



Atal Bihari Vajpayee Govt Institute of Engineering & Technology
Pragatinagar, Shimla (H.P.) – 171202

DEPARTMENT OF COMPUTER ENGINEERING

LESSON PLAN

Academic Year	2026-2027
Semester	5 th
Subject Code	COPC303
Subject Title	Software Engineering
Name of Faculty	Sandeep Khimta
Semester Start & End Dates	06.08.2026 to 28.11.2026

Study and Evaluation Scheme

Study and Evaluation Scheme													
Sr. No.	Name of the Subject	Hours/Week			Total Hrs/Week	Credits	Evaluation Scheme						
							Internal		External				Total
		L	P	DCS			Th	Pr	Th	Hrs	Pr	Hrs	
1.	Software Engineering	3	--	1	04	3	40	--	60	03	--	--	100

Course Outcomes:

- CO 1: Understand the basic terminology associated with software engineering.
- CO 2: Explain various software life-cycle processes.
- CO 3: Understand software project management principles and best practices.
- CO 4: Understand the software testing and quality assurance.

Day	Topic of Discussion	Topic Details	Delivery Method
Unit-1: Introduction to Software Engineering			
Day 1	Software	Definition, Characteristics of Software and Types of Software.	Chalk &Talk
Day 2	Software Crisis	Definition, Causes of the Software Crisis and Consequences of the Software Crisis.	Chalk &Talk
Day 3	Attributes of Good Software	Correctness, Reliability, Usability, Efficiency, Maintainability, Portability, Scalability, Security, Reusability and Testability.	Chalk &Talk
Day 4	Program Versus Product	Definition, Key Characteristics and Example of Program & Product; difference between Program and Product.	Chalk &Talk
Day 5	Exploratory Style of Software Development	Definition, Key Characteristics and Shortcomings of Exploratory Style of Software Development.	Chalk &Talk
Day 6	Software Engineering	Definition and Objectives of Software Engineering.	Chalk &Talk
Day 7	Software Development Life Cycle	Definition, Phases SLDC, Common SDLC Models and Objectives of SLDC.	Chalk &Talk
Day 8	Software Process Framework	Definition, Key Objectives and Steps in Software Process Framework five core activities	Chalk &Talk

		namely: Communication, Planning, Modeling, Construction and Deployment.	
Day 9	Software Application Domains	Definition, Key Functions and Examples of System Software, Application Software, Scientific & Engineering Software, Embedded Software and Web Applications.	Chalk &Talk
Unit-2: Software Life Cycle Models			
Day 10	Software Development Life Cycle Model	Definition, Phases in SDLC Models.	Chalk &Talk
Day 11	Classical Waterfall Model	Definition, Phases, Advantages, Disadvantages and Applications of the Waterfall Model.	Chalk &Talk
Day 12	Iterative Waterfall Model	Definition, Phases, Advantages, Disadvantages and Applications of the Iterative Waterfall Model.	Chalk &Talk
Day 13	V-Model	Definition, Phases, Advantages, Disadvantages and Applications of the V-Model.	Chalk &Talk
Day 14	Prototyping Model	Definition, Phases, Advantages, Disadvantages and Applications of the Prototype Model.	Chalk &Talk
Day 15	Incremental Model	Definition, Phases, Advantages, Disadvantages and Applications of the Incremental Model.	Chalk &Talk
Day 16	Evolutionary Model	Definition, Phases, Advantages, Disadvantages and Applications of the Evolutionary Model.	Chalk &Talk
Day 17	Rapid Application Development (RAD)	Definition, Phases, Advantages, Disadvantages and Applications of the RAD Model.	Chalk & Talk
Day 18	Agile Development Models	Definition, Phases, Advantages, Disadvantages and Applications of the Agile Model.	Chalk & Talk
Day 19	Agile Frameworks	Extreme Programming, Scrum and Lean	Chalk &Talk
Day 20	Spiral Model	Definition, Phases, Advantages, Disadvantages and Applications of the Spiral Model.	Chalk &Talk
Unit-3: Software Project Management			
Day 21	Software Project Manager	Skills: Technical Skills, Soft Skills, Project Management Skills; Responsibilities: Project Planning, Team Management, Budget & Resource Management, Risk Management, Communication & Coordination, Quality Assurance, Progress Monitoring.	Chalk & Talk
Day 22	Project Planning	Definition and Key Elements of Project Planning; Sliding Window Planning, SPMP Project Planning;	Chalk & Talk
Day 23	Project Size Estimation	Definition, Project Size Estimation: Lines of Code Based Estimation and Function Point Based Estimation	Chalk & Talk
Day 24	Project Estimation Techniques	Definition, Key Estimation Parameters, Project Estimation Techniques categories: Empirical Estimation Techniques, Heuristic Estimation Techniques and Analytical Estimation Techniques.	Chalk & Talk
Day 25	Project Estimation Techniques	Expert Judgment: Definition, Key Characteristics, Advantages, Disadvantages and Examples.	Chalk & Talk
Day 26	Project Estimation Techniques	COCOMO Model: Definition, Key basic COCOMO equation, COCOMO Project Categories, COCOMO Project Categories, Advantages, Disadvantages and Examples.	Chalk & Talk

Day 27	Project Estimation Techniques	COCOMO2: Definition, Key Characteristics, Advantages, Disadvantages and Examples.	Chalk & Talk
Day 28	Project Scheduling	PERT Chart: Definition, Key Components, Working, Advantages, Disadvantages and Examples.	Chalk & Talk
Day 29	Project Scheduling	Gantt Chart: Definition, to Read & create Gantt Chart, Advantages, Disadvantages and Examples.	Chalk & Talk
Day 30	Staffing and Risk Management	Staffing, Risk Identification, Risk Assessment and Risk Mitigation.	Chalk & Talk
Day 31	Software Configuration Management	Necessity of Software Configuration Management and Configuration Management Activities.	Chalk & Talk
Unit-4: Requirement Analysis and Specifications			
Day 32	Requirements Gathering	Definition, Key Components, Importance and challenges in software Requirements Gathering.	Chalk & Talk
Day 33	Requirement Elicitation Techniques	Interviews, Surveys, Questionnaires, Brainstorming; Requirements Analysis	Chalk & Talk
Day 34	Software Requirements Specification	Definition, Role and Benefits of SRS.	Chalk & Talk
Day 35	Software Requirements Specification	Structure of SRS documents.	Chalk & Talk
Day 36	Software Requirements Specification	Characteristics of Good and Bad SRS documents.	Chalk & Talk
Day 37	Software Requirements Specification	Types of Requirements: Functional Requirements and Non-Functional Requirements.	Chalk & Talk
Day 38	Software Requirements Specification	Types of Requirements: Interface Requirements, Data Requirements and System Requirements.	Chalk & Talk
Day 39	Software Requirements Specification	Best Practices for Writing an SRS and SRS in Different Methodologies.	Chalk & Talk
Day 40	Traceability	Definition, Purpose, Types and Importance.	Chalk & Talk
Unit-5: Software Design			
Day 41	Software Design	Introduction and Overview of the Design Process.	Chalk & Talk
Day 42	Software Design	Outcome of the Design Process.	Chalk & Talk
Day 43	Software Design	Abstraction, Design Pattern, Refactoring.	Chalk & Talk
Day 44	Software Design	Classification of Design Methodologies.	Chalk & Talk
Day 45	Cohesion	Definition and Classification.	Chalk & Talk
Day 46	Coupling	Definition and Classification.	Chalk & Talk
Day 47	Software Design Approaches	Function-oriented and Object-oriented.	Chalk & Talk
Day 48	Software Design	User Interface Design, User Experience.	Chalk & Talk
Unit-6: Coding and Testing			
Day 49	Software Coding	Definition, Coding Standards and Guidelines.	Chalk & Talk
Day 50	Code Review	Definition, Code Walkthrough and Code Inspection.	Chalk & Talk
Day 51	Software Documentation	Definition, Internal and External Documentation.	Chalk & Talk
Day 52	Software Testing	Definition, Testing activities and Testing Stages.	Chalk & Talk
Day 53	Unit Testing	Definition, Characteristics and Advantages.	Chalk & Talk
Day 54	Integration Testing	Definition, Types and Advantages.	Chalk & Talk

Day 55	System Testing	Definition, Types and Advantages.	Chalk & Talk
Day 56	Software testing techniques	Definition, Black Box and White Box Testing.	Chalk & Talk

	Name of Book	Author Name	Publication
Prescribed Books	Fundamentals of Software Engineering	Rajib Mall	PHI
	Software Engineering	Pankaj Jalote	Narosa, Publication
Reference Books	Software Engineering: A Practitioner's Approach	Roger S. Pressman.	McGraw Hill


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