

SEMESTER I

Paper - I: English and Business Communication - (1T1)

PROSE-I Short Stories

1. Home coming Dr. Tapati Dey
2. The Lighthouse Keeper of Aspinwall-Henry Sienkiewicz
3. Ilyas-Leo Tolstoy

UNIT-II Prose

1. Social Media- Dr.Sujata Chakravorty
2. World of Advertising- Dr.Pranjali Kane
3. OYO –Reinventing Hospitality

UNIT-III -Communication

Communication Process: Sender, Channel, Message, Receiver and Response

Types of Communication:

1. According to mode: a. Oral b. Written
2. According to Medium: a. Electronic b. Print
3. According to number of participants : a. Dyadic b. Group
4. According to Direction: a. One-way b. Two-way
5. According to Purpose: a. General b. Business (Specific)

UNIT-IV-Business Correspondence:

Application for Employment, Job Offer Letters, Sales letters, Claim and Adjustment Letters, Letter of Acceptance, Joining Letter

UNIT-V-Language Study

- A. Comprehension of an Unseen Passage
- B. Enriching Vocabulary: Synonyms and Antonyms, Single Word for a Group of Words, Change of Word from Noun to Adjective & vice-versa.

English CO

C01: Students will be able to **explain, illustrate** and **rephrase the** given prose. They will be able to **formulate** correct questions for the same. The students are given to **understand** the serious problem a man or woman has to face in his or her old age and how they can get peace and happiness.

C02: Students will be able to **understand** about different type of Social Media, its types, advantages and disadvantages. They will able to understand various aspect of advertising, the role of advertising in the changing world and its merits and demerits. The students will be motivated and inspired to aim high in life and try hard to achieve it.

C03: Students will be able to write different types of communication. They will acquire excellence in oral, written, electronic and print media of communication. They will be acquainted with the working of different types of business houses and understand their working.

C04: Students will be able to **compose, design and write** effective business letters. eg. Job application, job offer, acceptance of appointment, sales letter etc.

C05: Students will be able to comprehend the given passage and will be able to improve their vocabulary and learn to frame the sentences on their own in correct grammatical order

Paper- II

Course Name - Financial Accounting Course code -1T2

Accounting Concepts:- Introduction, Accounting Concepts and Conventions, Generally Accepted Accounting Principles(GAAP), Conceptual Basis of a Balance Sheet, Capital and Revenue Income and Expenditure, Indian Accounting Standards AS 1 to AS 10.

Mechanics of Accounting:- Introduction, Classification of Accounts, Double Entry System, Overview of Accounting cycle, Preparing journals, Subsidiary Books, Ledger, Preparation of Trial Balance (Theory & Numerical)

UNIT – II

Preparation of final Accounts of Sole Traders :- Introduction, Describe format of P & L Account, Format of Balance Sheet, Treatment of Adjustments, The components of a set of final accounts for a sole trader. Prepare Trading Account, Profit & Loss Account and Balance Sheet (Theory & Numerical)

UNIT – III

Valuation of Goodwill – Meaning and need for valuation of goodwill, Feature of goodwill, Factors influencing valuation for goodwill, Average profit method (Future maintainable profit method), Weighted average profit method, Super profit method, Capitalization method, Annuity Method. (Theory & Numerical)

UNIT – IV

Consignment Accounts: - Meaning, Needs, Advantages and formalities in consignment, difference between a consignment and a sale, Performa invoice, Account sales, Accounting procedure of consignment, valuation of consignment stock (Theory & Numerical)

C01: Given the business transactions the students will be able to journalize the transactions and given the financial information the students will be able to **classify** the items into assets and liabilities.

C02: Given the Trial Balance and accompanying financial adjustments the students will be able to **prepare** the financial statements and **calculate** the profit or loss of a firm at the end of the financial year.

C03: Given the accounting information, the students will be able to **calculate** the value of goodwill with different methods.

C04: Given the details of consignment transactions the students will be able to journalize the transactions in the books of consignor and consignee and **prepare** relevant ledger in the books of both the parties.

PAPER- III

Course Name - Fundamentals of Computer Course Code - 1T3

Understanding the Computer:- Introduction, Evolution, Generation, Classification and Application of computers. **Memory and Storage Systems:** Introduction, Memory representation, Random Access Memory, Read Only Memory, Storage systems, Magnetic storage systems, Optical storage systems, Magneto optical system, Solid-state storage devices.

UNIT - II

Input Devices: Introduction, Keyboard, Pointing devices, Scanning devices, Optical recognition devices, Digital camera, Voice recognition system, Data acquisition sensors, Media input devices. **Output Devices:** Introduction, Display monitors, Printers, Impact printers, Non-impact printers, Plotters, Voice output systems, Projectors, Terminals. **Computer Codes:** Introduction, Decimal system, Binary system, Hexadecimal system, Octal system, Conversion of numbers

UNIT - III

Computer Software: Introduction, Types of computer software, System management programs, System development programs, standard application programs. **Programming Languages:** Introduction, History of programming languages, Generations of programming languages, Characteristics of good programming languages, Developing a program, Running a program. **Data Communication and Networks:** Introduction, Data communication using modem, Computer network, Network topologies, Network protocol and software, Application of network.

UNIT - IV

Operating Systems: Introduction, History of operating systems, Functions of operating systems, Process management, Memory management, File management, Device management, Security management, Types of operating systems, Providing user interface, Popular operating systems. **Microsoft Software:** Introduction, MS- DOS, MS Word systems, MS Excel systems, MS PowerPoint systems, MS Access systems,

C01:Given the information on processor, memory and storage devices the student will be able to identify various components of Central Processing Unit, and will also be able to classify different types of memory.

C02:Given the information of various input –output devices and number system, Students will be able to identify and classify different input-output devices and will also be able to convert one number system into another.

C03:Given the data communication problem the student will be able to analyse and differentiate various modes of data transmission and will also be able to justify the choice of communication channels.

C04:Given relevant details about given documents students will be able to create word documents with required formatting and use excel for storing, calculating and sorting data using different Excel tools and functions.

C05:Students will be able to apply different DOS commands to handle storage devices for real life applications.

Paper - IV

Course Name – Programming in ‘C’

Course Code – 1T4

UNIT – I

Data Types, Operators and some statements: Identifiers and keywords, Constants, C Operators, Type Conversion. Writing a Program in C: Variable declaration, Statements, Simple C Programs, Simple Input Statements, Simple Output Statements. Control Statements: Conditional Expressions, Loop Statements, Breaking control statements.

UNIT – II

Functions and Program Structures: Introduction, Defining a Function, Types of User Defined Functions, Return Statement, Actual & Formal Arguments, Local & Global Variables, Scope of Variables, Recursive Functions. Arrays: One dimensional array, Array Declaration, Array Initialization, Two dimensional array, Declaration and initialization of two dimensional array, multidimensional array, Character array and Strings functions.

UNIT – III

Pointers: Pointer Declaration, Pointer Arithmetic, Pointers and Functions, Pointers and Arrays, Pointer and Strings, Array of Pointers, Pointers to Pointers. More on Functions: Pre-processors, Macros, Header Files, standard Functions.

UNIT-IV

Structures, unions and File handling: Declaration of Structure, Initializing a Structure, Array of Structure, Arrays within Structure, Pointer and Structure,

Union. Data File Operations: Review of input/output Functions, Opening and Closing of files, Simple File Operation, Structures and File Operation, Block Read/Write, More on File operations, Random Access File processing.

C01: Students will be able to identify and apply different data types and control statements to develop the applications for solving problems.

C02 : Given the details of the problem user can analyze the use of arrays, built-in function and can create a user defined function for solving the problems.

C03: Students will be able to describe pointer, Pointer arithmetic, array of pointers, Pointer to pointer, Pre-processor directives, macros and standard functions.

C04: Given the problem user can create user defined data type i.e. structure or union. User can also be able to solve the database related problem by using file handling operations.

Semester II

Paper - I: English and Business Communication – II (2T1)

UNIT-1 Prose

1. The Dispenser of Holy Water- Guy de Maupassant
2. After Twenty Years-O.Henry
3. The Wall- Dr.Sunilkumar Navin

UNIT-II Prose

1. Beware You are Being Tracked!-Dr.Supantha Bhattacharya
2. What is Integrity?-Subroto Bagchi
3. Unsung Women Achievers of Contemporary India-Dr.Subhashree Mukherjee

UNIT-III- Communication

- Elements of communication
- Objectives of communication
- Essentials of effective communication
- Barriers to effective communication
- Suggestions to overcome the barriers

UNIT IV-Business Correspondence

Inviting Quotations, Placing Orders, Cancelling order, Credit Letters - Granting/Refusing Credit, Letter to Bank for overdraft facility

UNIT V- Language Study

- (A) Views and Opinions (Current, Social, Cultural, Political)
- (B) Punctuation, Words often confused

English CO

C01: Students will be able to **explain, illustrate** and **rephrase the** given prose. They will be able to **formulate** correct questions for the same. The students will be able to **understand** the reality of life.

C02: Students will be able to **understand** about Cyber Crime its types and how to avoid it and protect from cybercrime. Students will be able to understand values - integrity, sincerity, devotion to a cause and its importance in one's life and achieve high goals in life, try and be motivated even in odd circumstances.

C03: Students will be able to **compose, design and write** effective business letters. eg Inviting Quotations, Placing Orders, Credit Letters - Granting/Refusing Credit, Letter to Bank for overdraft facility etc.

C04: Students will be able to write different types of communication. They acquire excellence in elements, objective, essentials of effective communication, barriers to effective communication and how to overcome them.

C05: Students will be able to comprehend and will be able to differentiate between common punctuation marks, identify and define commonly confused English words.

Paper II

Course Name – Principles of Business Management

Course Code – 2T2

UNIT- I

Nature And Functions Of Management – Importance Of Management, Definition Of Management, Management Function Or The Process Of Management, Levels Of Management, Organizational Or Business Functions, Role Of A Senior Management, Managerial Skills, Managerial Effectiveness, Management And Administration, Management- A Science Or An Art?, Management- A Profession?, Professional Management Vs Family Management, Management Of International Business.

Planning- Nature Of Planning, Importance Of Planning, Types Of Plans, Steps In Planning, Strategic Planning Process, Limitation Of Planning, Making Planning Effective, Planning Skills, Strategic Planning In The Indian Industry. **Decision Making**- Meaning Of Decision, Types Of Decision, Steps In Relational Decision- Making, Rationality In Decision-Making, Environment Of Decision-Making, Common Difficulties In Decision-Making.

UNIT- II

Organization- What Is An Organization?, Process Of Organizing, Principles Of Organizing, Span Of Management, Departmentalization, Process Departmentalization, Purpose Departmentalization, Organization Structure, What Type Of Structure Is Best?, Emerging Organization Structures, Committees, Teams, International Organization Structures. **Coordination** – Distinction Between Coordination And Cooperation, Distinction Between Coordination And Control, Need For Coordination, Requisites For Excellent Coordination, Types Of Coordination, Techniques Of Coordination, Difficulties Of Coordination, **Staffing**- Importance And Need For Proper Staffing, Manpower Planning, Recruitment, Selection, Placement, Induction, Manpower Planning In India.

UNIT- III

Training And Development- Difference Between Training, Education And Development, Advantages Of Training, Steps In Setting Up A Training And Development Programme, Design And Development Of The Training Programme, Evaluation Of Training And Development, Executive Training Practices In India,

Mentoring, Learning Organization, Knowledge Management **Direction And Supervision-** Requirements Of Effective Direction, Giving Orders, Motivation, Job Satisfaction, Organizational Commitment, Morale, First-Level Or Front- Line Supervision.

UNIT- IV

Communication- Importance of Communication, Purpose Of Communication, Formal Communication, Forms Of Communication, Informal Communication, The Communication Process, Barriers To Communication, Principles Of Effective Communication. **Managerial Control-** Steps In A Control Process, Need For Control System, Benefits Of Control, Essentials Of Effective Control System, Problems Of The Control System, Control Techniques.

C01: Students will be able to **apply** various function of management in the real-world business. They will also be able to **classify** various types of plans and **develop** effective planning strategies for businesses. Students will also be able to **differentiate and use** various types of decisions in businesses.

C02: Students will be able to **compare** various organizational structures and **identify** features of a good organizational structure and will be able to **differentiate** between coordination and control and **interpret** the need of proper staffing for effective implementation in an organisation.

C03: Students will be able to **apply** various training practices, **identify** standards of performance appraisal and **classify various** compensation plans. Students will also be able to **interpret** giving orders and **understand** motivational factors affecting employees.

C04: Students will be able to **apply** communication and leadership skills and **evaluate** various control techniques in the real-world business environment.

Paper III
Programming in C++ (2T3)

UNIT I

Introduction to Object Oriented Programming: Introduction, What is Object Oriented Programming(OOP)?, Structured Procedural programming(SPP), Object Oriented Programming OOP, Characteristics of OOPs, Advantages of OOPs, Disadvantages of OOPs, Comparison of SPP and OOP, Steps in Developing OOP Programs, Structure of Object Oriented Programs, Object Oriented Languages, Importance of C++. **Data Types, Operators and Expressions:** Identifiers & Keywords, Data Types, C++ Simple Data Types, Literals, Variables, the Const Data type, C++ Operators, Type Conversion. **Input and Output Streams:** Comments, Declaration of Variables, the Main () Function, Simple C++ Programs, Program Termination, Features of IOSTream, Keyboard and Screen I/O, Manipulator Functions, Input and Output (I/O) Stream Flags. **Control Statements:** Conditional Expressions, Loop Statements, Nested Control Structures, Breaking Control Statements.

UNIT - II

Function and Program Structures: Introduction, Defining a Function, Return Statement, Types of Functions, Actual & Formal Arguments, Local & Global Variables, Default Arguments, Structure of C++ Program, Order of the Function Declaration, Manually invocated Functions, Nested Functions, Scope Rules, Side Effects, Storage Class Specifiers, Recursive Function, Pre-processors, Header Files, Standard Functions. **Arrays:** Introduction, Array Notation, Array Declaration, Array Initialization, Processing with Arrays, Character Array. **Pointers and Strings:** Introduction, Pointer Arithmetic, Pointers and Functions, Pointers and Arrays, Pointer and Strings.

Structures and Unions:- Introduction, Declaration of Structure, Processing with Structures, Initialization of Structures, Functions and Structures, Array of Structure, Pointer and Structure, Unions.

UNIT - III

Classes and Objects: Introduction, Structures and Classes, Declaration of Class, Member Functions, Defining the Object of a Class, Accessing a Member of Class, Array of Class Objects, Pointer and Classes. **Special Member Function:** Introduction, Constructors,

Destructors, Inline Member Functions, Static Class Members, Friend Function, This Pointer. **Single and Multiple Inheritance:** Introduction, Single Inheritance, Types of Base Classes, Type of Derivation, Multiple Inheritance, Member Access Control.

UNIT IV

Overloading Functions and Operators: Function Overloading, Operator Overloading, Overloading of Binary Operators, Overloading of Unary Operators. **Polymorphism and Virtual Functions:** Polymorphism, Virtual Functions, Pure Virtual Functions, Abstract Base Classes, Virtual Base Classes. **Data File Operations:** Opening and Closing of Files, Reading/Writing a Character from a File, Binary File Operations.

PIC CO

C01: Student will **able to** develop in-depth understanding of object-oriented programming paradigms (OOPs) and will also be able to ascertain usage of OOPs concepts in developing applications based on real life situations.

C02: Students will be **able to** evaluate effective usage of arrays, structures, functions, pointers and to implement the memory management concepts (effective memory handling) to develop efficient real time business applications for a given problem.

C03: Student will be **able to** develop and **analyze** the use of Classes, object, String manipulation and reuse existing code by using inheritance for development of complex business solutions.

C04: Student will be **able to** handle the errors and effectively use different file operation for storing the data permanently for creating real life application.

Paper IV

E- Commerce and Web Designing (2T4)

UNIT I

Introduction to Electronic Commerce- Electronic Commerce : The Scope of Electronic Commerce, Definition of Electronic Commerce, Electronic Commerce and the Trade Cycle, Electronic Markets, Electronic Data Interchange, Internet Commerce, e-Commerce in Perspective. **Business Strategy in an Electronic Age: The Value Chain, Supply Chains, Porter's Value Chain Model, Inter Organizational Value Chains. Competitive Advantage:** Competitive Strategy, Porter's Model, First Mover Advantage, Sustainable Competitive Advantage, Competitive advantage using e-Commerce.

UNIT - II

Business to Business Electronic Commerce - Inter Organizational Transactions: Inter Organizational Transactions, the Credit Transaction Trade Cycle, A Variety of Transaction, Pens and Things. **Electronic Markets: Markets,** Electronic Markets, Usage of Electronic Markets, Advantages and Disadvantages of Electronic Markets, Future of Electronic Markets. **Electronic Data Interchange (EDI):** Introduction to EDI, EDI definition, The Benefits of EDI, EDI Example. **Inter Organizational e-Commerce: Inter Organizational Transaction, Purchasing Online, After Sales Online, e-Commerce in Desk top Facilities Management, Pens and Things and the Web.**

UNIT - III

Business to Consumer Electronic Commerce - Internet Shopping and the Trade Cycle, Other e-Commerce Technologies, Advantages and Disadvantages of Consumer e-Commerce, Consumer e-Commerce at Pens and Things. The Elements of e-Commerce : Elements, e-Visibility, The e-Shop, Online Payments, Delivering the Goods, After Sales Service, Internet e-Commerce Security, A Web Site Evaluation Model. **Introduction to HTML:** Designing a Home Page, History of HTML, HTML Generations, HTML Documents, Anchor Tag, Hyper Links, Sample Html Documents. **Header and Body Sections: Header Section, Title, Prologue, Links, Colorful Web Page, Comment Lines, Some Sample Html Documents. Designing the body Section:** Heading Printing, Aligning the Headings, Horizontal Rule, Paragraph Tab Setting, Image and Pictures, Embedding PNG Format Images.

UNIT – IV

Ordered and Unordered Lists: Lists, Unordered Lists, Headings in a List, Ordered Lists, Nested List. **Table Handling: Table,** Table Creation in HTML, Width of the Table and Cells, Cells Spanning Multiple Rows/Columns, Coloring Cells, Columns Specification, Some Sample Tables. **Dhtml and Style Sheets:** Defining Styles, Elements of Styles, Linking a Styles Sheet to an HTML Document, In-Line Styles, External Styles Sheets, Multiple Styles. **Frames:** Frameset Definition, Frame Definition, Nested Framesets. **A web Page Design Project:** Frameset Definition, Animals, Birds, Fish. **Forms: Action** Attribute, Method Attribute, Input type Attribute, Drop Down List, Sample Forms

EWD CO

CO1: Students will be able to understand the concept and use E-commerce, EDI, Internet Commerce, Trade Cycle, Supply Chain Management, Value Chain Analysis and Sustainable Competitive Advantage for business environments.

CO2: Students will be able to know importance of - Inter Organizational Transactions, Electronic Market, Electronic Data Interchange, Inter Organizational e-Commerce for any Business Environments.

CO 3: Students will be able to understand the basic elements of E-Commerce and Given information on elements of webpage Students will also be able to create the web pages using basics of HTML.

CO 4: Given relevant details about web page creation the student will be able to create Web page with given list of HTML and CSS Style sheet tags.

Semester III

Paper I

Environmental Studies (3T1)

UNIT I

Environment, Environment Studies, Need for public Awareness, Environmental Degradation, Shelter Security, Economic Security, Social Security, Effects of Housing on Environment , Effects of Industry on Environment. **Natural Resources-** Introduction, Types of Natural Resource, Forest Resources, Water Resources, mineral Resources, Energy resources, Land Resources, Conservation of Natural Resources, Sustainable Lifestyles, Biogeochemical Cycle.

UNIT – II

Ecosystem- Introduction to Ecology and Ecological Succession, Ecosystem, FoodChain, Ecological Pyramids, Types of Ecosystems, Forest Ecosystems, Aquatic Ecosystems, Grassland Ecosystem, and Desert Ecosystem. **Biodiversity and its Conservation-** Biodiversity, Values or Benefits of Biodiversity, Biogeographic Zones of India. Threats to Biodiversity, Human – Wildlife Conflicts, Conservation of Biodiversity.

UNIT – III

Environmental Pollution, Introduction, Public Health Aspects, Air Pollution, Land Pollution, Soil Pollution, Marine Pollution, Water Pollution, Noise Pollution, Thermal Pollution, Solid Waste Management, Role of Individuals in Pollution Prevention, Disaster Management.

UNIT – IV

Social Issues and the Environment- Introduction, Sustainable Development, Urbanization, Water Conservation, Resettlement and Rehabilitation of People ; Its Problems and Concerns, ACTs for Environmental Protection, Carbon Credits, Initiatives and Roles of Nongovernmental Organization (NGOs) in Environmental Protection, Issues Involved in Enforcement of Environmental Legislation . Environment and Human Health, Environmental Education, Role of Information Technology in Environment and Human Health.

CO1: Given the illustrations about basics of environmental aspects and types of resources, students will be able to analyse the nature of environment and formulate ways for conservation of natural resources.

CO2: Given the information about types of ecosystems and biodiversity, students will be able to differentiate between various ecosystems and formulate ways for the conservation of biodiversity, identify various threats to biodiversity.

CO: 3 Given the information about various types of pollution, students will be able to evaluate the role of an individual in prevention of pollution and define ways for disaster management.

CO: 4 Given the information on social issues related to environment and effect of human population on environment, students will be able to develop in-depth knowledge about various issues involved in enforcement of environmental legislation and will be able to identify and use the role of IT in conservation and protection of environment and human health.

Paper II
Business Economics (3T2)

UNIT I

Introduction: Economics and Business Economics– Meaning, Nature, concept & Scope of Business economics. **Basic problem of an Economy and Role of price Mechanism** – Basic problems of an economy, Classification of Economy, Its features, advantages and disadvantages. Free Enterprise Economy: Meaning & Features.

Theory of utility : Theory of Consumer Behavior – Nature of Human wants, Utility Analysis - Meaning and definition of utility, Concepts of Marginal Utility, Total Utility, Cardinal and ordinal approach of utility(Difference), Features of Utility, Law of diminishing Marginal utility.

UNIT II

Theory of Demand and supply -Theory of Demand: Concept of Demand, Law of Demand-Meaning, Definition, Assumptions & Exceptions. Elasticity of Demand - Meaning, Types and Factors affecting Elasticity of Demand. **Demand Forecasting** – Meaning, Definition, Importance and scope of Demand Forecasting, Methods of demand forecasting. **Supply Analysis** – Supply: Meaning, Determinants and functions of Supply. Law of Supply, Elasticity of Supply: Meaning of Elasticity of Supply, Types of Elasticity of Supply

Unit - III

Theory of Production and cost - Theory of Production: Meaning of Production, Factors of production, Concepts of Total Product, Average product and Marginal Product, Production Function, Short Run Production Function: Law of Variable Proportion, ISO Quant Curve, Long Run Production Function, Law of Returns to Scale.

Theory of Cost – Meaning of Cost, Cost Concepts, Cost Function, Concepts of total Cost ,Average Cost and Marginal Cost, Short Run Average Cost Curves, Long Run Cost Curve, Economies and Diseconomies of Scale

UNIT IV

Market Structure and Pricing theory- Market Structure: - Meaning of market, Classification of Market, Concepts of Total revenue, Average revenue and Marginal revenue, Market Structure - Concept, Features types.

Price – Cost and Output Determination under Different types of markets- Perfect Competition, Monopoly, Monopolistic Competition, Equilibrium of firms under different

market structures in short run and long run. Price Discrimination in monopoly and oligopoly. Kinked demand curve.

BE CO

C01: Given the basic problems of an economy, students will be able to gain an insight and understand the concept of Economics, Business Economics and Classify the different types of economic system and utilities.

C02: Given the demand -Supply Analysis and forecasting, students will be able to understand and analyse Demand-Supply, elasticity of demand, elasticity of supply and calculate the price, Income and Cross Elasticity of demand

C03: Given the information on Production and Cost Analysis, Students will be able to relate the basic concepts of Production, Cost and will also be able to demonstrate the law relating to Short Run and Long Run Production Function and compute the Production cost for the given product.

C04: Students will be able to understand the concept of Market, identify the features of market. They will also analyse and compare the price -output determination under different market structure

Paper III

Visual Basic Programming (3T3)

UNIT 1

Introduction to Visual Basic –Advantages of Visual Basic, Features of Visual Basic. **Visual Basic Window Components** – Menu Bar, Standard Toolbar, Project Explorer Window, Form Layout Window, Properties Window, Toolbox, Code Editor Window, Object Browser, **Working with Forms** – Extension & With Function of the File, Properties, Events and Method of the Form. **Using The Controls of Visual Basic**–Label Control, Command button Control, Textbox Control, Option Button Control, Frame Control, Checkbox Control, List box Control, Combo box Control, Image Control, Scroll Control, Picture Control, sing Timer Control, Drive list box Control, Dirlist box, Filelistbox Control.

Unit – II

Basic Programming Fundamentals– Scope of Variables, Operators, Decision Structure, Loop Structure, Arrays, control array. **Working With Procedure, Functions** Procedure, Functions, Modules **Menus** – Creating Menus, Creating Popup Menu. **Working With Custom Controls** – Imagelist Control,Imagecombo Control, Treeview Control, Listview Control, Toolbar Control, Statusbar Control.

Unit – III

Creating MDI Applications – Features of Child Form, **Database Handling** – Creating the Database, Accessing the Database Using ADO Data Control.**Working With Advance Data Controls** – Datalist Control, Datacombo Control, Datagrid Controls, Setting The Properties Of The Datagrid Control, Mshflexgrid Control,

Unit – IV

Debugging Techniques – Error handling : Types of errors. Debugging, tools for debugging,handling runtime errors.**Working with Data Environment**-Data Environment and Data Report, Data Environment designer adding connection & commands Data report controls, creating & printing reports.

VB CO

C01: Student will be able to Explore Visual Basic's Integrated Development Environment (IDE) to Design, create, build, and debug Visual Basic Application.

C02: Student will be able to evaluate effective usage of control statements, arrays, procedure, functions to develop efficient real time business applications for a given problem.

C03: Student will be able to develop and analyse the use of windows common control and database control for development of integrated application.

C04: Student will be able to understand & identify the type of error and can implement the debugging tool to handle the error in application.

Paper IV
Database Management System (3T4)

UNIT I

Introduction: Concept of the System, Types of Decisions, Information System, Classification of information System, Conventional File Processing System, Database System, Components of Database Management System, Economic Justification of Database Approach. **Database Concepts:** Introduction, Data, Information, Metadata, Terminologies of Files, Association between Fields, Association between Files (Record Types), File Organization.

UNIT - II

Data Models: Introduction, Classification of Data Model, Entity Relationship Model. **Database Design:** Introduction, Steps of Database Design, Normalization, Case Problem, Data Volume and Usage Analysis, Integrated Case Study-Database Design for Academic institution. **Implementation Design:** Introduction, Implementation Design,

UNIT - III

Structured Query Language - I: Table fundamentals, viewing data in the tables, Eliminating duplicate rows when using a select statements, sorting data in a table, creating a table from a table, inserting data into a table from another table, delete operations, updating the contents of a table, modifying the structure of tables, renaming tables, truncating tables, destroying tables, creating synonyms.

UNIT-IV

Structured Query Language - II: Data Constraints, Types of data constraints, defining different constraints on a table, computations done on table data, ORACLE functions, Date conversion functions, Data functions, Miscellaneous functions, Grouping data from tables in SQL, Subqueries, Joins, concatenating data from table columns, using the UNIONS, INTERSECT and MINUS clause.

DBMS CO

C01: Students will be able to understand and compare database management system with conventional file system and will be able to suggest suitable information system for a given business application.

C02 : Students will be able to design normalized database by analysing the different database models for real life business applications.

C03 : Student will be able to use different data types, commands and operators of SQL to create ,modify and remove databases objects and retrieve desired information for a particular business application with given requirement.

C04 : Student will be able to analyse and use different data constraints, functions, joins , sub-queries and set operators for retrieving complex required information of business from different tables.

Semester IV
Paper I
Statistical Techniques (4T1)

UNIT I

Statistics and Measures of Central Tendency: – Meaning, Scope, Importance, Functions and Limitations of Statistics. Collection of data, Primary data and Secondary Data, Tabulation and Classification, Frequency distribution, Type of table, Mean, Media, Mode, Geometric Mean and Harmonic Mean (theory & Numerical)

Unit – II

Measures of Dispersion: – Meaning and significance of dispersion. Method of measuring dispersion, Range, Mean Deviation, Standard Deviation, Quartile Deviation, Co-efficient of variation (Theory & Numerical)

Unit – III

Skewness :- Meaning of Skewness, Type of Skewness, Factor of skewness. Absolute Measures of skewness, relative measures of skewness, Karl Pearson's co- efficient of skewness, Bowley's Co-efficient of skewness (Theory and Numerical)

Unit – IV

Correlation and Regression:- Concept of correlation, Types of correlation, Karl Pearson's co-efficient of correlation, Probable error, Interpretation of "r", Rank correlation method. Concept of regression, Lines of Regression, Co-efficient of Regression (theory & Numerical)

C01: Given the details about business data the student will be able to define statistics and with given aggregate data they will be able to calculate mean, median and mode of data.

C02: Given Business data the students will be able to calculate range, mean deviation, standard deviation and quartile deviation.

C03: Given the aggregate data the students will be able to calculate coefficient of skewness by different methods.

C04: Given the aggregate data the students will be able to calculate co-relation co-efficient and probable error, students will also be able to calculate coefficient of regression.

Paper II
Business Law (4T2)

UNIT I

THE INDIAN CONTRACT ACT, 1872: Contract – meaning, characteristics and kinds, Essentials of a valid contract - Offer and acceptance, consideration, contractual capacity, free consent, legality of objects., Void agreements, Discharge of a contract – modes of discharge, breach and remedies against breach of contract, Contingent contracts, Quasi - contracts

Specific Contracts- Contract of Indemnity and Guarantee, Contract of Bailment, Contract of Agency

Unit - II

THE SALE OF GOODS ACT, 1930 - Contract of sale, meaning and difference between sale and agreement to sell. Conditions and warranties, Transfer of ownership in goods including sale by a non-owner, Performance of contract of sale. Unpaid seller – meaning, rights of an unpaid seller against the goods and the buyer.

Unit - III

THE INFORMATION TECHNOLOGY ACT, 2000 :- Definitions, Digital signature, Electronic governance, Attribution, acknowledgement and dispatch of electronic records, Digital Signatures Certificates, Duties of Subscribers, Penalties and adjudication, Appellate Tribunal, Offences

UNIT - IV

THE NEGOTIABLE INSTRUMENTS ACT 1881 - Meaning, Characteristics, and Types of Negotiable Instruments - Promissory Note, Bill of Exchange, Cheque, Holder and Holder in Due Course, Privileges of Holder in Due Course. Negotiation: Types of Endorsements, Crossing of Cheque, Bouncing of Cheque.

BL CO

C01: Given the details about a contract, student will be able to classify the contracts on various bases. They will also be able to **define** different concepts like consideration, offer and acceptance and will understand the contractual capacity of different persons.

C02: The students will be able to **understand and classify** the concept of Sale of Goods Act 1930. They will be able to define and use the conditions and warranties, the essentials of a contract of sale and the rights of an unpaid seller against the goods and the buyer.

C03: The students will be able to **understand and use** the digital signatures, the concepts of electronic governance, Attribution, acknowledgement and dispatch of electronic records and Digital Signatures Certificates. They will also be able to **describe** the duties of subscribers, know about the penalties and adjudication, appellate tribunal and offences in IT Act.

C04: The students will be able to understand and **use** the concept of different negotiable instruments in real life situations. They will be able to **describe** the privileges of Holder in Due Course and **know** the different types of negotiation.

Paper III
Core Java (4T3)

UNIT I

Java History and Introduction - Java history, Java features, How java differ from C and C++, Java and internet, Java and world wide web, Java environment. Simple Java programs, Java program structure, Java tokens, Java virtual machine, Command line arguments. **Variables, Data Types and Simple I/O** -Variables, Data Types, Scope of variables, Symbolic constants, Type casting, Standards default values, Getting Simple User Input. **Operators in java**-Introduction, Arithmetic operators, Relational operators, Logical operators, Assignment operators, Increment and decrement operators, Conditional operators, Bitwise operators, Special operators, Mathematical functions. **Decision Making and Branching** -If...Else statement, Nesting of If...Else statement, the switch statement, The? : Operators.

UNIT-II

Decision Making and Looping – Introduction, The while statement, the do statement, for statement, Jumps in loops, Labeled loops. **Arrays, Strings** – One Dimensional Array, Two Dimensional Array, Strings. **Classes, Objects and Methods** – Introduction, Defining a class, Methods declaration, Creating objects, Accessing class members, Constructors, Method overloading, Static members, **Inheritance**: Extending a class, Overriding methods, Final variables and methods, Final classes, Finalizer methods, Abstract methods and classes, Visibility Controls. **Interfaces**:- Introduction, Defining interfaces, Implementing interfaces, Accessing interface variables.

UNIT - III

Packages:- Introduction, Java API Packages, Using system packages, Naming conventions, Creating packages, Accessing a package, Using a package. **Introduction to Thread** - Creating threads, Life cycle of thread. **Managing Errors and Exceptions** – Introduction, Types of errors, Exceptions, Syntax of exceptions handling code, catch statements, using finally statements, throwing our own exceptions. **Graphics Programming** – Introduction, The graphics class, Lines and rectangles, Circles and ellipses, Drawing arcs, Drawing polygons.

UNIT-IV

Applet Programming – Introduction, How applet differ from application, Preparing to write applet, Building applet code, Applet life cycle, Creating an executable applet,

Designing a web page, Applet tag, Adding applet to HTML file, Running the applet, Passing parameters to applet, Displaying numerical values, Getting input from the user.

Managing Input / Output Files in JAVA – Introduction, Concepts of streams, Streams classes,

Bytes streams classes, Character streams classes, Using the file classes, Input / Output exception, Creation of files, Reading/Writing character, Reading/Writing bytes.

Java CO

C01: Students will be able to identify and apply different data types and control statements to develop the applications using java for solving real life problems.

C02: Given the details of the problem user can analyse the use of arrays, built-in function and OOPs concept to develop a real-life application.

C03: Students will be able to use different inbuilt packages and graphics to develop applications and will also be able to handle errors.

C04: Given the problem students can develop applications using applets and file handling operations.

Paper IV
PHP & MYSQL (4T4)

UNIT I

Getting Started With PHP- Basic HTML Syntax, Basic PHP Syntax, Using FTP, Testing Your Scripts, Sending Text To The Browser, Adding Comment To The Script, Basic Debugging Steps. **Variables-** What Are Variables?, Variable Syntax, Types Of Variables, Variable Values, Understanding, Quotation Marks. **HTML Forms And PHP-** Creating A Simple Forms, Choosing A Form Data In PHP, Displaying Errors, Error Reporting. **Using Numbers-**, Performing Arithmetic, Formatting Numbers, Understanding Precedence, Incrementing And Decrementing A Number, Creating Random Numbers.

UNIT- II

Using Strings- Creating The HTML Forms, Concatenating Strings, Handling Newlines, HTML And PHP, Finding Substrings, Replacing Parts Of A String. **Control Structures-**The if Conditional, Validation Functions, Using Else, More Operators, Using else if, The Switch Conditional, The For Loop. **Using Arrays-** What Is An Array, Creating An Array, Adding Items To An Array, Accessing An Array From A Form.

UNIT- III

Creating Web Applications- Creating Templates, Using Constants, Working With The Date And Time, Handling HTML Forms With PHP, Sending Email. **Cookies And Sessions-** What Are Cookies?, Creating Cookies, Reading From Cookies, Adding Parameters To Cookies, Deleting A Cookie, What Are Sessions?, Creating Session, Accessing Session Variables, Deleting Session. **Creating Functions-** Creating And Using Simple Functions, Creating And Calling Functions That Take Arguments, Setting Default Arguments Values, Creating And Using Functions That Return A Value, Understanding Variable Scope.

UNIT- IV

Files And Directories- File Permissions, Writing To Files, Locking To Files, Reading From Files, Introduction To Database- Introduction To SQL, Connecting To MYSQL, MYSQL Error Handling, Creating And Selecting A Database, Creating A Database, Inserting Data Into A Database, Securing Query Data, Retrieving Data From A Database, Deleting Data In A Database, Updating Data In A Database. Putting It All Together- Getting Started, Connecting To The Database, Writing The User-Defined Function, Creating The Template, Adding Quotes, Listing Quotes, Editing Quotes, Deleting Quotes

PHp/MYSQL CO

CO1: Students will be able to **understand and compare** html file and php file and will be able to **adopt** suitable environment for a given business application.

CO2: Students will be able to **analyze** the different data and can create forms for real life business applications.

CO3: Student will be able to **use** techniques to handle cookies and sessions, to create and modify server cookies and operate session on the internet.

CO4: Student will be able to **explore, analyse and use** different files for creating forms and will be able to use database in the backend for the applications.

Semester V

Paper I

Computerised Accounting using Tally (5T1)

UNIT I

Introduction to Tally.ERP 9- Basics of Accounting-Types of accounts-Golden rules of accounting –Accounting principles –Features of Tally- Opening Tally.ERP 9, Components of the Tally.ERP 9 Window, Creating a Company. Accounting masters in Tally –F11: Features –F12 Configurations –Setting up of Account Heads.

UNIT II

Groups, Ledgers, Vouchers and Orders- Introducing Groups, Introducing Ledgers, Introducing Vouchers, Introducing Purchase Orders, Introducing a Sales Order, Introducing Invoices.. **Stock and Godown in Tally-** Stock Groups, Stock Categories, Stock Items, Units of Measure, Godowns.

UNIT III

Stock and Godown in Tally-Cost Centers and Cost Categories–Bank Reconciliation – Interest Calculations. **Reports in Tally.ERP 9-** Working with Balance Sheet, Working with Profit & Loss A/c Report, Working with Stock Summary Report, Understanding Ratio Analysis, Working with Trial Balance Report, Working with Day Book Report.

UNIT IV

Taxation – Indian Tax Structure, Tax deducted at source in tally.ERP 9, Create a Tax Ledger, TDS Vouchers, Printing a TDS Challan, Tax collected at source in Tally.ERP 9, TCS reports in Tally.ERP 9, Calculating GST in Tally.ERP 9, GST Classification, GST Vouchers, GST Reports in Tally.ERP 9. Taking Backup in Tally.ERP 9, Restoring Data inTally. ERP 9.

C01: Given the details about the company student will be able to **prepare** company and also able to do some alteration according to the requirement.

C02: Given the day-wise transactions of firm, the students will be able to **prepare** ledger and group and will be able to create various vouchers, using Tally software.

C03: Given the details about the day-wise transactions of a firm, the student will be able to **prepare** Stock group, stock Categories, Stock items, units of measure and godown.

C04: Given the details about the company taxation students will be able to prepare GST and other reports.

Paper II

VB.Net (5T2)

UNIT I

Welcome to Visual Basic.NET – Windows Versus DOS Programming, Installing Visual Basic.NET, The Visual Basic.NET IDE, Creating a Simple Application, Using the Help System. **The Microsoft.NET Framework** – Microsoft's Reliance on Windows, Writing Software for Windows, Common Language Runtime, The Common Type System and Common Language Specification. **Writing Software** – Information and Data, **Variables**, Comments and Whitespaces, Data Types, Sorting Variables, Methods. **Controlling the Flow** – Making Decisions, The if Statement, Select Case, Loops.

UNIT- II

Working with Data Structure – Understanding Array, Understanding Constants, Structures, Working with Collection and Lists, Advanced Array Manipulation. **Building Windows Application** – Responding to Events, Building a Simple Application, Creating Complex Applications, Using Multiple Forms. **Displaying Dialog Boxes** – The MessageBox Dialog box, The OpenFileDialog Control, The SaveDialog Control, The FontDialog Control, The ColorDialog Control, The PrintDialog Control.

UNIT- III

Creating Menu – Understanding Menu Features, Creating Menu, Context Menu. **Debugging and Error Handling** – Major Error Types, Debugging, Error Handling. **Building Objects** – Understanding Objects, Reusability, Our First Object, Constructor, Inheritance, The Framework Classes.

UNIT- IV

Accessing Database – What is Database, SQL Select Statement, Queries in Access, Data Access Components, Data Binding. **Database Programming with SQL Server and ADO.NET** –ADO.NET, The ADO.NET Classes in Action, Data Binding. **Deploying Your Application** – What is Deployment?, Creating a Visual Studio .NET Setup Application, Assemblies as Installers, The Core of Deployment, Deploying Different Solution.

VB.NET CO

CO1: Students will be able to use .net framework, data types, decision making and control statements to develop the applications for solving real life problems.

CO2: Students will be able to understand and apply vb.net controls, array, enumerations, constants, collection, lists and dialog boxes to design and develop the application for given business problem.

CO3: Students will be able to create the menu based applications for given business applications and will be able to apply the debugging techniques for developed application.

CO4: Students will be able to apply the SQL and MS-Access queries for manipulating and retrieving data stored in database while creating the application and will also be able to deploy it.

SEC – I – Skill Enhancement Course Elective - I

Elective 1

Paper III

Management Information System (5T3)

UNIT I

Management Information Systems: An Overview - Introduction, Need for Management Information Systems, Management Information Systems: A Concept, MIS: A definition, Management Information System and Information Technology, Nature and Scope of MIS, MIS Characteristics, Structure of MIS, Types of MIS, Role of MIS in Global Business, Challenges of Managing Information Systems. **Information, System and Organization Concepts** - Introduction: A definition, Types of Information, Information Quality, Dimensions of Information, System: A definition, Kinds of Systems, System - related Concepts, Elements of a System, Information System, Organization: A Concept, Impact of Information System on Organization.

UNIT- II

IT Infrastructure and Emerging Technology - Data Resource Management - Introduction, Database Concepts, Files : The Traditional Approach, The Database Management Approach: The Modern Approach, Database Management System, Data Models, Data Warehousing and Data Mining, Application of DBMS using MS- Access. **Telecommunication and Computer Networks** - Introduction, Telecommunications, Types of Signals, Communication Channels, Characteristics of Communication Channels, Communication Hardware, Communication Networks, Computer Networks in India, Internet.

UNIT- III

E-Commerce, e-Business and e-Governance - Introduction, e-Commerce, e- Commerce Sales Life Cycle, e-Commerce Infrastructure, e-Commerce Applications , e-Commerce Challenges and Opportunities, E-Business, e-Governance. **Enterprise Systems** - Introduction, Enterprise Systems, Enterprise Resource Planning (ERP) System, Customer Relationship Management(CRM) System, Supply Chain Management(SCM) System. **Decision Support Systems** - Introduction, Decision- Making :A Concept, Simon's Model of Decision Making ,Types of Decisions, Methods for Decision-Making, Decision Support

Techniques ,Decision Making and Role of MIS, Decision Support Systems (DSSs),Business Intelligence ,Knowledge Management Systems.

UNIT- IV

Information Requirements Analysis & Systems Design - Introduction, Systems Analysis, Requirements Determination, Strategies for Requirements Determination, Structured Analysis Tools, System Design. **Evolution and Maintenance of IS** - Introduction Evaluation Approaches, Evaluation Classes, Product-Based MIS Evaluation, Cost/benefit –Based Evaluation, Models Used in Evaluation, Process- based Evaluation, System Maintenance.

MIS CO

C01: Students will be able to **understand** the concept of MIS and **differentiate** various types of MIS. Students will be able to **evaluate** dimensions of information and its quality.

C02: Students will be able to **differentiate** between traditional and modern database approach. Students will be able to **distinguish** between various types of signals and **examine** computer networks and will be able to use proper one for the businesses.

C03: Students will be able to **understand** E-commerce Sales Life Cycle, ERP, CRM and SCM. Students will be able to **differentiate** between various types of decision and **evaluate** role of decision and MIS.

C04: Students will be able to **understand** concept of System Analysis and system maintenance to be use on an Organisation Students will be able to **interpret** Structured Analysis Tools.

SEC – I – Skill Enhancement Course Elective - II

Paper III

System Analysis & Design (5T3)

UNIT I

System Concept And The Information Systems Environment- Introduction, The Systems Concept, Characteristics Of A System, Elements Of A System, Types Of A System.

The System Development Life Cycle - Introduction, System Development Life Cycle, Considerations for the Candidate System, Prototyping. **The Role Of System Analyst-**

Introduction, Definition, Historical Perspective, The Multifaceted Role Of The Analyst, The Place Of The Analyst In The MIS Organization, Rising Positions In System Development, Conclusions.

UNIT- II

System Analysis- System Planning And The Initial Investigation- Introduction, Bases For Planning In System Analysis, Initial Investigation. **Information Gathering-**

Introduction, What Kinds Of Information Do We Need?, Where Does Information Originate?, Information Gathering Tools. **The Tools Of Structured Analysis-**

Introduction, What Is Structured Analysis?, The Tools Of Structured Analysis. **Feasibility Study-** Introduction, System Performance Definition, Feasibility Study.

UNIT- III

System Design- The Process And Stages Of System Design- Introduction, The Process Of Design, Design Methodologies, Major Development Activities, Audit Consideration.

Input/output And Forms Design- Introduction, Input Design, Output Design, Forms Design. **File Organization And Data Base Design-** Introduction, File Structure, File Organization, Data Base Design, The Role Of The Data Base Administrator.

UNIT- IV

System Implementation- System Testing And Quality Assurance- Introduction, Why System Testing?, What Do We Test For?, The Test Plan, Quality Assurance,

Trends In Testing, Role Of Data Processing Auditor. **Implementation And Software Maintenance-** Introduction, Conversion, Combating Resistance To Change, Post-Implementation Review, Software Maintenance. **Hardware/ Software Selection -**

Introduction, The Computer Industry, The Software Industry, A Procedure For Hardware/ Software Selection, Financial Considerations In Selection, The Used Computer, The Computer Contract.

DSE-1-Discipline Specific Elective (DSE) Course

Elective - I

Paper - IV

Cost and Management Accounting (5T4)

UNIT I: Cost Accounting

Meaning, Scope, Objective, Importance, Features of cost accounting, Function of Cost Accounting, Advantage, Element of cost, Cost-Absorption, Allocation of overheads and Methods of costing, Type of Costing, Difference between cost Accounting and Financial Accounting. Problems on Cost Sheet, Tender and Quotations. (Theory and Numerical)

Unit-II:- Process Cost Accounting

Definition, Features of Process costing, Advantages of Process costing, Limitations of process costing, Wastage and By-products, Normal Loss, Abnormal Loss/Gain, Joint Products, Difference between Process cost and Job cost. Problems on Process costing

Unit-III :- Management Accounting

Meaning, Definitions, Characteristics and Nature of Management Accounting, Objective, Importance, Functions of Management Accounting, Advantage and Limitations of Management Accounting, Difference between management Accounting and Cost Accounting, Difference between Financial Accounting and Management Account. Break-Even Point Analysis (Theory and Numerical)

Unit-IV :- Ratio Analysis

Meaning, Importance, Limitations of Ratio Analysis, Use and Significance of Ratio Analysis, Classification of Ratio, Computation of Profitability Ratio, Financial Ratio with special reference to Current Ratio, Liquid Ratio, Inventory turnover Ratio, Debtors and Creditors turnover Ratio, Fixed Assets turnover Ratio, Debt-Equity Ratio, Working Capital Ratio, earnings per share Ratio, Gross Profit Ratio, Net Profit Ratio, expenses Ratio, Operating Ratio. (Theory and Numerical)

CMA CO

C01: the students will be able to **understand** the concept of cost accounting and management accounting with its objectives importance and limitations and can **analyze** the different dimensions of management accounting and the trends in cost and management accounting.

C02: Given the financial information about different costs the students will be able to **identify** and **recognize** the various costs on the basis of its nature and utility to management and also measure or estimate the cost using different cost estimation methods.

C03: Given the information about the specific job the students can **prepare** a job order cost sheet of service, merchandising as well as manufacturing sectors.

C04: Given the information about the product and the cost flows through process the students will be able to **calculate** unit cost and **prepare** production cost report of a company and given the information on data flow of produce of the company, the students will be able to solve the problems of ABC.

DSE-1-Discipline Specific Elective (DSE) Course

Elective - II

Paper – IV

Corporate Accounting (5T4)

Unit-I :- Company Account- Issue of Share Capital and Capital Structure

Meaning of a company, Characteristics, Kinds of companies, Formation of company, difference between partnership and company, Difference between Private Limited company and Public Limited company, Type of Share, Kinds of Share Capital, Accounting for issue and forfeiture of shares, re-issue of forfeited shares, meaning and need of De-mating of shares. (Theory and Numerical)

Unit-II :- Final Accounts of Companies

Preparation of Final Accounts of Joint Stock companies with reference to Companies Act 2013. (Theory and Numerical)

Unit-III : Amalgamation and Absorption

Meaning and Definitions of Amalgamation and Absorption, Types of Amalgamation, characteristics, Difference between amalgamation and absorption, Purchase Consideration. (Theory and Numerical)

Unit-IV : Valuation of Share

Meaning, Need for valuation of shares, factors influencing valuation of shares, Kinds of value of shares, Methods of valuation of shares. : (Theory and Numerical)

(i) Net Assets Method

(ii) Yield Method

(iii) Fair value method

Semester VI

Paper I

C#.Net (6T1)

UNIT I

Introducing C# - What is C#?, Evaluation of C#, Characteristics of C#, Application of C#, How does C# Differ from C++?, How does C# Differ from Java?. **Understanding.NET: The C# Environment** –The.NET Framework, The Common Language Runtime, Framework Base Class,.NET Languages, Benefits of the .NET Approach, C# and .NET. **Overview of C#** - Introduction, A Simple C# Program, Namespaces, Adding Comments, Using Aliases for Namespaces Classes, Passing String Objects to WriteLine Method, Command Line Argument, Main with Class, Providing Interactive Input, Multiple Main Methods, Compile Time Error. **Literals, Variables and Data Types** –Introduction, Literals, Variables, Data Types, Value Types, Reference Type, Declaration Types, Initialization of Variables, Default Value, Constant Variable, Scope of Variables, Boxing and Unboxing. **Operators and Expressions** – Introduction, Operator Precedence and Associativity, Type Conversion,

UNIT - II

Decision Making and Branching –Introduction, Decision Making with if Statement, Simple if Statement, The if...else Statement, The else if Ladder, The Switch Statement, The ?: Operator, Decision Making and Looping – Introduction, The while Statement, The do Statement, for Statement, The for each Statement. **Methods in C#** - Introduction, Declaring Methods, The Main Method, Invoking Methods, Nesting of Methods, Method Parameters, Pass by Value, Pass by Reference, The Output Parameters, Variables Argument List, Methods Overloading. **Handling Arrays** – Introduction, One-Dimensional Array, Creating an Array, Two-Dimensional Array, Variable-Size Arrays,. **Manipulating Strings** – Introduction, Creating String, String Methods, Inserting String, Comparing String, Finding String, Mutable String Arrays of String,

UNIT - III

Structures and Enumerations –Introduction, Structures, Structs with Methods, Difference between Classes and Structs, Enumerations, Enumerator type Conversion. **Classes and Objects** - Introduction, Basic Principle of OOP, Defining a Class, Adding Variables, Adding Methods, Member Access Modifiers, Creating Objects, Accessing Class

Members, Constructors, Overloaded Constructors, Static Members, Static Constructors, Private Constructors, Copy Constructors, Destructors, Member Initialization, The This Reference, Nesting of Members, Constant Members, Read-only Members, Properties, Indexers. **Inheritance and Polymorphism** – Introduction, Classical Inheritance, Defining a Subclass, Visibility Control, Defining Subclass Constructors, Multilevel Inheritance, Hierarchical Inheritance, Overriding Methods, Abstract method, Sealed Class: Preventing Inheritance, Sealed Methods, Polymorphism.

UNIT - IV

Interface: Multiple Inheritance–Introduction, Defining an Interface, Extending Interface, Implementing Interface, Interface and Inheritance, Explicit Interface Implementation, Abstract Class and Interface. **Operator Overloading** – Introduction, Overloadable Operators, Need for Operator Overloading, Defining Operator Overloading, Overloading Unary Operator, Overloading Binary Operator, Overloading Comparison Operator. **Managing Errors and Exceptions** – Introduction, What is Debugging?, Types of Errors, Exceptions, Syntax of Exception Handling Code, Multiple Catch Statements, The Exception Hierarchy, General Catch Handler, Using Finally Statement, Nested Try Blocks, Throwing Our Own Exceptions, Checked and Unchecked Operators, Using Exceptions for Debugging.

C01: The student will be able to **explore** .Net Frame work to Design, create, build, and debug Applications.

C02: Students will be able to evaluate and make effective usage of control statements, arrays, procedure, functions to develop efficient real time business applications for a given problem.

C03: Student will be able to use object-oriented concepts for development of real life applications.

C04: Student will able to handle the errors and make error free applications for a given problem using C#.

SEC-I- Skill Enhancement Course

Elective I

Paper II

Python (6T2)

UNIT I

Getting Started -Introducing python, Installing python on windows, Installing python on Linux, Meeting the interpreter, Writing your first program, Employing variables, Obtaining user input, Correcting Errors. **Performing operations**-Doing arithmetic, Assigning values, Comparing Values, Assessing logic. , Examining Conditions, Setting precedence, casting data types, Manipulating bits. **Making statements** - Writing lists, Manipulating lists, Restricting lists, associating list elements, Branching with if, Looping while true, Looping over items, Breaking out of loops.

UNIT - II

Defining Functions-Understanding scopes, Supplying arguments, Returning Values, Using callbacks, Adding placeholders, producing generators, Handling exceptions, Debugging assertions. **Importing Modules** - ,Storing functions, Owning function names, Interrogating the system, Performing mathematics, Calculating decimals, Telling the time, Running a timer, Matching patterns.

UNIT - III

Managing strings -Manipulating strings, Formatting strings, Modifying strings, Accessing files, Reading and writing files, Updating file strings, Pickling data **Programming objects**, Encapsulating data, Creating instance objects, Addressing class attributes, Examining built-in attributes, Collecting garbage, Inheriting features, Overriding base methods, Harnessing polymorphism.

UNIT - IV

Processing requests-Sending responses, Handling values, Submitting forms, Providing text areas, Checking boxes, Choosing radio buttons, Selecting options, Uploading files **Building interfaces**-Launching a window, Responding to buttons, Displaying messages, Gathering entries, Listing options, Polling radio buttons, Checking boxes, Adding images

Developing applications- Generating random numbers, Planning the problem, Designing the interface, Assigning static properties, Initializing dynamic properties, Adding runtime functionality, Testing the program, Freezing the program, Deploying the application.

Python CO

C01: Students will be able to install python and will be able to make efficient use of list and control statement to develop the applications for solving real life problems.

C02: Students will be able to handle errors and will be able to use Modules and functions to develop real time business applications for a given problem.

C03: Student will be able to manipulate strings, files and develop real life application to solve the business problems using OOP concept such as encapsulation, inheritance, function overriding and polymorphism.

C04: Student will be able to develop online application using graphical user interface. They will also be able to deploy it on client/customer computer.

SEC – I-Skill Enhancement Course

Elective I

Paper II

Ruby on Rail (6T2)

UNIT I

Introduction - A Tour of Ruby, Try Ruby, A Sudoku Solver in Ruby. **The Structure and Execution of Ruby Programs** - Lexical Structure, Syntactic Structure, File Structure, Program Encoding, Program Execution. **Data types and Objects** - Numbers, Text, Arrays, Hashes, Ranges, Symbols, True, False, and Nil, Objects.

UNIT - II

Expressions and Operators - Literals and Keyword Literals, Variable References, Constant References, Method Invocations, Assignments, Operators. **Statements and Control Structures** -Conditionals, Loops, Iterators and Enumerable Objects, Blocks, Altering Control Flow, Exceptions and Exception Handling, BEGIN and END, Threads, Fibers, and Continuations. **Methods, Procs, Lambdas, and Closures** - Defining Simple Methods, Method Names, Methods and Parentheses, Method Arguments, Procs and Lambdas, Closures, Method Objects, Functional Programming.

UNIT - III

Classes and Modules - Defining a Simple Class, Method Visibility: Public, Protected, Private, Subclassing and Inheritance, Object Creation and Initialization, Modules, Loading and Requiring Modules, Singleton Methods and the Eigenclass, Method Lookup, Constant Lookup. **Reflection and Meta programming** - Types, Classes, and Modules, Evaluating Strings and Blocks, Variables and Constants, Methods, Hooks, Tracing, Object Space and GC, Custom Control Structure, Missing Methods and Missing Constants, Dynamically Creating Methods, Alias Chaining, Domain-Specific Languages.

UNIT - IV

The Ruby Platform – Strings, Regular Expressions, Numbers and Math, Dates and Times, Collections, Files and Directories, Input/Output, Networking, Threads and Concurrency. **The Ruby Environment** - Invoking the Ruby Interpreter, The Top- Level Environment, Practical Extraction and Reporting Shortcuts, Calling the OS, Security.

DSE – I – Discipline Specific Elective (DSE) Course

Elective I

Paper III

Entrepreneurship Development (6T3)

UNIT I

Entrepreneur: Introduction, Evolution of the concept of Entrepreneur, Characteristics of successful Entrepreneurs, The charms of becoming Entrepreneur, The Entrepreneurial decision process, Functions of Entrepreneur, Need of Entrepreneur, Types of Entrepreneurs, Distinction between an Entrepreneur and a Manager, Intrapreneur, social Entrepreneur. **Entrepreneurship:** Concept of Entrepreneurship, Growth of Entrepreneurship in India, Role of Entrepreneurship in economic development. Types of Entrepreneurship, Family Business

UNIT - II

Agri-Preneurship: Introduction, Need for developing Agri-Preneurship in India, Opportunities for developing Agri-Preneurship, Challenges involved in developing Agri-Preneurship. **Factors affecting Entrepreneurship growth:** Factors affecting Entrepreneurship, Government Actions. **Entrepreneurial Motivation:** Meaning of Entrepreneurial Motivation, Motivational Cycle or Process, and Theories of Entrepreneurial Motivation. **Entrepreneurial Competencies:** Meaning of Entrepreneurial Competency, Major Entrepreneurial Competencies, Developing Entrepreneurial Competencies.

UNIT - III

Entrepreneurship Development Programmes (EDPs): Meaning of EDP, Need of EDPs, Objectives of EDPs, Entrepreneurship Development Programmes in India: A Historical Perspective, Course contents and curriculum of EDPs, Phase of EDP, Evaluation of EDPs, and Problems of EDPs. **Micro and small enterprises:** Small enterprise: Meaning & Definition, Essentials, features & Characteristics, Relationship between Micro and Macro enterprises, Rationale behind Micro & small enterprises, Role of Micro enterprise in economic development, Package for promotion of Micro and Small-scale enterprise. **Formulation of Business Plans:** Meaning of business

plan, Contents of business plan, Significance, Formulation of business plan, Network Analysis, Common Errors in business plan formulation.

UNIT - IV

Project Appraisal: Concept of Project Appraisal, Methods of Project Appraisal, and Environmental clearance of SMEs. **Financing of Enterprise:** Meaning and need for financial planning, Source of Finance, Capital Structure, Capitalization, Term Loans, Sources of short-term Finance, Venture Capital, Export Finance. **Forms of business Ownership:** Sole Proprietorship, Partnership, Company, Cooperative, And Selection of an appropriate form of ownership structure, **Institutional Finance of entrepreneurs:** Need for institutional finance, Institutional Finance. **Institutional Support to Entrepreneurs:** Need for institutional support, Institutional Support to small Entrepreneurs.

ED CO

C01: Students will be able to **understand** the concept of Entrepreneurship; and **evaluate** problems faced by women entrepreneurship. They will also be able to **differentiate** between Entrepreneur and Intrapreneur.

C02: Students will be able to **evaluate** the challenges faced by agripreneurs and develop measures for encouraging social entrepreneurs. They will be able to **identify** Factors affecting Entrepreneurship growth and entrepreneurial motivation. They will also be able to **develop** various entrepreneurial competencies

C03: Students will also be able to **formulate** a business plan. They will also be able **define** Small enterprises and list their essential Characteristics. They will be able to **evaluate** relationship between small and large units and identify the specific problems faced by SSI's.

C04: Students will be able to **interpret** the need for institutional support for small entrepreneurs and list the various institutions that support small entrepreneurs. They will also be able to **discuss** the various types of support rendered by institutions to the entrepreneurs and differentiate between various forms of business.

DSE – I – Discipline Specific Elective (DSE) Course

Elective I

Paper III

Company Law and Secretarial Practice

UNIT I

Company and its Nature and Scope - Meaning, Definition and characteristics of company. Historical background of company law in India, Companies Act 2013, landmark provisions of the Act, Classification of companies, Lifting the corporate veil.

Unit - II

Procedure for Incorporation of companies - Role of promoters, Legal Position of Promoter, functions and liabilities of a promoter, Registration and incorporation of a company, Merits and Demerits of Incorporation of company - Memorandum of Association - Meaning, Purpose, Contents, clauses Ultra vires and Doctrine of Ultravires. Articles of Association - Meaning Purpose, Content. Alteration, Doctrine of Constructive Notice. Distinction between the Memorandum and Articles, Doctrine of Indoor management. Meaning - Formalities of issue Prospectus - Misrepresentation of Prospectus - Golden Rule **Amalgamation and winding up** - Merger and Demerger of Company, Amalgamation, Winding up of a Company, Payment of Liabilities in the event of winding up, Role of Official Liquidator, Court and National Company Law Tribunal.

Unit - III

Shares, Debentures and Company Meetings - Shares - Meaning, Types of Shares and Transfer of shares, price of issue of shares. Share Capital, Meaning, Kinds, Alteration, Reduction and Voting Rights, Global Depository receipts, Sweat Equity shares, bonus shares, buyback of shares. Share Certificate. Debenture - Meaning, Types, Charge-Fixed and Floating, Crystallization of Floating charge. **Company Meetings:-** Annual General Meetings, Extraordinary General Meetings, Persons Entitled To Call EGM, Notice,

Unit - IV

Secretary :- Definition, need and importance, Appointment and dismissal, Work, duties, rights and liabilities, Memorandum of association and secretary, Articles of association and secretary, Prospectus and secretary. **Directors Position, Appointment And Removal:** - Definition Of Directors, Position Of Director In A Company, Composition Of Board Of Directors, Methods and Provisions As To Directors Appointment,

Appointment/Reappointment Of Rotational Directors, Director Identification Number, Disqualifications For Director, Vacation Of Office Of Director, Resignation Of Director, Removal Of Directors.