

SHRI G.S. INSTITUTE OF TECHNOLOGY & SCIENCE, INDORE
Department of Information Technology

Subject Nomenclature: SOFTWARE ENGINEERING
Subject Code: IT28503
Year / Semester: B.Tech II/B
Faculty Name: Anjali Rodwal

COURSE OUTCOMES:

After completion of course, students will be able to:

CO1 Explain various process used in SDLC and project management.

CO2 Analyze all fact related to measurement of development of software. Estimate time, cost, efforts, team size, size of software etc.

CO3 Determine appropriate modelling approach for software development.

CO4 Design software as per the requirement of the end users.

CO5 Apply standard software testing principles along with writing manual test cases.

CO6 Describe Software Quality Assurance and its approaches.

PRE-REQUISITES: None.

Lecture No.	Date	Day	Topic	Method
1	10-Jan-25	Thursday	Introduction to Software Engineering, Characteristics & Components	Chalk and Board
2	15-Jan-25	Wednesday	Software Applications & Software Process Models	Chalk and Board
3	16-Jan-25	Thursday	Software Development Life Cycle (SDLC)	Chalk and Board
4	22-Jan-25	Wednesday	Project Management Concepts & Metrics	Chalk and Board
5	23-Jan-25	Thursday	Software Measurements, COCOMO Model	Chalk and Board
6	29-Jan-25	Wednesday	Risk Management, Scheduling Techniques (Gantt, PERT)	Chalk and Board
7	30-Jan-25	Thursday	Introduction to System, Information, and Product Engineering	Chalk and Board
8	05-Feb-25	Wednesday	Requirements Analysis, Principles & Specification	Chalk and Board
9	06-Feb-25	Thursday	Analysis Modelling – Data and Behavioral Modelling	Chalk and Board

Lecture No.	Date	Day	Topic	Method
10	12-Feb-25	Wednesday	Creating ERD and DFD	Chalk and Board
11	13-Feb-25	Thursday	Control Flow Modelling	Chalk and Board
12	19-Feb-25	Wednesday	Data Dictionary and Tools	Chalk and Board
13	20-Feb-25	Thursday	Design Principles and Concepts – Cohesion & Coupling	Chalk and Board
14	26-Feb-25	Wednesday	Functional Independence and Design Documentation	Chalk and Board
15	27-Feb-25	Thursday	Principles of Design Specification	Chalk and Board
16	05-Mar-25	Wednesday	Transform Mapping, Transaction Mapping	Chalk and Board
17	06-Mar-25	Thursday	Software Modelling and UML	Chalk and Board
18	12-Mar-25	Wednesday	Project Planning and Management Tools	Chalk and Board
19	13-Mar-25	Thursday	Software Testing Fundamentals – Objectives and Testability	Chalk and Board
20	19-Mar-25	Wednesday	White Box Testing – Basis Path Testing	Chalk and Board
21	20-Mar-25	Thursday	Black Box Testing & Test Case Design	Chalk and Board
22	26-Mar-25	Wednesday	Software Verification & Validation – Unit, Integration, Regression Testing	Chalk and Board
23	27-Mar-25	Thursday	Alpha, Beta Testing and Testing Documentation	Chalk and Board
24	02-Apr-25	Wednesday	Case Studies & Overview of Testing Tools (QTP, Win Runner, Load Runner, Rational Robot)	Chalk and Board
25	03-Apr-25	Thursday	Software Quality – Concepts & SQA Activities	Chalk and Board
26	09-Apr-25	Wednesday	Formal Approaches to SQA & Software Reliability	Chalk and Board
27	10-Apr-25	Thursday	SCM Process – Configuration Identification, Control, Status Accounting	Chalk and Board

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Subject Name: Discrete Structures

Subject Code: IT28511

Year/Semester: II Year, 4th Semester

Instructor Name: Jasmeet Kaur/Akshay Gupta

Course Outcomes

CO1: Explain various types of sets, relations, functions, and algebraic structures.

CO2: Apply logic theory to determine the validity of arguments.

CO3: Apply Mathematical Induction and counting techniques to solve problems.

CO4: Apply graph theory to solve real-world problems.

CO5: Describe tree concepts, binary search trees, and spanning trees using various algorithms.

CO6: Solve recurrence relations using various techniques.

Prerequisites

Basic Mathematics, Programming Logic, Logical Reasoning

Lecture Plan

S.No	Date	Content Covered	Method
1	06/01/2025	Introduction to sets, finite/infinite sets, uncountable sets, mathematical induction	Board and Chalk
2	08/01/2025	Inclusion/exclusion, multi-sets, relational model, binary relations	Board and Chalk
3	15/01/2025	Equivalence & partial ordering relations,	Board and Chalk

		lattices, job scheduling, pigeonhole principle	
4	16/01/2025	Propositional calculus, conjunction, disjunction, negation	Board and Chalk
5	20/01/2025	Validity, consistency, computability, Russell's paradox, grammars	Board and Chalk
6	22/01/2025	Introduction to graphs, terminology, weighted graphs, multigraphs	Board and Chalk
7	23/01/2025	Paths, circuits, shortest paths, Dijkstra algorithm	Board and Chalk
8	27/01/2025	Warshall's and pruning algorithms	Board and Chalk
9	29/01/2025	Euler's path, Hamiltonian circuits, TSP, planar graphs	Board and Chalk
10	30/01/2025	Introduction to trees, rooted trees, binary search trees	Board and Chalk
11	13/02/2025	Spanning trees, prefix codes, cut-sets	Board and Chalk
12	17/02/2025	Minimal spanning tree, Kruskal's & Prim's algorithm	Board and Chalk
13	19/02/2025	Recurrence relations, recursive algorithms: introduction	Board and Chalk
14	20/02/2025	Linear recurrence with constant coefficients	Board and Chalk
15	24/02/2025	Homogeneous & particular solutions	Board and Chalk
16	27/02/2025	Generating functions method	Board and Chalk
17	03/03/2025	Introduction to groups, rings	Board and Chalk
18	05/03/2025	Integral domains and fields	Board and Chalk
19	06/03/2025	Problem-solving on sets and relations	Board and Chalk
20	10/03/2025	Numerical on logic & propositional calculus	Board and Chalk
21	12/03/2025	Graph-based problem solving	Board and Chalk

22	17/03/2025	Shortest path algorithms - numerical	Board and Chalk
23	19/03/2025	Tree traversal techniques	Board and Chalk
24	20/03/2025	Numerical on spanning trees	Board and Chalk
25	24/03/2025	Constructing recurrence relations	Board and Chalk
26	26/03/2025	Problem solving using recurrence relations	Board and Chalk
27	01/04/2025	Group theory numerical	Board and Chalk
28	03/04/2025	Revision of Units 1 & 2	Board and Chalk
29	04/04/2025	Revision of Units 3 & 4	Board and Chalk
30	04/04/2025	Practice paper discussion	Board and Chalk
31	07/04/2025	Doubt clearing session	Board and Chalk
32	09/04/2025	Quiz on Discrete Structures	Board and Chalk