

<b>B. Tech. IT</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>II Year - II Semester</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

### DISCRETE MATHEMATICS

#### Course Objectives:

- Introduces elementary discrete mathematics for computer science and engineering.
- Topics include formal logic notation, methods of proof, induction, sets, relations, algebraic structures, elementary graph theory, permutations and combinations, counting principles; recurrence relations and generating functions.

#### Course Outcomes: The student will learn

- Ability to understand and construct precise mathematical proofs and construct precise mathematical proofs
- Ability to analyze and solve counting problems on finite and discrete structures
- Ability to describe and manipulate sequences
- Describe and manipulate sequences
- Ability to apply graph theory in solving computing problems

#### UNIT - I Mathematical logic:

Introduction, Statements and Notation, Connectives, Normal Forms, Theory of Inference for the Statement Calculus, The Predicate Calculus, Inference Theory of the Predicate Calculus.

#### Unit – II: Set theory

Introduction, Basic Concepts of Set Theory, Representation of Discrete Structures, Relations and Ordering, Functions.

#### Unit – III: Algebraic Structures

Introduction, Algebraic Systems, Semi groups and Monoids, Lattices as Partially Ordered Sets, Boolean Algebra.

#### Unit – IV: Elementary Combinatorics:

Basics of Counting, Combinations and Permutations, Enumeration of Combinations and Permutations, Enumerating Combinations and Permutations with Repetitions, Enumerating Permutation with Constrained Repetitions, Binomial Coefficient, The Binomial and Multinomial Theorems, The Principle of Exclusion.

#### Unit – V: Graph Theory:

Basic Concepts, Isomorphism and Subgraphs, Trees and their Properties, Spanning Trees, Directed Trees, Binary Trees, Planar Graphs, Euler's Formula, Multi-graphs and Euler Circuits, Hamiltonian Graphs, Chromatic Numbers, The Four-Color Problem.

#### Text Books:

1. Discrete Mathematical Structures with Applications to Computer Science: J.P. Tremblay, R. Manohar, McGraw-Hill, 1st ed.
2. Discrete Mathematics for Computer Scientists & Mathematicians: Joe I. Mott, Abraham Kandel, Theodore P. Baker, Prentis Hall of India, 2nd ed.

#### Reference Books:

1. Discrete and Combinatorial Mathematics - an applied introduction: Ralph.P. Grimald, Pearson education, 5th edition.
2. Discrete Mathematical Structures: Thomas Kosy, Tata McGraw Hill publishing co.

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**BUSINESS ECONOMICS AND FINANCIAL ANALYSIS**

**Course Objectives:**

- To learn the basic business types, impact of the economy on Business and Firms specifically.
- To analyze the Business from the Financial Perspective.

**Course Outcomes:**

- The students will understand the various Forms of Business and the impact of economic variables on the Business.
- Understand the elasticity of the demand of the product, different types, and measurement of elasticity of demand and factors influencing on elasticity of demand and supply.
- Recognize the Production function, features of Iso- Quants and IsoCosts, Market Structure, Pricing aspects are learnt.
- The Students can study the firm's financial position by analyzing the Financial Statements of a Company.
- Evaluate different types of financial ratios knowing liquidity, solvency and profitability position of business.

**Unit – I: Introduction to Business and Economics Business:**

Structure of Business Firm, Theory of Firm, Types of Business Entities, Limited Liability Companies, Sources of Capital for a Company, Non-Conventional Sources of Finance.

**Economics:**

Significance of Economics, Micro and Macro Economic Concepts, Concepts and Importance of National Income, Inflation, Money Supply and Inflation, Business Cycle, Features and Phases of Business Cycle. Nature and Scope of Business Economics, Role of Business Economist, Multidisciplinary nature of Business Economics

**UNIT - II:**

**Demand and Supply Analysis Elasticity of Demand:**

Elasticity, Types of Elasticity, Law of Demand, Measurement and Significance of Elasticity of Demand, Factors affecting Elasticity of Demand, Elasticity of Demand in decision making, Demand Forecasting: Characteristics of Good Demand Forecasting, Steps in Demand Forecasting, Methods of Demand Forecasting.

**Supply Analysis:** Determinants of Supply, Supply Function and Law of Supply.

**UNIT - III: Production, Cost, Market Structures & Pricing**

**Production Analysis:** Factors of Production, Production Function, Production Function with one variable input, two variable inputs, Returns to Scale, Different Types of Production Functions.

**Cost analysis:** Types of Costs, Short run and Long run Cost Functions.

**Market Structures:** Nature of Competition, Features of Perfect competition, Monopoly,

Oligopoly, Monopolistic Competition. Pricing: Types of Pricing, Product Life Cycle based Pricing, Break Even Analysis, Cost Volume Profit Analysis.

**UNIT - IV: Financial Accounting:**

Accounting concepts and Conventions, Accounting Equation, Double-Entry system of Accounting, Rules for maintaining Books of Accounts, Journal, Posting to Ledger, Preparation of Trial Balance, Elements of Financial Statements, Preparation of Final Accounts (Simple Problems). (SDN), SDN for IoT, Data Handling and Analytics.

**UNIT - V: Financial Ratios Analysis:**

Concept of Ratio Analysis, Importance and Types of Ratios, Liquidity Ratios, Turnover Ratios, Profitability Ratios, Proprietary Ratios, Solvency, Leverage Ratios – Analysis and Interpretation (simple problem).

**Text Books:**

1. D. D. Chaturvedi, S. L. Gupta, Business Economics - Theory and Applications, International Book House Pvt. Ltd. 2013.
2. Dhanesh K Khatri, Financial Accounting, Tata Mc –Graw Hill, 2011.
3. Geethika Ghosh, Piyali Gosh, Purba Roy Choudhury, Managerial Economics, 2e, Tata Mc Graw Hill Education Pvt. Ltd. 2012

**Reference Books:**

1. Paresh Shah, Financial Accounting for Management 2e, Oxford Press, 2015.
2. S. N. Maheshwari, Sunil K Maheshwari, Sharad K Maheshwari, Financial Accounting, 5e, Vikas Publications, 2013.

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### OPERATING SYSTEMS

#### Course Objectives:

- Introduce operating system concepts (i.e., processes, threads, scheduling, synchronization, deadlocks, memory management, file and I/O subsystems and protection).
- Introduce the issues to be considered in the design and development of operating system.
- Introduce basic Unix commands, system call interface for process management, interprocess communication and I/O in Unix

#### Course Outcomes: The student will learn

- Understand the concepts of OS, the basic principles used in the design of modern operating system and process.
- Understand the concepts of threads and mechanisms for synchronization.
- Understand the concepts related to deadlock and memory management.
- Understand the concepts of virtual memory management.
- Understand the concepts of secondary storage structure, protection and case study of Linux operating system.

#### UNIT - I Operating System

Introduction, Structures - Simple Batch, Multiprogrammed, Time-shared, Personal Computer, Parallel, Distributed Systems, Real-Time Systems, System components, Operating System services, System Calls

**Process** - Process concepts and scheduling, Operations on processes, Cooperating Processes, Threads

#### UNIT - II CPU Scheduling

Scheduling Criteria, Scheduling Algorithms, Multiple -Processor Scheduling. System call interface for process management-fork, exit, wait, waitpid, exec

**Deadlocks** System Model, Deadlocks Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, and Recovery from Deadlock

**UNIT - III Process Management and Synchronization** - The Critical Section Problem, Synchronization Hardware, Semaphores, and Classical Problems of Synchronization, Critical Regions, Monitors

**Interprocess Communication Mechanisms:** IPC between processes on a single computer system, IPC between processes on different systems, using pipes, FIFOs, message queues, shared memory.

**UNIT - IV Memory Management and Virtual Memory** - Logical versus Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation, Segmentation with Paging, Demand Paging, Page Replacement, Page Replacement Algorithms.

**UNIT - V File System Interface and Operations** Access methods, Directory Structure, Protection, File System Structure, Allocation methods, Free-space Management. Usage of open, create, read, write, close, lseek, stat, ioctl system calls.

**Text Books:**

1. Operating System Principles- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley.
2. Advanced programming in the UNIX environment, W.R. Stevens, Pearson education.

**Reference Books:**

1. Operating Systems- Internals and Design Principles, William Stallings, Fifth Edition–2005, Pearson Education/PHI
2. Operating System A Design Approach- Crowley, TMH.
3. Modern Operating Systems, Andrew S. Tanenbaum 2nd edition, Pearson/PHI
4. UNIX programming environment, Kernighan and Pike, PHI/ Pearson Education
5. UNIX Internals -The New Frontiers, U. Vahalia, Pearson Education.

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**DATABASE MANAGEMENT SYSTEMS**

**Course Objectives:**

- To understand the basic concepts and the applications of database systems.
- To master the basics of SQL and construct queries using SQL.
- Topics include data models, database design, relational model, relational algebra, transaction control, concurrency control, storage structures and access techniques.

**Course Outcomes:** The student will learn

- Understand data models to design a database.
- Illustrate the conceptual design for large enterprises.
- Formulate SQL queries and integrity constraints over relations.
- Apply normalization on database for eliminating redundancy.
- Understand transaction properties, concurrency control and recovery techniques and Explain various data storage and security Mechanisms.

**UNIT - I Database System Applications:** A Historical Perspective, File Systems versus a DBMS, the Data Model, Levels of Abstraction in a DBMS, Data Independence, Structure of a DBMS

**Introduction to Database Design:** Database Design and ER Diagrams, Entities, Attributes, and Entity Sets, Relationships and Relationship Sets, Additional Features of the ER Model, Conceptual Design With the ER Model

**UNIT - II Introduction to the Relational Model:**

Integrity constraint over relations, enforcing integrity constraints, querying relational data, logical database design, introduction to views, destroying/altering tables and views. Relational Algebra, Tuple relational Calculus, Domain relational calculus.

**UNIT - III SQL: QUERIES, CONSTRAINTS, TRIGGERS:** form of basic SQL query, UNION, INTERSECT, and EXCEPT, Nested Queries, aggregation operators, NULL values, complex integrity constraints in SQL, triggers and active databases.

**Schema Refinement:** Problems caused by redundancy, decompositions, problems related to decomposition, reasoning about functional dependencies, First, Second, Third normal forms, BCNF, lossless join decomposition, multivalued dependencies, Fourth normal form, Fifth normal form.

**UNIT - IV** Transaction Concept, Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for serializability, Lock Based Protocols, Timestamp Based Protocols, Validation- Based Protocols, Multiple Granularity, Recovery and Atomicity, Log-Based

Recovery, Recovery with Concurrent Transactions.

**UNIT - V** Data on External Storage, File Organization and Indexing, Cluster Indexes, Primary and Secondary Indexes, Index data Structures, Hash Based Indexing, Tree based Indexing, Comparison of File Organizations, Indexes- Intuitions for tree Indexes, Indexed Sequential Access Methods (ISAM), B+ Trees: A Dynamic Index Structure.

**Text Books:**

1. Database System Concepts, Silberschatz, Korth, McGraw hill, V edition.3rd Edition.
2. Database Management Systems, Raghurama Krishnan, Johannes Gehrke, Tata Mc Graw Hill.

**Reference Books:**

1. Database Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
2. Fundamentals of Database Systems, Elmasri Navrate, Pearson Education.
3. Introduction to Database Systems, C. J. Date, Pearson Education.
4. Oracle for Professionals, The X Team, S.Shah and V. Shah, SPD.
5. Database Systems Using Oracle: A Simplified guide to SQL and PL/SQL, Shah, PHI.
6. Fundamentals of Database Management Systems, M. L. Gillenson, Wiley Student Edition.

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### JAVA PROGRAMMING

#### Course Objectives:

- To introduce object-oriented programming principles and apply them in solving problems.
- To introduce the implementation of packages and interfaces.
- To introduce the concepts of exception handling and multithreading
- To introduce the design of Graphical User Interface using swing controls.

#### Course Outcomes:

- Able to solve real world problems using OOP techniques.
- Able to solve problems using java collection framework and I/O classes.
- Able to develop multithreaded applications with synchronization.
- Able to design GUI based applications.
- Develop Server– side implementation using Java technologies

#### UNIT - I

**Foundations of Java:** History of Java, Java Features, Variables, Data Types, Operators, Expressions, Control Statements. Elements of Java - Class, Object, Methods, Constructors and Access Modifiers, Generics, Inner classes, String class and Annotations.

**OOP Principles:** Encapsulation – concept, setter and getter method usage, this keyword. Inheritance - concept, Inheritance Types, super keyword. Polymorphism – concept, Method Overriding usage and Type Casting. Abstraction – concept, abstract keyword and Interface.

#### UNIT – II

**Exception Handling:** Exception and Error, Exception Types, Exception Handler, Exception Handling Clauses – try, catch, finally, throws and the throw statement, Built-in-Exceptions and Custom Exceptions.

**Files and I/O Streams:** The file class, Streams, The Byte Streams, Filtered Byte Streams, The Random Access File class.

#### UNIT – III

**Packages-** Defining a Package, CLASSPATH, Access Specifiers, importing packages. Few Utility Classes - String Tokenizer, BitSet, Date, Calendar, Random, Formatter, Scanner.

**Collections:** Collections overview, Collection Interfaces, Collections Implementation Classes, Sorting in Collections, Comparable and Comparator Interfaces.

**UNIT – IV Multithreading:** Process and Thread, Differences between thread-based multitasking and process based multitasking, Java thread life cycle, creating threads, thread priorities, synchronizing threads, inter thread communication.

**Java Database Connectivity:** Types of Drivers, JDBC architecture, JDBC Classes and Interfaces, Basic steps in Developing JDBC Application, Creating a New Database and Table with JDBC.



## **UNIT - V**

**GUI Programming with Swing-** Introduction, limitations of AWT, MVC architecture, components, containers, Layout Manager Classes, Simple Applications using AWT and Swing.

**Event Handling-** The Delegation event model- Events, Event sources, Event Listeners, Event classes, Handling mouse and keyboard events, Adapter classes

### **Text Books:**

1. Java The complete reference, 9th edition, Herbert Schildt, McGraw Hill Education (India) Pvt. Ltd.
2. Understanding Object-Oriented Programming with Java, updated edition, T. Budd, Pearson Education.

### **Reference Books:**

1. An Introduction to programming and OO design using Java, J. Nino and F.A. Hosch, John Wiley & sons.
2. Introduction to Java programming, Y. Daniel Liang, Pearson Education.
3. Object Oriented Programming through Java, P. Radha Krishna, University Press.
4. Programming in Java, S. Malhotra, S. Chudhary, 2nd edition, Oxford Univ. Press.
5. Java Programming and Object.

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### OPERATING SYSTEMS LAB

#### Course Objectives:

- To provide an understanding of the design aspects of operating system concepts through
- simulation Introduce basic Unix commands, system call interface for process management, inter process communication and I/O in Unix

#### Course Outcomes: The student will learn

- Implement the basic command of OS and will execute the various system calls.
- Implement the process synchronization problem using semaphore.
- Implement CPU scheduling algorithm for process scheduling and deadlock management techniques.
- Implement memory management techniques
- Implement file storage allocation techniques.

#### List of Experiments:

1. Write C programs to simulate the following CPU Scheduling algorithms a) FCFS b) SJF c) Round Robin d) priority
2. Write programs using the I/O system calls of UNIX/LINUX operating system (open, read, write, close, fcntl, seek, stat, opendir, readdir)
3. Write a C program to simulate Bankers Algorithm for Deadlock Avoidance and Prevention.
4. Write a C program to implement the Producer – Consumer problem using semaphores using UNIX/LINUX system calls.
5. Write C programs to illustrate the following IPC mechanisms a) Pipes b) FIFOs c) Message Queues d) Shared Memory
6. Write C programs to simulate the following memory management techniques  
a) Paging b) Segmentation
7. Write C programs to simulate Page replacement policies a) FCFS b) LRU c) Optimal

#### Text Books:

1. Operating System Principles- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley
2. Advanced programming in the Unix environment, W.R.Stevens, Pearson education.

#### Reference Books:

1. Operating Systems – Internals and Design Principles, William Stallings, Fifth Edition–2005, Pearson Education/PHI
2. Operating System - A Design Approach-Crowley, TMH.
3. Modern Operating Systems, Andrew S Tanenbaum, 2nd edition, Pearson/PHI.
4. UNIX Programming Environment, Kernighan and Pike, PHI/Pearson Education.
5. UNIX Internals: The New Frontiers, U. Vahalia, Pearson Education.

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**DATABASE MANAGEMENT SYSTEMS LAB**

**Course Objectives:**

- Introduce ER data model, database design and normalization
- Learn SQL basics for data definition and data manipulation

**Course Outcomes:** The student will learn

- Illustrate the basic DDL commands
- Illustrate DCL and DML commands.
- Demonstrate SQL queries using SQL operators.
- Explain the concept of relational algebra.
- Implement various queries using date and group functions and elaborate nested queries. Construct views, cursor and triggers

**List of Experiments:**

1. Concept design with E-R Model
2. Relational Model
3. Normalization
4. Practicing DDL commands
5. Practicing DML commands
6. A. Querying (using ANY, ALL, UNION, INTERSECT, JOIN, Constraints etc.) B. Nested, Correlated subqueries
7. Queries using Aggregate functions, GROUP BY, HAVING and Creation and dropping of Views.
8. Triggers (Creation of insert trigger, delete trigger, update trigger)
9. Procedures
10. Usage of Cursors

**Text Books:**

1. Database Management Systems, Raghurama Krishnan, Johannes Gehrke, Tata Mc Graw Hill, 3 rd Edition
2. Database System Concepts, Silberschatz, Korth, McGraw Hill, V edition.

**Reference Books:**

1. Database Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
2. Fundamentals of Database Systems, Elmasri Navrate, Pearson Education
3. Introduction to Database Systems, C.J. Date, Pearson Education
4. Oracle for Professionals, The X Team, S. Shah and V. Shah, SPD.
5. Database Systems Using Oracle: A Simplified guide to SQL and PL/SQL, Shah, PHI.
6. Fundamentals of Database Management Systems, M. L. Gillenson, Wiley Student Edition.

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### JAVA PROGRAMMING LAB

#### Course Objectives:

- To understand OOP principles.
- To understand the Exception Handling mechanism.
- To understand Java collection framework.
- To understand multithreaded programming.
- To understand swing controls in Java.

#### Course Outcomes: The student will learn

- Able to write the programs for solving real world problems using Java OOP principles.
- Able to write programs using Exceptional Handling approach.
- Develop Simple Java Programs using inheritance and Exception Handling.
- Able to write GUI programs using swing controls in Java.
- Develop GUI applications using Applet classes, Swing components and Event handling programs.

#### List of Experiments:

1. Use Eclipse or Net bean platform and acquaint yourself with the various menus. Create a test project, add a test class, and run it. See how you can use auto suggestions, auto fill. Try code formatter and code refactoring like renaming variables, methods, and classes. Try debug step by step with a small program of about 10 to 15 lines which contains at least one if else condition and a for loop.
2. Write a Java program to demonstrate the OOP principles. [i.e., Encapsulation, Inheritance, Polymorphism and Abstraction]
3. Write a Java program to handle checked and unchecked exceptions. Also, demonstrate the usage of custom exceptions in real time scenario.
4. Write a Java program on Random Access File class to perform different read and write operations.
5. Write a Java program to demonstrate the working of different collection classes. [Use package structure to store multiple classes].
6. Write a program to synchronize the threads acting on the same object. [Consider the example of any reservations like railway, bus, movie ticket booking, etc.]
7. Write a program to perform CRUD operations on the student table in a database using JDBC.
8. Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -,\*, % operations. Add a text field to display the

result. Handle any possible exceptions like divided by zero.

9. Write a Java program that handles all mouse events and shows the event name at the center of the window when a mouse event is fired. [Use Adapter classes]

**Reference Books:**

1. Java for Programmers, P. J. Deitel and H. M. Deitel, 10th Edition Pearson education.
2. Thinking in Java, Bruce Eckel, Pearson Education.
3. Java Programming, D. S. Malik and P. S. Nair, Cengage Learning.
4. Core Java, Volume 1, 9th edition, Cay S. Horstmann and G Cornell, Pearson

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**NODE JS/ REACT JS/ DJANGO**

**Course Objectives:**

- To implement the static web pages using HTML and do client side validation using JavaScript.
- To design and work with databases using Java
- To develop an end to end application using java full stack.
- To introduce Node JS implementation for server side programming.
- To experiment with single page application development using React.

**Course Outcomes:** The student will learn

- Build a custom website with HTML, CSS, and Bootstrap and little JavaScript.
- Demonstrate Advanced features of JavaScript and learn about JDBC
- Develop Server – side implementation using Java technologies like
- Develop the server – side implementation using Node JS.
- Design a Single Page Application using React.

**Exercises:**

1. Build a responsive web application for shopping cart with registration, login, catalog and cart pages using CSS3 features, flex and grid.
2. Make the above web application responsive web application using Bootstrap framework.
3. Use JavaScript for doing client – side validation of the pages implemented in experiment 1 and experiment 2.
4. Explore the features of ES6 like arrow functions, callbacks, promises, async/await. Implement an application for reading the weather information from openweathermap.org and display the information in the form of a graph on the web page.
5. Develop a java stand alone application that connects with the database (Oracle / mySql) and perform the CRUD operation on the database tables.
6. Create an xml for the bookstore. Validate the same using both DTD and XSD.
7. Design a controller with servlet that provides the interaction with application developed in experiment 1 and the database created in experiment 5.
8. Maintaining the transactional history of any user is very important. Explore the various session tracking mechanism (Cookies, HTTP Session)
9. Create a custom server using http module and explore the other modules of Node JS like OS, path, event.

10. Develop an express web application that can interact with REST API to perform CRUD operations on student data. (Use Postman)
11. For the above application create authorized end points using JWT (JSON Web Token).
12. Create a react application for the student management system having registration, login, contact, about pages and implement routing to navigate through these pages.
13. Create a service in react that fetches the weather information from openweathermap.org and the display the current and historical weather information using graphical representation using chart.js
14. Create a TODO application in react with necessary components and deploy it into github.

**Reference Books:**

1. Jon Duckett, Beginning HTML, XHTML, CSS, and JavaScript, Wrox Publications, 2010
2. Bryan Basham, Kathy Sierra and Bert Bates, Head First Servlets and JSP, O'Reilly Media, 2nd Edition, 2008.
3. Vasam Subramanian, Pro MERN Stack, Full Stack Web App Development with Mongo, Express, React, and Node, 2nd Edition, A Press.

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**CONSTITUTION OF INDIA**  
(COMMON TO CSE,CS(DS),CSE(AIML),IT & ECE)

**Course Objectives:**

- Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
- To address the growth of Indian opinion regarding modern Indian intellectuals' constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism.
- To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.

**Course Outcomes:** The student will learn

- Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
- Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
- Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution
- Discuss the passage of the Hindu Code Bill of 1956.

**Unit - 1** History of Making of the Indian Constitution- History of Drafting Committee.

**Unit - 2** Philosophy of the Indian Constitution- Preamble Salient Features

**Unit - 3**

Contours of Constitutional Rights & Duties - Fundamental Rights

- Right to Equality
- Right to Freedom
- Right against Exploitation
- Right to Freedom of Religion
- Cultural and Educational Right
- Right to Constitutional Remedies
- Directive Principles of State Policy

**Unit - 4** Organs of Governance: Parliament, Composition, Qualifications and Disqualifications, Powers and Functions, Executive, President, Governor, Council of Ministers, Judiciary, Appointment and Transfer of Judges, Qualifications, Powers and Functions



**Unit - 5** Local Administration: District's Administration head: Role and Importance, Municipalities: Introduction, Mayor and role of Elected Representative, CEO of Municipal Corporation. Panchayat raj: Introduction, PRI: Zila Panchayat. Elected officials and their roles, CEO ZilaPanchayat: Position and role. Block level: Organizational Hierarchy (Different departments), Village level: Role of Elected and Appointed officials, Importance of grass root democracy

**Unit - 6** Election Commission: Election Commission: Role and Functioning. Chief Election Commissioner and Election Commissioners. State Election Commission: Role and Functioning. Institute and Bodies for the welfare of SC/ST/OBC and women.

**Reference Books:**

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.