mechanism in snakes. Give an account of principles and aerodynamics of flight, flight adaptations and migration in birds. Write a note on *Archaeopteryx* as a connecting link.

CO 5 : Discuss the general characteristics and classification of mammals upto orders. Write notes on affinities of Prototheria and Metatheria, dentition in mammals. Discuss about the adaptive radiation in mammals with reference to locomotory appendages. Givean account of the zoological realms and theories pertaining to the distribution of animals in different realms.

Core-6

Physiology- Controlling and Coordinating Systems.

CO 1 : Study the structure, location, functions and types of different tissues.

CO 2 : Discuss about the structure of neuron, mechanism of transmission of nerve impulse. Write a reflex action and its mechanism. Describe the physiology of hearing and vision.

CO 3 : Describe the histology of different types of muscles, mechanism of muscle contraction and characteristics of muscle.

CO 4 : Discuss about the histology and physiology of male and female reproductive systems. Write a note on methods of contraception.

CO 5 : Describe the histology of different endocrine glands, the hormones secreted by them, their functions and disorders.

Core-7

Comparative Anatomy of Vertebrates.

CO 1 : Describe the structure, functions and derivatives of integumentary system. Give a comparative account of the axial and appendicular skeleton in different vertebrates. Give an account of jaw suspensorium in vertebrates.

CO 2 : Give a comparative account of alimentary canal and associated glands in different groups of vertebrates. Describe skin, gills, lungs and air sacs as respiratory organs in different vertebrates. Write a note on accessory respiratory organs in fishes.

CO 3 : Write a note on general plan of circulation in vertebrates. Give an account of the comparative anatomy of heart in different group of vertebrates. Add a note on its evolution. Discuss about the evolution of aortic arches in vertebrates.

CO 4 : Write a note on succession of kidney in vertebrates. Explain the evolution of urinogenital ducts in different vertebrates.

CO 5 : Give a comparative account of brain in different vertebrates. Write notes on autonomic nervous system, spinal cord, spinal nerves and cranial nerves in mammals. Classify the different types of receptors found in vertebrates.

Core-8

Biochemistry and Metabolic Processes.

Co 1 : Describe the structure and properties of carbohydrates, lipids and proteins.

Co 2 : Discuss about cellular respiration, Glycolysis, Krebs cycle, Pentos phosphate pathway, Gluconeogenesis, Glycogenolysis and Glycogenesis.

Co 3 : Write notes on β-oxidation of fatty acids.

Co 4 : Describe protein metabolism.

Co 5 : Describe about the kinetics and mechanism of enzyme action. Write a note on electron transport chain.

Core-9

Cell Biology.

CO 1 : Differentiate between prokaryotic and eukaryotic cells. Write notes on mycoplasma, virus, viroid, virisions and prions. Describe the various models of plasma membrane. Describe the mechanism of transportation across membrane. Give an account of the structure and functions of different types of cell junction.

CO 2 : Give an account of the structure, functions and semiautonomous nature of mitochondria. Describe the structure and functions of the endoplasmic reticulum. Describe about the structure and functions of the Golgi apparatus. Write down the structure and functions of the lysosomes. Write notes on mechanism of vesicular transport, chemiosmotic hypothesis, endosymbiotic hypothesis and peroxisomes.

CO 3 : Give an account of the structure and functions of different types of cytoskeleton . describe the ultrastructure and functions of nucleus. Discuss about the structure and functions of nucleolus. Write notes on nuclear envelope, structure of nuclear pore complex, chromosomal DNA and its packaging.

CO 4 : Describe cell cycle and its regulation. Discuss about signaling molecules and their receptors.

CO 5 : What is apoptosis. Discuss about its extrinsic and intrinsic pathways. Discuss about the growth and development of tumors and metastasis.

Core-10

Principles of Genetics.

CO 1 : Write the principles of inheritance including sex-linked inheritance. Discuss about incomplete dominance and co-dominance. Describe multiple alleles and lethal alleles. Give an account of epistasis and pleiotrophy.

CO 2 : Discuss the different types and mechanisms of linkage. Give an account of the types and molecular mechanisms of crossing over. Describe the different types of hybridization.

CO 3 : Describe the molecular basis of mutation and its types. Write down the different methods of detection of mutations. Give an account of the DNA repair mechanisms.

CO 4 : Write down the chromosomal methods of sex determination. Describe the sex-linked influenced and sex linked characters. Give an account of the roles of polygenic inheritance and transgressive variations in evolution.

CO 5 : Give an account of the criteria for extra chromosomal inheritance. Discuss the antibiotic resistance in *Chlamydomonous*. Describe mitochondrial mutations and maternal effects.

Core-11

Developmental Biology.

CO 1 : Discuss about the history and basic concepts of developmental biology. Give an account of the different types of cell-cell interaction, patterns of formation, differentiation and growth, gene expression, cytoplasmic determinants and asymmetric cell division.

CO 2 : Discuss the process of spermatogenesis and oogenesis. Give an account of the different types of egg and egg membranes. Describe the mechanism of fertilization, changes in the gametes involved in the process and incidence of monospermy and polyspermy. Discuss about the planes and patterns of the cleavage. Describe the early development of frog and chick upto gastrulation. Give an account of the different types of the fatemaps. Discuss the concept of embryonic induction. Describe the organizer concept.

CO 3 : Discuss about the fate of different embryonic germ layers. Give an account of the extra embryonic membranes in bird. Discuss about the implantation of embryo in human. Describe the structure, types and functions of placenta.

CO 4 : Give an account of the changes and hormonal regulation of metamorphosis in amphibians. Describe the different modes of regeneration. Discuss the concept and models of aging.

CO 5 : What is teratogenesis. Discuss its causative agents and their effects on embryonic development. Discuss about in vitro fertilization, stem cell culture and amniocentesis.

Core-12

Molecular Biology.

CO 1 : Describe the history and structure of DNA. Discuss the structure of RNA and its types. Give an account of the DNA replication in prokaryotes and eukaryotes and its types.

CO 2 : Describe the mechanism of transcription in eukaryotes and prokaryotes and factors regulating transcription. Give an account of the synthesis of rRNA and mRNA.

CO 3 : Give an account of the genetic code and Wobble hypothesis. Describe the process of protein synthesis in prokaryotes. Give an account of the structure of ribosome. Discuss the difference between prokaryotic and eukaryotic translation.

CO 4 : Describe the structure of globin mRNA. Discuss the splicing mechanism. Give an account of exon shuffling and RNA editing.

CO 5 : Give an account of transcription in eukaryotes and its regulation. Discuss gene silencing and genetic imprinting. Describe RNA interference miRNA and siRNA.

Core-13

Immunology.

CO 1 : Give an account of the histological perspective and early theories of immunology. Discuss the different types of immune responses and cells/organs associated with these responses. Discuss the different types of dysfunctions of immune system.

CO 2 : Discuss the different properties of immunogens and the factors influencing the immunogenicity. Write notes on adjuvents, haptens and epitopes.

CO 3 : Give an account of the structure and functions of different classes of immunoglobulins. Discuss the antigen-antibody interaction. Write notes on immunoassay, polyclonal sera, monoclonal antibodies and hybridoma technology.

CO 4 : Discuss the structure and functions of exogenous and endogenous pathways of antigen presentation. Discuss the components and pathways of complement activation.

CO 5 : Discuss the properties and functions of cytokines in addition to cytokine based therapies. Discuss the different types of hypersensitivities as per Gell and Coomb classification. Discuss the different types of vaccines in addition to DNA vaccines and recombinant vaccines.

Core-14

Evolutionary Biology.

CO 1 : Describe different theories on origin of life. Discuss the major events in history of life. Give an account of five major extinctions and their background. Adding a note on role of extinction in evolution.

CO 2 : Discuss about the different evidences of evolution with examples. Write a note on types of fossils and the process of dating of fossils based on molecular clock concept. Give an account of phylogeny of horse and human.

CO 3 : Write a note on the roles of different types and factors of natural selection in the process of evolutionary change. Give an account of the sexual selection and artificial selection contributing to the process of evolution. Discuss the roles of variations and isolations in evolution.

CO 4 : Give an account of gene frequencies and shifts in gene frequencies with and without selection. Write a note on Hardy-Weinberg equilibrium. Discuss gene pool, gene flow and genetic drift.

CO 5 : Describe different species concepts along with their advantages and limitations. Give an account of modes of speciation. Write a note on macro evolutionary principles of evolution in relation to Darwin's Finches. Explain convergence, divergence and parallelism.

PSOs of B.A. ODIA (CORE/HONOURS)

PSO 1: ପ୍ରାଚୀନ ଓଡ଼ିଆ ସାହିତ୍ୟର ଐତିହାସିକ କ୍ରମରେ ପ୍ରାକ୍ ସାରଳା ସାହିତ୍ୟ, ସାରଳା ସାହିତ୍ୟ ଓ ପଞ୍ଚସଖା ସାହିତ୍ୟର ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଇବା ପୂର୍ବକ ଉକ୍ତ ସାହିତ୍ୟର ସ୍ରଷ୍ଟାମାନଙ୍କ କୃତିର ସାହିତ୍ୟିକ ମୂଲ୍ୟ, ଭାଷାତାତ୍ତ୍ୱିକ ମୂଲ୍ୟ ଓ ଲୋକୋପଯୋଗିତା ଦର୍ଶାଅ । ଧାର୍ମିକ ଦୃଷ୍ଟିକୋଣରୁ ପ୍ରାଚୀନ ଓଡ଼ିଆ ସାହିତ୍ୟର ବିଶ୍ଳେଷଣ କର । ପ୍ରାଚୀନ ଓଡ଼ିଆ ସାହିତ୍ୟର ବିକାଶଧାରା ଓ ଆବେଦନ ଦର୍ଶାଅ ।

PSO 2: ମଧ୍ୟଯୁଗୀୟ ଓଡ଼ିଆ ସାହିତ୍ୟର କାଳ ସୂଚନା ପୂର୍ବକ ଏହାର ପୃଷ୍ଠଭୂମି ଓ ବିକାଶଧାରା ଦର୍ଶାଅ । ମଧ୍ୟଯୁଗୀୟ ଓଡ଼ିଆ କାବ୍ୟସାହିତ୍ୟ ସମ୍ପର୍କରେ ଏକ ବିବରଣୀ ପ୍ରସ୍ତୁତ କର । ମଧ୍ୟଯୁଗୀୟ ଓଡ଼ିଆ କାବ୍ୟସାହିତ୍ୟର ଆଙ୍ଗିକ ଓ ଆତ୍ମିକ ବୈଚିତ୍ର୍ୟ ଦର୍ଶାଇ ଏହାର ଉପଯୋଗିତା ଆକଳନ କର । ମଧ୍ୟଯୁଗୀୟ ଓଡ଼ିଆ ଗୀତିକାବ୍ୟ ପରମ୍ପରା ସମ୍ପର୍କରେ ବର୍ଣ୍ଣନା କର ।

PSO 3: ଆଧୁନିକ ଓଡ଼ିଆ ସାହିତ୍ୟର ପୃଷ୍ଠଭୂମି ଓ ନବଜାଗରଣର ଭୂମିକା ବିଷୟରେ ଆଲୋକପାତ କର । ଆଧୁନିକ ଓଡ଼ିଆ ସାହିତ୍ୟର ବୈଶିଷ୍ଟ୍ୟ ଓ ବିକାଶଧାରା ଦର୍ଶାଅ । ଜାତୀୟତାବାଦୀ ଚେତନା ଦୃଷ୍ଟିରୁ ସତ୍ୟବାଦୀ ସାହିତ୍ୟର ମୂଲ୍ୟାୟନ କର । ଓଡ଼ିଆ ସାହିତ୍ୟରେ ସବୁଜ ଚେତନା କିପରି ପ୍ରଭାବ ପକାଇଛି, ତାହା ବିଶ୍ଳେଷଣ କର । ଓଡ଼ିଆ ସାହିତ୍ୟରେ ପ୍ରଗତିବାଦୀ ଚିନ୍ତାଧାରାର ପ୍ରୟୋଗ ବିଷୟରେ ସଂକ୍ଷିପ୍ତ ଆଲୋକପାତ କର ।

PSO 4: ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ଓଡ଼ିଆ ସାହିତ୍ୟର ପୃଷ୍ଠଭୂମି ଓ ସ୍ୱରୂପ ବିଶ୍ଳେଷଣ କର । ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ଓଡ଼ିଆ ସାହିତ୍ୟର ବିକାଶରେ ପତ୍ରପତ୍ରିକାର ଭୂମିକା ଦର୍ଶାଅ । ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ଓଡ଼ିଆ ସାହିତ୍ୟର ବୈଚିତ୍ର୍ୟ ଦର୍ଶାଇ ବିଭିନ୍ନ ବିଧାର ଉପଯୋଗିତା ଦର୍ଶାଅ ।

PSO5: ଓଡ଼ିଆ ଭାଷା ଓ ଲିପିର କ୍ରମବିକାଶ ଦର୍ଶାଇବା ସହିତ ଏହାର ପ୍ରାଚୀନତାର ନିଦର୍ଶନ ଦିଅ । ଓଡ଼ିଆ ଶିଳାଲେଖ, ଚର୍ଯ୍ୟାପଦ ଓ ସାରଳା ସାହିତ୍ୟର ଭାଷାତାତ୍ତ୍ୱିକ ମୂଲ୍ୟ ଦର୍ଶାଅ । ଓଡ଼ିଆ ଭାଷା ସହିତ ଅନ୍ୟଭାଷାର (ଦ୍ରାବିଡ଼, ଅଷ୍ଟ୍ରିକ, ପାରସୀକ ଓ ଇଂରାଜୀ) ସମ୍ପର୍କ ବିଷୟରେ ଏକ ବିବରଣୀ ପ୍ରସ୍ତୁତ କର ।

PSO6: ଶାସ୍ତ୍ରୀୟ ମାନ୍ୟତା ପ୍ରାପ୍ତ ଓଡ଼ିଆ ଭାଷାର ଶାସ୍ତ୍ରୀୟତାର ଲକ୍ଷଣ ଓ ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଅ । ଓଡ଼ିଆ ଭାଷାର ଆଞ୍ଚଳିକ ଭାଷା ଓ ଶୈଳୀର ପରିଚୟ ଦିଅ । ଓଡ଼ିଆ ଭାଷାର ମାନକ/ସାମାଜିକ ରୂପ ଉଦାହରଣ ଦର୍ଶାଅ । ଓଡ଼ିଆ ଗଦ୍ୟଭାଷାର ବିବର୍ତ୍ତନ ଓ ଓଡ଼ିଆ ଶବ୍ଦବିଭବ ସମ୍ପର୍କରେ ଆଲୋକପାତ କର ।

PSO7: ଓଡ଼ିଆ ଭାଷାର ପ୍ରୟୋଗର ବିଭିନ୍ନ ଆଧାର ଦର୍ଶାଅ । ସାମାଜିକ ଓ ସାଂସ୍କୃତିକ ଦୃଷ୍ଟିରୁ ଓଡ଼ିଆ ଭାଷାର ମୂଲ୍ୟାୟନ କର । ଓଡ଼ିଆ ଭାଷାର ଧ୍ୱନିତାତ୍ତ୍ୱିକ ପ୍ରଣାଳୀର ଆଭିମୁଖ୍ୟ ଓ ସ୍ୱରୂପ ଦର୍ଶାଅ । ଓଡ଼ିଆ ଭାଷାର ଆବଶ୍ୟକ ବ୍ୟାକରଣର ପରିଚୟ ପ୍ରଦାନ ପୂର୍ବକ ଓଡ଼ିଆ ଭାଷାର ଗଠନ ଓ ବ୍ୟବହାର ସମ୍ପର୍କରେ ଆଲୋଚନା କର ।

PSO8: ଲୋକସଂସ୍କୃତି ଓ ଲୋକସାହିତ୍ୟର ସଂଜ୍ଞା, ସ୍ୱରୂପ ଓ ପ୍ରକାରଭେଦ ଦର୍ଶାଅ । ଓଡ଼ିଆ ଲୋକଗୀତର ବୈଚିତ୍ର୍ୟ ଓ ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଅ । ଓଡ଼ିଆ ଲୋକକାହାଣୀ ଓ କିମ୍ବଦନ୍ତୀର ପରିଚୟ ଦିଅ । ଓଡ଼ିଆ ଲୋକୋକ୍ତିର ପ୍ରକାରଭେଦ ଦର୍ଶାଇ ଏହାର ସାମାଜିକ ଓ ସାଂସ୍କୃତିକ ଆବେଦନ ଆକଳନ କର । ଓଡ଼ିଆ ଲୋକନାଟକର ପରମ୍ପରା କିପରି ବଳିଷ୍ଠ ତାହା ଦର୍ଶାଅ । ଓଡ଼ିଆ ଲୋକଧାରା ତଥା ଓଡ଼ିଆ ଭାଷାର ମୌଖିକ ପରମ୍ପରା ବିଷୟରେ ଏକ ବିବରଣୀ ପ୍ରସ୍ତୁତ କର ।

PSO ୯: ସାହିତ୍ୟର ସ୍ୱରୂପ କ୍ରମରେ କବିତା/ଉପନ୍ୟାସ/ଆତ୍ମଜୀବନୀ/ପ୍ରବନ୍ଧ/ସମାଲୋଚନାର ପରିଭାଷା ପ୍ରଦାନପୂର୍ବକ ତାହାର ବିଭିନ୍ନ ଉପାଦାନ ସଂପର୍କରେ ଆଲୋଚନା କର । ପ୍ରାଚ୍ୟକାବ୍ୟତତ୍ତ୍ୱ ଅନ୍ତର୍ଗତ ରସ/ରୀତି/ଅଳଙ୍କାର ର ସଂଜ୍ଞା, ସ୍ୱରୂପ ଓ ପ୍ରକାରଭେଦ ଦର୍ଶାଇବା ସହିତ ତାହାର ପ୍ରୟୋଗ ଓ ଉପଯୋଗିତା ବର୍ଣ୍ଣନା କର । ପାଶ୍ଚାତ୍ୟ ତଥା ଆଧୁନିକ ସାହିତ୍ୟ ଅନ୍ତର୍ଗତ କ୍ଲାସିସିଜିମ୍/ରୋମାଣ୍ଟିସିଜିମ୍/ବାସ୍ତବବାଦ/ଅସ୍ତିତ୍ୱବାଦତତ୍ତ୍ୱର ପରିଭାଷା, ସ୍ୱରୂପ, ଲକ୍ଷଣ ଉଲ୍ଲେଖକରି ତାହାର ପ୍ରୟୋଗଧାରା ଓ ଉପଯୋଗିତା ଦର୍ଶାଅ ।

PSO10: ସାହିତ୍ୟ ସ୍ରଷ୍ଟା ଜଗନ୍ନାଥ ଦାସ/ଉପେନ୍ଦ୍ର ଭଞ୍ଜ/ଭୀମ ଭୋଇ/ସଚ୍ଚିଦାନନ୍ଦ ରାଉତରାୟ/ଔପନ୍ୟାସିକ ଗୋପୀନାଥ ମହାନ୍ତି/ଗାଳ୍ପିକା ବୀଣାପାଣି ମହାନ୍ତି/ନାଟ୍ୟକାର ଜଗନ୍ମୋହନ ଲାଲ/ଗୋପାଳ ଛୋଟରାୟ/ପ୍ରାବନ୍ଧିକ ଚିତ୍ତରଞ୍ଜନ ଦାସ/ସମାଲୋଚକ ନଟବର ସାମନ୍ତରାୟ/ ପ୍ରମୁଖ ସାହିତ୍ୟିକମାନଙ୍କ, ଜୀବନୀ ଓ ସାହିତ୍ୟପ୍ରତିଭାର ପରିଚୟ ପ୍ରଦାନପୂର୍ବକ ତାଙ୍କ ସାହିତ୍ୟାଦର୍ଶ ଓ ଉପଯୋଗିତା ଦର୍ଶାଅ ।

PSO 11: ମହାଭାରତ (ଗଦାପର୍ବ)/କିଶୋରଚନ୍ଦ୍ରାନନ୍ଦ ଚମ୍ପୂ / ଚିଲିକା ପ୍ରଭୃତି କୃତି ; ଯାତ୍ରାମଙ୍ଗଳି, ମହାଯାତ୍ରା, ଆଦ୍ୟ ମାର୍ଗଶିର, ମନବୋଧ ଚଉତିଶା ପ୍ରଭୃତି କବିତା (ପ୍ରାଚୀନ ଓ ମଧ୍ୟକାଳୀନ); ଅମୃତମୟ, ନମସ୍କାର, ଗାନ୍ଧାରୀର ଆଶୀର୍ବାଦ, ହିରକ ଜହର ଗୋଲାପ, ଚିତ୍ରପ୍ରତିମା ପ୍ରଭୃତି ଆଧୁନିକ ଓଡ଼ିଆ କବିତାର ଆତ୍ମିକ ଓ ଆଙ୍ଗିକ ବୈଚିତ୍ର୍ୟ ଦର୍ଶାଇବା ସହିତ ତାହାର ସାହିତ୍ୟିକ ମୂଲ୍ୟ ଓ ଆବେଦନ ଉପରେ ଆଲୋଚନା କର ।

PSO12: ଆଜିକାର ଉଆସ/ଅମାବାସ୍ୟାର ଚନ୍ଦ୍ର ଉପନ୍ୟାସ ; ସଣ୍ଣାପୁଅ ଅନନ୍ତ, ନାଳମାଗୁଣୀ, ଶ୍ରୀକୃଷ୍ଣଙ୍କ ଜୋତାଯୁଗ, ମୋଗଲ ପ୍ରଭୃତି ଗଳ୍ପ ; ମଙ୍ଗଳ ଅମଙ୍ଗଳ କଲ୍ୟାଣୀ ଏବଂ ଓ-ସବା ଶୈଳ ଲୋକ ନାଟକ ; ସନ୍ଧ୍ୟା ଆସରର ଭୂତ, ଆବସ୍ଥାର, ଚିନ୍ତାବେଣୀ ପ୍ରଭୃତି ଏକାଙ୍କିକାର ସାହିତ୍ୟିକ ମୂଲ୍ୟ, ସାମାଜିକମୂଲ୍ୟ, ନାଟକୀୟ/ସଂଦେଶ, ପ୍ରୟୋଗଧର୍ମିତା ଓ ମଞ୍ଚୋପଯୋଗିତା ବିଶ୍ଳେଷଣ କର ।

PSO13: ମୋ ସମୟର ଓଡ଼ିଶା, ଲକ୍ଷ୍ମଣ ଟିକି (ଭ୍ରମଣକାହାଣୀ), ଭାଷାସମ୍ବାଦ (ସମାଲୋଚନା), ପ୍ରଥା ପୁସ୍ତକ (ଗଳ୍ପ), ମହାସ୍ରୋତ, ନିଜ ଦାରିଦ୍ର୍ୟ, ନାମକରଣ ପ୍ରଭୃତି ପ୍ରବନ୍ଧର ବିଶ୍ଳେଷଣ ପୂର୍ବକ ତାହାର ସାହିତ୍ୟିକମୂଲ୍ୟ, ଭାଷାତାତ୍ତ୍ୱିକ ମୂଲ୍ୟ ଓ ଉପଯୋଗିତା ଦର୍ଶାଅ ।

PSO14: ଓଡ଼ିଆ ଭାଷାର ବ୍ୟାବହାରିକ ପ୍ରୟୋଗ କ୍ରମରେ ବ୍ୟାବହାରିକ ଲିଖନକଳାର ପରିଭାଷା, ସ୍ୱରୂପ, ବୈଚିତ୍ର୍ୟ; କାର୍ଯ୍ୟାଳୟ ଲିଖନବିଧି, ସାହିତ୍ୟ ଓ ମୁଦ୍ରିତ ଗଣମାଧ୍ୟମ (ସାମ୍ବାଦିକତା, ସଂପାଦକୀୟ ଲିଖନ/ସ୍ତମ୍ଭରଚନା, ଫିଚର ରଚନା), ପୁସ୍ତକରଚନା କୌଶଳ ଓ ପତ୍ରପତ୍ରିକା ସଂପାଦନା କଳା ସଂପର୍କରେ ଆଲୋଚନା ପୂର୍ବକ ତାହାର ଆବଶ୍ୟକତା ଓ ଉପଯୋଗିତା ଦର୍ଶାଅ ।

Course Outcomes

Course Outcomes of the Course – 'ପ୍ରାଚୀନ ଓଡ଼ିଆ ସାହିତ୍ୟର ଇତିହାସ (ଆଦ୍ୟମଧ୍ୟଯୁଗରୁ ପଞ୍ଚସଖା ପର୍ଯ୍ୟନ୍ତ)':

CO1: ସାରଳା ଦାସଙ୍କ ପୂର୍ବବର୍ତ୍ତୀ ଓଡ଼ିଆ ସାହିତ୍ୟଧାରାରେ ଚର୍ଯ୍ୟାଗୀତିକା ଓ ନାଥଧର୍ମ ଦର୍ଶନ ସମ୍ବନ୍ଧ ସାହିତ୍ୟ ସଂପର୍କରେ ପରିଚୟ ଦେବା ଓ ଏହାର ସାହିତ୍ୟିକ ମୂଲ୍ୟ ଦର୍ଶାଇବା ।

CO2: ସାରଳା ସାହିତ୍ୟର ପରିଚୟ ଦେବା କ୍ରମରେ ସାରଳା ଦାସଙ୍କ ରଚନା ସମ୍ଭାର, ସେଥିରେ ଥିବା ସାହିତ୍ୟିକ, ସାମାଜିକ ଓ ସାଂସ୍କୃତିକ ବୈଶିଷ୍ଟ୍ୟ ଉପରେ ଆଲୋକପାତ କରିବା ।

CO3: ପଞ୍ଚସଖା ସାହିତ୍ୟର ସାମାଜିକ, ରାଜନୈତିକ, ଐତିହାସିକ ଓ ସାଂସ୍କୃତିକ ପୃଷ୍ଠଭୂମି ବିଷୟରେ ଆଲୋଚନା କରିବା ସହିତ ଏହି ସାହିତ୍ୟର ପ୍ରମୁଖ ସାହିତ୍ୟିକ ବଳରାମ ଦାସ ଓ ଜଗନ୍ନାଥ ଦାସଙ୍କ ଜୀବନୀ ଓ ସାହିତ୍ୟକୃତି ସଂପର୍କରେ ବିସ୍ତୃତ ବିଶ୍ଳେଷଣ କରିବା ।

CO4: ପଞ୍ଚସଖା ସାହିତ୍ୟର ବିଭିନ୍ନ ବୈଶିଷ୍ଟ୍ୟ ସଂପର୍କରେ ଜ୍ଞାନ ଆହରଣ ଓ ତାହାର ବିସ୍ତୃତ ଆଲୋଚନା କରିବା ।

CO5: ପଞ୍ଚସଖା ସାହିତ୍ୟର ସାମାଜିକ ଓ ସାଂସ୍କୃତିକ ଅବଦାନ ତଥା ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

Course Outcomes of the Course – 'ମଧ୍ୟଯୁଗୀୟ ଓଡ଼ିଆ ସାହିତ୍ୟର ଇତିହାସ':

CO1: ମଧ୍ୟଯୁଗୀୟ ଓଡ଼ିଆ ସାହିତ୍ୟର ସାମାଜିକ, ରାଜନୈତିକ, ଐତିହାସିକ, ସାଂସ୍କୃତିକ ପୃଷ୍ଠଭୂମି ସଂପର୍କରେ ଧାରଣା ପ୍ରଦାନପୂର୍ବକ ଉକ୍ତ ସାହିତ୍ୟର ବିକାଶଧାରା ବର୍ଣ୍ଣନା କରିବା ।

CO2: ମଧ୍ୟଯୁଗରେ ରଚିତ ଆଧ୍ୟାତ୍ମିକ କାବ୍ୟ, ପୌରାଣିକ କାବ୍ୟର ବୈଶିଷ୍ଟ୍ୟ ଗୁଡ଼ିକର ବିଶ୍ଳେଷଣ ପୂର୍ବକ ଉକ୍ତ କାବ୍ୟଧାରା ସଂପର୍କରେ ସାମଗ୍ରିକ ଧାରଣା ଲାଭ କରିବା ।

CO3: ମଧ୍ୟଯୁଗୀୟ ଓଡ଼ିଆ କାବ୍ୟର ଆଙ୍ଗିକ ବୈଚିତ୍ର୍ୟ କ୍ରମରେ ଉକ୍ତ କାବ୍ୟରେ ଥିବା ଆଳଙ୍କାରିକତା, ସାଙ୍ଗୀତିକତା ଓ ରୀତି ବୈଚିତ୍ର୍ୟ ସଂପର୍କିତ ଜ୍ଞାନ ଆହରଣ କରିବା ।

CO4: ମଧ୍ୟଯୁଗୀୟ ଓଡ଼ିଆ କାବ୍ୟର ଶାସ୍ତ୍ରୀୟ ବୈଚିତ୍ର୍ୟ ଦର୍ଶାଇବା ସହ ବିଶେଷକରି ଉକ୍ତ କାବ୍ୟରେ ରସଚେତନା, ବିଷୟବସ୍ତୁ ବିନ୍ୟାସ ଓ ଚରିତ୍ର ଚିତ୍ରଣ ଉପରେ ଆଲୋକପାତ କରିବା ।

CO5: ମଧ୍ୟଯୁଗୀୟ ଗୀତିକାବ୍ୟ ପରମ୍ପରା ଅନ୍ତର୍ଭୁକ୍ତ ଚମ୍ପୂ, ଚଉପଦୀ ଓ ଚଉତିଶା ବିଷୟରେ ଆଲୋଚନା କରିବା ।

Course Outcomes of the Course – 'ଆଧୁନିକ ଓଡ଼ିଆ ସାହିତ୍ୟ':

CO1: ଆଧୁନିକ ଓଡ଼ିଆ ସାହିତ୍ୟର ପୃଷ୍ଠଭୂମି ଦର୍ଶାଇବା ସହ ନବଜାଗରଣର ଭୂମିକା ଉପରେ ଆଲୋକପାତ କରିବା ।

CO2: ଆଧୁନିକ କାଳରେ ରଚିତ ଓଡ଼ିଆ କାବ୍ୟକବିତା ଓ କଥାସାହିତ୍ୟ ସଂପର୍କରେ ଆଲୋଚନା ପୂର୍ବକ ମୁଖ୍ୟଭାବରେ ବିଶେଷକରି ରାଧାନାଥ ରାୟଙ୍କ କାବ୍ୟ, ଫକୀରମୋହନ ସେନାପତିଙ୍କ ଗଳ୍ପ ଓ ମଧୁସୂଦନ ରାଓଙ୍କ କବିତାର ବସ୍ତୁର ବିଶ୍ଳେଷଣ କରିବା ।

CO3: ଓଡ଼ିଆ ସାହିତ୍ୟରେ ସତ୍ୟବାଦୀ ଧାରାର ପୃଷ୍ଠଭୂମି, ବୈଶିଷ୍ଟ୍ୟ ଓ ସାହିତ୍ୟସୃଷ୍ଟିର ବିଭିନ୍ନ ଦିଗ ଦର୍ଶାଇବା ।

CO4: ଓଡ଼ିଆ ସାହିତ୍ୟରେ ସବୁଜଧାରାର ଉନ୍ମେଷର କାରଣ ତଥା ଆତ୍ମିକତା ସମେତ ଉକ୍ତଧାରାର ବୈଶିଷ୍ଟ୍ୟ, ପ୍ରଭାବ ଓ ସାହିତ୍ୟ ସଂପର୍କରେ ଧାରଣା ପ୍ରଦାନ କରିବା ।

CO5: ଓଡ଼ିଆ ସାହିତ୍ୟରେ ପ୍ରଗତିବାଦୀ ଧାରାର ପୃଷ୍ଠଭୂମି ଓ ରଚନା ସମ୍ଭାର ଉପରେ ଆଲୋକପାତ କରିବା ।

Course Outcomes of the Course- 'ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ଓଡ଼ିଆ ସାହିତ୍ୟ':

CO1: ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ଓଡ଼ିଆ କବିତାର ପରିଚୟ ଦେବାପୂର୍ବକ ତାର ଆତ୍ମିକ ଓ ଆଙ୍ଗିକ ବୈଚିତ୍ର୍ୟ ବିଷୟରେ ଜ୍ଞାନ ଆହରଣ କରିବା ।

CO2: ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ଓଡ଼ିଆ ଉପନ୍ୟାସ ଓ ଗଳ୍ପର ବିଭିନ୍ନଦିଗ, ବିଶେଷତ୍ୱ ଓ ସ୍ୱରୂପ ସମ୍ପର୍କରେ ଆଲୋଚନା ହେବ ।

CO3: ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ଓଡ଼ିଆ ନାଟକ ଓ ଏକାଙ୍କିକାର ବିକାଶଧାରା ଦର୍ଶାଇବା ସହିତ ତାହାର ବିଷୟବସ୍ତୁ ଓ ଶୈଳୀଗତ ବୈଶିଷ୍ଟ୍ୟ ଆକଳନ କରିବା ।

CO4: ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ଓଡ଼ିଆ ଗଦ୍ୟସାହିତ୍ୟର ସ୍ୱରୂପ ସମ୍ପର୍କରେ ଧାରଣା ସହ ବିଶ୍ଳେଷଣ କରି ଉକ୍ତ ସମୟର ଓଡ଼ିଆ ପ୍ରବନ୍ଧ ଓ ସମାଲୋଚନା ଆତ୍ମଜୀବନୀ ଓ ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଇବା ।

CO5: ସ୍ୱାଧୀନତା ପରବର୍ତ୍ତୀ ସମୟରେ ପ୍ରକାଶିତ ଓଡ଼ିଆ ପତ୍ରପତ୍ରିକାର ପରିଚୟ ପ୍ରଦାନ ପୂର୍ବକ ଓଡ଼ିଆ ସାହିତ୍ୟର ବିକାଶରେ ତାର ଭୂମିକା ବର୍ଣ୍ଣନା କରିବା ।

Course Outcomes of the Course- 'ଓଡ଼ିଆ ଭାଷାର ଐତିହାସିକ ବିକାଶକ୍ରମ':

CO1: ଓଡ଼ିଆ ଭାଷାର ଉତ୍ପତ୍ତିର ମୂଳଉତ୍ସ, ତାର ବିଭିନ୍ନ ସ୍ତର ଦର୍ଶାଇବା ସହିତ ଓଡ଼ିଆ ଭାଷାର କ୍ରମବିକାଶର ଧାରା ସଂପର୍କରେ ଆଲୋକପାତ କରିବା ।

CO2: ବିଭିନ୍ନ ଐତିହାସିକ ବିବର୍ତ୍ତନ ମଧ୍ୟଦେଇ ଗତିକରି ଓଡ଼ିଆ ଲିପି କିପରି ଆଧୁନିକ ଓଡ଼ିଆ ଲିପି ସ୍ତରରେ ଉପନୀତ ହୋଇଛି, ତାହା ଦର୍ଶାଇବା ।

CO3: ଓଡ଼ିଆ ଶିଳାଲେଖର ପରିଚୟ ଦେଇ ପୂର୍ବକ ତାର ଭାଷାତାତ୍ତ୍ୱିକ ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଇବା ଓ ପ୍ରାଚୀନ ଓଡ଼ିଆ ଭାଷାର ନିଦର୍ଶନ ସେଥିରେ କିପରି ଅଛି ତାହା ଦର୍ଶାଇବା ।

CO4: ଅପଭ୍ରଂଶ ଭାଷାରେ ରଚିତ ଚର୍ଯ୍ୟାପଦର ଭାଷାଗତ ବୈଶିଷ୍ଟ୍ୟ ବିଶ୍ଳେଷଣ କରିବା ଓ ଏହାର ଭାଷା କିପରି ପ୍ରାଚୀନ ଓଡ଼ିଆ ଭାଷାର ନିକଟବର୍ତ୍ତୀ ତାହା ପ୍ରତିପାଦନ କରିବା ।

CO5: ଓଡ଼ିଆ ଭାଷା ସହିତ ଦ୍ରାବିଡ଼, ଅଷ୍ଟ୍ରିକ, ପାରସିକ ଓ ଇଂରାଜୀ ଭାଷାର ସଂପର୍କର କାରଣ ଦର୍ଶାଇବା, ଓଡ଼ିଆ ସାହିତ୍ୟରେ ଅନ୍ୟଭାଷାର ବ୍ୟବହାର ଓ ବିଭିନ୍ନ ଆଧାରରେ ବ୍ୟବହୃତ ଅନ୍ୟଭାଷାର ଶବ୍ଦଗୁଡ଼ିକର ଉଦାହରଣ ପ୍ରଦାନ କରିବା ।

Course Outcomes of the Course- 'ଓଡ଼ିଆ ଭାଷାର ସ୍ୱରୂପ':

CO1: ଶାସ୍ତ୍ରୀୟମାନ୍ୟତା ପ୍ରାପ୍ତ ଓଡ଼ିଆ ଭାଷାର ପରିଚୟ ପ୍ରଦାନ ପୂର୍ବକ ଓଡ଼ିଆ ଭାଷାର ଶାସ୍ତ୍ରୀୟ ଲକ୍ଷଣ ଓ ଓଡ଼ିଆ ଭାଷାର ବୈଶିଷ୍ଟ୍ୟ ବିଶ୍ଳେଷଣ କରିବା ।

CO2: ଓଡ଼ିଆ ଆଞ୍ଚଳିକ ଭାଷା (ଉତ୍ତରାଞ୍ଚଳୀୟ ଓଡ଼ିଆ, ଦକ୍ଷିଣାଞ୍ଚଳୀୟ ଓଡ଼ିଆ ଓ ପଶ୍ଚିମାଞ୍ଚଳୀୟ ଓଡ଼ିଆ)ର ସ୍ୱରୂପ ଓ ବୈଶିଷ୍ଟ୍ୟ ଉପରେ ଆଲୋକପାତ କରିବା ସହ ଓଡ଼ିଆ ବୋଲିର ସ୍ୱରୂପ ଓ ଲକ୍ଷଣ ଦର୍ଶାଇବା ।

CO3: ମାନକ ଭାଷା/ପ୍ରାମାଣିକ ଭାଷାର ପରିଭାଷା ସହ ଓଡ଼ିଆ ମାନକ ଭାଷାର ସ୍ୱରୂପ, ପରିସର ପ୍ରେକ୍ଷାପଟ ସଂପର୍କରେ ଆଲୋଚନା କରିବା ଏବଂ କଥିତ ଓଡ଼ିଆ ଭାଷାର ସ୍ୱରୂପ ଓ ଲକ୍ଷଣ ଦର୍ଶାଇବା ।

CO4: ଓଡ଼ିଆ ଭାଷାର ସୃଷ୍ଟି (ଏକାଦଶ ଶତାବ୍ଦୀ) ଠାରୁ ବିଂଶ ଶତାବ୍ଦୀ ଶେଷ ପର୍ଯ୍ୟନ୍ତ ଓଡ଼ିଆ ଗଦ୍ୟର ଭାଷା କିପରି ବିବର୍ତ୍ତନ ମଧ୍ୟ ଦେଇ ଗତିକରିଛି, ତାହା ଉପରେ ଆଲୋକପାତ କରିବା ।

CO5: ଓଡ଼ିଆ ଶବ୍ଦ ଭଣ୍ଡାରରେ ସ୍ଥାନ ପାଇଥିବା ବିଭିନ୍ନ ପ୍ରକାର ଶବ୍ଦ କିପରି ଓଡ଼ିଆ ଭାଷାର ଶବ୍ଦ ବିଭବରେ ପରିଣତ ହୋଇଛି, ତାହା ବିଭିନ୍ନ ଶବ୍ଦର ଉଦାହରଣମାନଙ୍କରେ ଦର୍ଶାଇବା ।

Course Outcomes of the Course- 'ଓଡ଼ିଆ ଭାଷାର ପ୍ରୟୋଗ ଓ ବ୍ୟାବହାରିକ ବ୍ୟାକରଣ' :

CO 1: ଓଡ଼ିଆ ସାମାଜିକ ଓ ସାଂସ୍କୃତିକ ଧାରାରେ ସୁଭାଷଣର ଆବଶ୍ୟକତା ଓ ପ୍ରୟୋଗଗତ ବୈଶିଷ୍ଟ୍ୟ ବିଷୟରେ ଅବଗତ ହେବା ।

CO 2: ଓଡ଼ିଆ ଭାଷାରେ ପ୍ରଚଳିତ ସାମାଜିକ-ଲୋକାଚାରମୂଳକ ଶବ୍ଦ ଓ ତା'ର ପ୍ରୟୋଗ ତଥା ବ୍ୟବହାର ଦର୍ଶାଇବା ।

CO 3: ଲିଖନ କ୍ଷେତ୍ରରେ ପରିଲକ୍ଷିତ ଅଶୁଦ୍ଧିର ଦୂରୀକରଣ ପୂର୍ବକ ଶୁଦ୍ଧଲିଖନ ପ୍ରଣାଳୀ ପ୍ରଚଳନର ଉପଯୋଗିତା ପ୍ରୟୋଗ ଦର୍ଶାଇବା ।

CO 4: ଓଡ଼ିଆ ଭାଷାର ଲିଖନରେ ବ୍ୟବହୃତ ସ୍ୱରବର୍ଣ୍ଣ ଓ ବ୍ୟଞ୍ଜନ ବର୍ଣ୍ଣ ବିଷୟରେ ଧାରଣା ଲାଭ କରିବା ।

CO 5: ଓଡ଼ିଆ ଭାଷାର ବାକ୍ୟଗଠନର ରୀତି ଓ ବୈଶିଷ୍ଟ୍ୟ ସମ୍ପର୍କରେ ଜାଣିବା ସହିତ ତା'ର ବ୍ୟବହାର ସମ୍ପର୍କରେ ଜ୍ଞାନଲାଭ କରିବା ।

Course Outcomes of the Course- 'ଲୋକସାହିତ୍ୟ/ଓଡ଼ିଆ ଭାଷାର ମୌଖିକ ପରମ୍ପରା' :

CO 1: ଲୋକସଂସ୍କୃତି ଓ ଲୋକସାହିତ୍ୟର ସଂଜ୍ଞା, ସ୍ୱରୂପ ବିଷୟରେ ଜାଣିବା ସହିତ ଲୋକସାହିତ୍ୟର ପ୍ରକାରଭେଦ ଦର୍ଶାଇବା ।

CO 2: ଓଡ଼ିଆ ଲୋକଗୀତର ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଇବା ସହିତ ତା'ର ପ୍ରକାରଭେଦ ଉପରେ ଆଲୋକପାତ କରିବା ।

CO 3: ଓଡ଼ିଆ ଲୋକକାହାଣୀ ଓ ଜନଶ୍ରୁତି ବିଷୟରେ ଧାରଣା ଲାଭ କରିବା ଏବଂ ତାହାର ସ୍ୱତନ୍ତ୍ର ବୈଶିଷ୍ଟ୍ୟ ଓ ଉପଯୋଗିତାକୁ ଦର୍ଶାଇବା ।

CO 4: ଓଡ଼ିଆ ଲୋକୋକ୍ତିର ପରିଚୟ ପ୍ରଦାନପୂର୍ବକ ତା'ର ପ୍ରକାରଭେଦ ଦର୍ଶାଇବା ଓ ସାମାଜିକ-ସାଂସ୍କୃତିକ ଆବେଦନ ତଥା ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

CO 5: ଲୋକନାଟକର ପରିଭାଷା ଦର୍ଶାଇବା ପୂର୍ବକ ଓଡ଼ିଆ ଲୋକନାଟକର ସ୍ୱରୂପ ଓ ଲକ୍ଷଣକୁ ସ୍ପଷ୍ଟ କରିବା ଏବଂ ତାହାର ରଚନାଶୈଳୀ, ପରିବେଷଣ ପଦ୍ଧତି, ମନୋରଞ୍ଜନ ଧର୍ମିତା, ସାମାଜିକ ଓ ସାଂସ୍କୃତିକ ଆବେଦନ ଉପରେ ଆଲୋକପାତ କରିବା ।

Course Outcomes of the Course- 'ସାହିତ୍ୟର ସ୍ୱରୂପ ଓ ତତ୍ତ୍ୱ' :

CO 1: କବିତା, ଉପନ୍ୟାସ, ଆତ୍ମଜୀବନୀର ପରିଭାଷା ତଥା ସଂଜ୍ଞା ବିଷୟରେ ଅବଗତ ହେବା ସହିତ ସେଗୁଡ଼ିକର ବିଭିନ୍ନ ତତ୍ତ୍ୱ, ଉପାଦାନ ଓ ସ୍ୱରୂପର ବିସ୍ତୃତ ବିଶ୍ଳେଷଣ କରିବା ।

CO 2: ପ୍ରାଚ୍ୟ କାବ୍ୟତତ୍ତ୍ୱ ଅନ୍ତର୍ଭୁକ୍ତ ରସ, ରୀତି, ଅଳଙ୍କାର ପ୍ରଭୃତି କାବ୍ୟତତ୍ତ୍ୱର ସଂଜ୍ଞା, ସ୍ୱରୂପ, ବୈଶିଷ୍ଟ୍ୟ, ପ୍ରକାରଭେଦ ଦର୍ଶାଇବା ପୂର୍ବକ ସାହିତ୍ୟରେ ସେ ତତ୍ତ୍ୱଗୁଡ଼ିକର ପ୍ରୟୋଗର ଉଦାହରଣ ଓ ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

CO 3: ପାଶ୍ଚାତ୍ୟ ସାହିତ୍ୟତତ୍ତ୍ୱ ଅନ୍ତର୍ଭୁକ୍ତ କ୍ଲାସିସିଜିମ୍, ରୋମାଣ୍ଟିସିଜିମ୍ ଓ ବାସ୍ତବବାଦର ସଂଜ୍ଞା, ସ୍ୱରୂପ, ବୈଶିଷ୍ଟ୍ୟ ବିଷୟରେ ଆଲୋକପାତ କରିବା ଏବଂ ଉକ୍ତ ସାହିତ୍ୟତତ୍ତ୍ୱର ଆନ୍ଦୋଳନ ଧାରା ଓ ସାହିତ୍ୟରେ ତାହାର ପ୍ରୟୋଗ କିପରି ହୋଇଅଛି ତାହାର ଉଦାହରଣ ଦର୍ଶାଇବା ।

CO 4: ଗଦ୍ୟସାହିତ୍ୟର ଅନ୍ତର୍ଭୁକ୍ତ ପ୍ରବନ୍ଧ ଓ ସମାଲୋଚନାର ପରିଭାଷା, ସ୍ୱରୂପ, ଲକ୍ଷଣ, ପ୍ରକାରଭେଦ ଦର୍ଶାଇବା ସହ ତାହାର ବିକାଶଧାରା ଓ ବୈଶିଷ୍ଟ୍ୟ ଉପରେ ଆଲୋକପାତ କରିବା ।

CO 5: ଅନୁବାଦର ପରିଭାଷା ପ୍ରଦାନପୂର୍ବକ ଅନୁବାଦର ବିଭିନ୍ନ ରୀତି ଓ ଲକ୍ଷଣ ଦର୍ଶାଇବା ଏବଂ ତାହାର ପ୍ରକାରଭେଦ ଓ ବିକାଶଧାରା ଉପରେ ଆଲୋକପାତ କରିବା ।

Course Outcomes of the Course- 'ଓଡ଼ିଆ ସାହିତ୍ୟ ସ୍ରଷ୍ଟା : ବିଶେଷ ଅଧ୍ୟୟନ' (ଲେଖକାନୁପାଠ) :

CO 1: ପଞ୍ଚସଖା ସାଧକ ଜଗନ୍ନାଥ ଦାସଙ୍କ ଜୀବନୀ ଓ ସାହିତ୍ୟ ରଚନାର ପରିଚୟ ପ୍ରଦାନ ପୂର୍ବକ ତାଙ୍କ ଭାଗବତ ପ୍ରତିଭା, ରଚନାଶୈଳୀ ଓ ଧର୍ମଚେତନାର ଆବେଦନ ଓ ଉପଯୋଗିତାର ବିସ୍ତୃତ ବିଶ୍ଳେଷଣ କରିବା ।
ମଧ୍ୟଯୁଗୀୟ ପ୍ରମୁଖ କବି ଉପେନ୍ଦ୍ର ଭଞ୍ଜଙ୍କ ଜୀବନୀ, କବିପ୍ରତିଭା, ରଚନା ସମ୍ଭାର, କାବ୍ୟଧାରାର ପରିଚୟ ଦେବା ସହ ତାଙ୍କ କାବ୍ୟକବିତାର ବିଭିନ୍ନ ଦିଗ, ଲୋକପ୍ରିୟତା ଓ ପ୍ରାସଙ୍ଗିକତା ଉପରେ ଆଲୋକପାତ କରିବା ।

CO 2: ଆଧୁନିକ ଯୁଗର କବି ରାଧାନାଥ, ସ୍ୱାଧୀନତା ପୂର୍ବବର୍ତ୍ତୀ ଓ ପରବର୍ତ୍ତୀ ସମୟର କବି ସଚ୍ଚିଦାନନ୍ଦ ରାଉତରାୟଙ୍କ କବିପ୍ରତିଭା, କବିତାର ଆଙ୍ଗିକ ଓ ଆତ୍ମିକ ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଇବା ପୂର୍ବକ ତାଙ୍କ କବିତାର ସ୍ୱାତନ୍ତ୍ର୍ୟ ଓ ଉପଯୋଗିତାକୁ ଦର୍ଶାଇବା ।

CO 3: ଔପନ୍ୟାସିକ ଗୋପୀନାଥ ମହାନ୍ତି ଓ ଗଳ୍ପକାର ବୀଣାପାଣି ମହାନ୍ତିଙ୍କ ସାହିତ୍ୟପ୍ରତିଭା, ତାଙ୍କ ସ୍ୱରୂପ, ବୈଶିଷ୍ଟ୍ୟ, ରଚନାଶୈଳୀ, ତାଙ୍କ ରଚନାର ଆବେଦନ ଓ ସାହିତ୍ୟିକ ମୂଲ୍ୟାୟନ କରିବା ।

CO 4: ନାଟ୍ୟକାର ଜଗନ୍ମୋହନ ଲାଲ ଓ ଗୋପାଳ ଛୋଟରାୟଙ୍କ ନାଟ୍ୟକୃତିର ପରିଚୟ ପ୍ରଦାନପୂର୍ବକ ସେ ଦୁହିଁଙ୍କ କୃତିତ୍ୱ, ନାଟ୍ୟପ୍ରତିଭାର ବିଭିନ୍ନ ଦିଗ, ତା'ର ବିଶେଷତ୍ୱ, କଳାଗତ ବୈଶିଷ୍ଟ୍ୟ, ମନୋରଞ୍ଜନଧର୍ମିତା, ସାହିତ୍ୟଧର୍ମିତା ଓ ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

CO 5: ପ୍ରାବନ୍ଧିକ ଚିନ୍ତାମଣି ଦାସ ଓ ସମାଲୋଚକ ନଟବର ସାମନ୍ତରାୟଙ୍କ ପ୍ରବନ୍ଧ ଓ ସମାଲୋଚନାର ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଇବା ।

Course Outcomes of the Course- 'ଓଡ଼ିଆ ସାହିତ୍ୟର ସବିଶେଷ ଅଧ୍ୟୟନ' (କାବ୍ୟ କବିତା ପାଠ) :

CO1: ସାରଳାଦାସଙ୍କ ମହାଭାରତ - ଗଦାପର୍ବର ବିଷୟବସ୍ତୁ, ନାମକରଣ, ସାମାଜିକମୂଲ୍ୟ, ସାହିତ୍ୟିକମୂଲ୍ୟ ଓ ରଚନାଶୈଳୀ ଦର୍ଶାଇବା ।

CO2: କବିସୂର୍ଯ୍ୟ ବଳଦେବ ରଥଙ୍କ 'କିଶୋରଚନ୍ଦ୍ରାନନ ଚମ୍ପୂ' (କ- ଠ ଛାନ୍ଦ) ଅବଲମ୍ବନରେ କବିଙ୍କ ବର୍ଣ୍ଣନାଚାତୁରୀ, କବିପ୍ରତିଭାର ବିଶ୍ଳେଷଣ କରିବା ।

CO3: ପ୍ରକୃତି କବିଙ୍କର 'ଚିଲିକା' କାବ୍ୟକୃତିରୁ କବି ରାଧାନାଥଙ୍କ କବିତ୍ୱ ଶକ୍ତି, ପ୍ରକୃତିପ୍ରେମ, ଦେଶାତ୍ମବୋଧକତା, ଭୌଗୋଳିକଜ୍ଞାନ, ପୌରାଣିକ ଦୃଷ୍ଟିଭଙ୍ଗୀ ତଥା ଈଶ୍ୱର ସଚେତନା, ଦାର୍ଶନିକତାର ବସ୍ତୁନିଷ୍ଠ ବିଶ୍ଳେଷଣ କରିବା ।

CO4: ଶ୍ରୀରାମ ଲେଙ୍କାର, ମଧୁବାବୁ, [illegible], [illegible] ପ୍ରଭୃତି [illegible] କବିତାରେ ବିଷୟବସ୍ତୁ, ରଚନାଶୈଳୀ, ଦାର୍ଶନିକତା ଓ ଉପଯୋଗିତାକୁ ଦର୍ଶାଇବା ।

CO5: ଅମୃତମୟ, ନମସ୍କାର, [illegible] ଆଶୀର୍ବାଦ, [illegible] ଗୋଲାପ, [illegible] ଆଧୁନିକ କବିତାର ଆତ୍ମିକ ଓ ଆଙ୍ଗିକ ବିଶ୍ଳେଷଣ କ୍ରମରେ ତାହାର ଭାବାବେଗ, [illegible], ପ୍ରତୀକ ଓ ଚିତ୍ରକଳ୍ପର ପ୍ରୟୋଗ ପ୍ରଭୃତିର ବିଶ୍ଳେଷଣ କରିବା ।

Course Outcomes of the Course- 'ଓଡ଼ିଆ ସାହିତ୍ୟର ଅଧ୍ୟୟନ – କଥାସାହିତ୍ୟ/ନାଟ୍ୟସାହିତ୍ୟ' :

CO1: ମନୋଜ ଦାସଙ୍କ ଜୀବନୀ ଓ ସାହିତ୍ୟକୃତିର ପରିଚୟପୂର୍ବକ 'ଆକାଶର ଇସାରା' ଉପନ୍ୟାସର କଥାବସ୍ତୁ, ଚରିତ୍ରଚିତ୍ରଣ, ରଚନାଶୈଳୀ, ନାମକରଣ, କଳାତ୍ମକମୂଲ୍ୟ ଓ ଉପଯୋଗିତାର ମୂଲ୍ୟାୟନ ଓ ବର୍ଣ୍ଣନା କରିବା ।

CO2: ଗୋବିନ୍ଦ ଦାସଙ୍କ ଜୀବନୀ ଓ ଉପନ୍ୟାସର ପରିଚୟସହ 'ଅମାବାସ୍ୟାର ଚନ୍ଦ୍ର' ଉପନ୍ୟାସର କଥାବସ୍ତୁ, ଚରିତ୍ରଚିତ୍ରଣ, ରଚନାଶୈଳୀ, ନାମକରଣ, ଉପନ୍ୟାସ କଳା ଓ ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

CO3: ରଣ୍ଡିପୁଅ ଅନନ୍ତ, [illegible], [illegible], [illegible] ପ୍ରଭୃତି ଗଳ୍ପର ଆତ୍ମିକ, ଆଙ୍ଗିକ ଓ ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

CO4: '[illegible]' ନାଟକର କଥାବସ୍ତୁ, ଚରିତ୍ରଚିତ୍ରଣ, ନାଟ୍ୟକଳା, ଅଭିନୟଧର୍ମିତା, ପ୍ରୟୋଗଧର୍ମିତା ଓ ମଞ୍ଚମୂଲ୍ୟାୟନ । '[illegible]' ନାଟକର ଆଭିମୁଖ୍ୟ, କଥାବସ୍ତୁ, ଚରିତ୍ରଚିତ୍ରଣ, ପ୍ରୟୋଗଧର୍ମିତା, ନାଟ୍ୟମୂଲ୍ୟ ଓ ମଞ୍ଚମୂଲ୍ୟ ଦର୍ଶାଇବା ।

CO5: [illegible], [illegible], [illegible] ଏକାଙ୍କିକାର କଳାତ୍ମକ ମୂଲ୍ୟ, ପ୍ରୟୋଗଧର୍ମିତା ଓ ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

Course Outcomes of the Course- 'ଓଡ଼ିଆ ସାହିତ୍ୟ ଅଧ୍ୟୟନ- ଗଦ୍ୟସାହିତ୍ୟ' :

CO1: 'ମୋ ସମୟର ଓଡ଼ିଶା'ର ପ୍ରାବନ୍ଧିକ ଆଭିମୁଖ୍ୟ, ଉପସ୍ଥାପନଶୈଳୀ, ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

CO2: 'ଲଣ୍ଡନ ଠୁଁ' ଭ୍ରମଣ କାହାଣୀର ସାହିତ୍ୟିକ ମୂଲ୍ୟ, ଭାଷାଶୈଳୀ, ଲେଖକଙ୍କ ଅନୁଭୂତିର ଗଭୀରତା ଉପରେ ଆଲୋକପାତ କରିବା ।

CO3: 'ଭାବ ସମ୍ବାଦ' ସମାଲୋଚନା ଗ୍ରନ୍ଥର ସମୀକ୍ଷକଙ୍କ ଆଭିମୁଖ୍ୟ, ମନନଶୀଳତା, ଦୃଷ୍ଟିଭଙ୍ଗୀ, ସମାଲୋଚନା ଶୈଳୀକୁ ଦର୍ଶାଇବା ।

CO4: '[illegible]'ରୁ ପ୍ରାବନ୍ଧିକଙ୍କ ଆଭିମୁଖ୍ୟ, ଉପସ୍ଥାପନ କୌଶଳ, ରଚନାଶୈଳୀ ଓ ଉପଯୋଗିତାକୁ ବିଶ୍ଳେଷଣ କରିବା ।

CO5: ଆଧୁନିକ ପ୍ରବନ୍ଧଧାରାରେ [illegible], [illegible] ଓ ନାମକରଣ ପ୍ରଭୃତିର ମୂଲ୍ୟାୟନ ଓ ବିସ୍ତୃତ ଆଲୋଚନା କରିବା ।

Course Outcomes of the Course - 'ଓଡ଼ିଆ ଭାଷାର ବ୍ୟାବହାରିକ ପ୍ରୟୋଗ' :

CO1: ବ୍ୟାବହାରିକ ଲିଖନ କଳାର ପରିଭାଷା, ସ୍ୱରୂପ ଓ ବୈଶିଷ୍ଟ୍ୟ ଦର୍ଶାଇବା ।

CO2: କାର୍ଯ୍ୟାଳୟ ଉପଯୋଗୀ ପତ୍ରପ୍ରସ୍ତୁତି ଓ ଲିଖନ, ଟିପ୍ପଣୀ ଲିଖନ, ପ୍ରସ୍ତାବ ଲିଖନ ଓ ଅନୁମୋଦନ, [illegible] ଲିଖନ, ଆଧାସୂଚନା, ବିଜ୍ଞପ୍ତି ଓ ଘୋଷଣା ଲିଖନ ପ୍ରଭୃତି ବିଷୟରେ ଜ୍ଞାନ ଆହରଣ କରିବା ।

CO3: ସାହିତ୍ୟ ଓ ମୁଦ୍ରିତ ଗଣମାଧ୍ୟମ ଭାବରେ ସାହିତ୍ୟ ସାମ୍ବାଦିକତା; ସାହିତ୍ୟ ଓ ସମ୍ପାଦକୀୟ ଲିଖନ ଚାତୁରୀ; ସ୍ତମ୍ଭ ରଚନା, ଫିଚର ରଚନା ପ୍ରଭୃତି ବିଷୟରେ ଜ୍ଞାନ ଆହରଣ କରିବା ସହ ତାହାର ପ୍ରାୟୋଗିକମୂଲ୍ୟ ଦର୍ଶାଇବା ।

CO4: ପୁସ୍ତକରଚନା କୌଶଳ ସମ୍ପର୍କରେ ଆଲୋକପାତ କରିବା ।

CO5: ପତ୍ରପତ୍ରିକାର ସମ୍ପାଦନା କଳା ସମ୍ପର୍କରେ ଜ୍ଞାନ ଆହରଣ କରିବା ସହ ତାହାର ଉପଯୋଗିତା ଦର୍ଶାଇବା ।

B.A. (Arts) History

Programme Specific Outcome:

PSO1:

- To reconstruct ancient Indian History by studying sources of historical writings and identifying ancient historic sites and their importance.
- To determine the difference and connection among Paleolithic, Mesolithic, Neolithic and Chalcolithic cultures.
- To analyse and compare Harappan and Vedic culture.

PSO 2:

- To evaluate evolution of humankind during Paleolithic, Mesolithic and Neolithic cultures.
- To examine economy, social stratification, state structure & religion in Bronze Age Civilizations and ancient Greece.

PSO 3:

- To critically think about economy, society, changing social formations of India between circa 300 BCE to circa CE 300.
- To analyse changing political formations circa 300 BCE to circa CE 300 with reference to Mauryas, Kushanas and Satvahanas and agrarian expansion, problem of urban decline with reference to Guptas.
- To review the cultural developments in south during Pallavas and Chalukya and in north during Mauryas, Guptas and thereafter.

PSO 4:

- To assess social formations and cultural patterns in medieval world with special reference to ancient Rome.
- To appraise developments in economy, religion and culture in Europe from 7^{th} to 14 centuries.
- To define societies in central Islamic Lands.

PSO 5:

- To explain the evolution of political, agrarian, social and commercial structure during the rule of Rajputs, Rashtrakutas, Palas, Pratiharas and Cholas.
- To analyse religious and cultural development in India between c. 750 – 1206.

PSO 6:

- To review the transition from feudalism to capitalism in Europe.
- To identify the motives and impact of early colonial expansion and economic developments in the 16th century.
- To describe renaissance and reformation.

PSO 7:

- To interpret the sources of Delhi Sultanate.
- To examine the emergence of regional identities with special reference to art, architecture and literature.
- To assess the economic, social and religious conditions in India during c.1206 to 1526.

PSO 8:

- To review 17th century European crisis from economic, social and political dimensions.
- To evaluate English revolution and European politics in the 18th century.
- To define mercantilism in Europe and preludes to the Industrial Revolution.
- To describe American Revolution of 1776.

PSO 9:

- To illustrate sources, establishment and consolidation of Mughal rule in India with reference to society and economy.
- To depict the cultural ideals with reference to Mughal art and architecture and Mughal and Rajput paintings.

PSO 10:

- To recognize historical Theories and methods.
- To examine history as interdisciplinary practice.

PSO 11:

- To evaluate causes and repercussions of the French Revolution of 1789.
- To define capitalist Industrialization and determine socio-economic transformation in late 18^{th} century to 1914 A.D. with case studies of Britain, France, the German states and Russia.
- To identify the intellectual currents, popular movements and the formation of National identities in Germany and Italy in the 19^{th} and 20^{th} century.

PSO 12:

- To examine the ideology and impact of colonial rule on society and economy of India.
- To assess the causes and consequences of popular resistance of late 19^{th} century.

PSO 13:

- To identify cultural changes and social, religious reforms through Brahmo Samaj, Arya Samaj and Aligarh Movement.
- To describe growth of Nationalism upto 1919 and Gandhian nationalism after 1919.
- To explain partition, independence and emergence of a new Nation.

PSO 14:

- To assess liberal democracy, working class movements and socialism in the 19^{th} and 20^{th} century Europe.
- To determine the dimension of the crisis of feudalism in Russia and experiments in socialism.
- To identify the undercurrents between imperialism and world war I & II.
- To review the cultural transformation and intellectual developments since circa 1850.

Course Outcome

CO 1 : To Explain regional and chronological distribution, settlements and food production during Neolithic and Chalcolithic cultures.

CO 2: To throw light on agrarian economy, urbanization, trade and politics in ancient Greece.

CO 3: To describe consolidation of the brahmanical tradition and beginning of tantricism during the rule of Pallavas and Chalukyas.

CO 4: To examine the societies in Central Islamic Land with reference to their tribal background, Sufism, urbanization and trade.

CO 5: To explain inter-regional & maritime trade and process of urbanization.

CO 6: To describe causes and impact of Renaissance in architecture, sculpture, painting and literature.

CO 7: To make an estimate of political structures during Sultanate.

CO 8: To assess the development of science from Renaissance to the 17^{th} century and its impact on European society.

CO 9: To discuss land rights and revenue system, trade route in land and overseas trade, emergence of urban centres and development in crafts and technology.

CO 10: To define history as interdisciplinary practice.

CO 11: To analyse the causes of the French Revolution of 1789.

CO 12: To describe society, economy and polity of India in the mid 18^{th} century.

CO 13: To evaluate the growth of communalism and consequent partition and Independence of India.

CO 14: To identify major intellectual trends in intellectual developments in Europe since circa 1850.

COURSE OUTCOMES

CO-1 (UNDERSTANDING POLITICAL THEORY)

- It helps to introduce the students the idea of political theory, its history & approaches & assessment of its critical & contemporary trends.

CO-2 (CONSTITUTIONAL GOVERNMENT & DEMOCRACY IN INDIA)

- This course acquaints students with the constitutional design of state, structure & institutions.

CO-3 (POLITICAL THEORY – CONCEPT & DEBATES)

- It helps the students familiarize with the basic normative concept of political theory.

CO-4 (POLITICAL PROCESS IN INDIA)

- This course maps the working of modern institutions & familiarize the students with working of the Indian state, paying attention to the contradictory dynamics of modern state power.

CO-5 (INTRODUCTION TO COMPARATIVE GOVERNMENT & POLITICS)

- It helps the students to understand the basic concepts & approaches to the study of comparative politics.

CO-6 (PRESPECTIVES ON PUBLIC ADMINISTRATION)

- It attempts to provide the students a comprehensive understanding on contemporary administrative developments.

CO-7 (PERSPECTIVES ON INTERNATIONAL RELATIONS & WORLD HISTORY)

- It helps to make students aware of the implicit Euro-centrism of International Relations by highlighting certain specific perspectives from the global south.

CO-8 (POLITICAL PROCESSES & INSTITUITIONS IN COMPARATIVE PRESPECTIVES)

- This course helps the students to understand some the range of issues, literature & methods that cover comparative politics.

CO-9 (PUBLIC POLICY & ADMINISTRATION IN INDIA)

- It helps the students to understand the issues of decentralization, financial management, citizens & administration & social welfare a non-western perspective.

CO-10 (GLOBAL POLITICS)

- This course introduces students to the key debates on the meaning & nature of globalization by addressing its political, economic, social, cultural & technological dimensions.

CO-11 (CLASSICAL POLITICAL PHILOSOPHY)

- It familiarizes students with the manner in which the political questions were first posted.

CO-12 (INDIAN POLITICAL THOUGHTS-I)

- The course is meant to provide a sense of the broad streams of Indian thought, while encouraging a specific knowledge of individual Thinkers & Texts.

CO-13 (MODERN POLITICAL PHILOSOPHY)

- In this course, students will get a exposure to the manner in which the questions of politics have been posed in terms that have implications for large questions of thoughts & existence.

CO-14 (INDIAN POLITICAL THOUGHT-II)

- The objective of the course is to acquaint the students & helps them to understand the general themes that have been produced by thinkers from varied social political context.

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DEPARTMENT

OF

"POLITICAL SCIENCE"

CHRIST COLLEGE

CUTTACK-753008

PROGRAMME SPECIFIC OUTCOMES

PSO-1 (UNDERSTANDING POLITICAL THEORY)

- To introduce the idea of political theory, it's history & approaches.
- To assess its critical & contemporary trends.
- To recognize political theory & practice through reflection on the ideas & practice related to democracy.

PSO-2 (CONSTITUTIONAL GOVERNMENT & DEMOCRACY IN INDIA)

- It acquaints students with the constitutional design of States structure & Institution & their actual working over time.
- The course traces the embodiment of some of these conflicts in constitutional provisions.
- It encourages a study of state institutions in their mutual interaction & in interaction with the large extra-constitutional environment.

PSO-3 (POLITICAL THEORY – CONCEPT & DEBATES)

- This course helps the students familiarize with the basic normative concepts of political theory.

- It is designed to encourage critical & reflective analysis & interpretation of social practice through the relevant conceptual toolkit.
- It introduces the students to the important debates in the subjects.

PSO-4 (POLITICAL PROCESSES IN INDIA)

- This course shows that actual politics in India diverges quite significantly from constitutional legal rules.
- The course maps the working of modern institution, premised on the existence of an individuated society, in a context marked by communitarian solidarities & their mutual transformation thereby.
- It also familiarizes students with working of the Indian state, paying attention to the contradictory dynamics of modern state power.

PSO-5 (INTRODUCTION TO COMPARATIVE GOVERNMENT & POLITICS)

- It's purpose is to familiarize students with the basic concepts & approaches to the study of comparative politics.
- To examine politics in a historical framework.

- To make a comparative analysis of political systems of various developing Countries.

PSO-6 (PRESPECTIVES ON PUBLIC ADMINISTRATION)

- To provide an introduction to the discipline of public administration.
- To encompass public administration in it's historical context with an emphasis on the various classical & contemporary administrative theories.
- To explore some of the recent trends including feminism & ecological conservation.

PSO-7 (PERSPECTIVES ON INTERNATIONAL RELATIONS & WORLD HISTORY)

- It seeks to equip the students with the basic intellectual tools for understanding International Relations.
- It provides a fairly comprehensive over view of the major political development & events starting from the twentieth century.
- To equip the students with the key milestones in world history & tools to understand & analyze the same from different perspectives.

PSO-8 (POLITICAL PROCESSES & INSTITUTIONS IN COMPARATIVES POLITICS)

- To train the students with the application of comparative methods to the study of politics.
- It aims to introduce undergraduate students to some of the range of issues, literature & methods that cover comparatives politics.
- This course is comparative in both what we study & how we study.

PSO-9 (PUBLIC POLICY & ADMINISTRATION IN INDIA)

- It seeks to provide an introduction to the interface between public policy & administration in India.
- To translate the governing philosophy in to program & policies & to make it a part of the community living.
- It deals with the issues of decentralization, financial management, citizens & administration & social welfare from a non-western perspective.

SO-10 (GLOBAL POLITICS)

- It introduces the students to the key debates on the meaning & nature of globalization by addressing it's

political, economic, social, culture & technological dimensions.

- It imparts an understanding of the working of the world democracy, it's anchor & resistance offered by global social movements.
- This course offers insights in to key contemporary global issues.

PSO-11 (CLASSICAL POLITICAL PHILOSOPHY)

- It familiarizes students with the manner in which the political questions were first posted.
- This course goes back to Greek antiquity.
- Machiavelli when as an interlude inaugurating modern politics followed by Hobbes & Locks.

PSO-12 (INDIAN POLITICAL THOUGHT)

- This course introduces the specific elements of Indian Political Thought spanning over two millennia.
- It is meant to provide a sense of the broad streams of Indian thoughts while encouraging a specific knowledge of individual Thinkers & Texts.
- The basic focus of study is on individual thinkers, whose ideas are however framed by specific themes.

PSO-13 (MODERN POLITICAL PHILOSOPHY)

- To discuss the inter-relationship between philosophy & political science.
- To explore this convergence by identifying four main tendencies here.
- To acquaint the students to the manner in which the questions of politics have been posed

PSO-14 (INDIAN POLITICAL THOUGHT-II)

- It introduces a widespan of thinkers & themes that defines the modernity of Indian Political Thought.
- To study general themes that have been produced by thinkers from varied social & temporal contexts.
- To familiarize the students with the study of individual thinkers.

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