GOVT. POLYTECHNIC, HAMIRPUR (H.P.)
Lesson Planning and Coverage

Branch: Computer Engineering   **Semester:** 5ᵗʰ

Subject: Software Engineering   **Session:** Aug-Dec 2024

Teacher: Indu Bala   **Laboratory:** No

Sr. No.	No of Lectures	Chapter/Unit Description	Detailed contents	Reference Resources	Remarks
1	10	Unit 1 : Introduction to Software Engineering	Software Definition, Software Characteristics, Software Crisis, Attributes of Good Software, Program Versus Product, Exploratory Style of Software Development, Shortcomings, Software Engineering, Software Development Life Cycle, Software Process Framework, Framework Activities - Communication, Planning, Modeling, Construction, and Deployment; Software Application Domains - System Software, Application Software, Scientific/ Engineering Software, Embedded Software, Web Applications.	R1, R2	
2	12	Unit 2 : Software Life Cycle Models	Classical Models - Waterfall Model, Iterative Waterfall Model, V-Model, Prototyping Model, Incremental Model, Evolutionary Model; Rapid Application Development (RAD), Agile Development Models - Extreme Programming, Scrum, Lean; Spiral Model.	R1, R2	
3	12	Unit 3 : Software Project Management	Software Project Manager - Skills and Responsibilities; Project Planning – Sliding Window Planning, SPMP Project Planning; Project Size Estimation - Lines of Code, Function Point, Project Estimation Techniques - Empirical, Heuristic and Analytical Estimation Techniques; Expert Judgment,COCOMO, COCOMO 2, Project Scheduling - PERT and Gantt Charts; Staffing, Risk Management,Software Configuration Management	R1, R2	

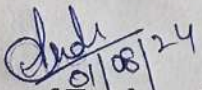|					
4	10	Unit 4 : Requirement Analysis and Specifications	Requirements Gathering, Requirement Elicitation Techniques: Interviews, Surveys, Questionnaires, Brainstorming; Requirements Analysis, Software Requirements Specification (SRS) - Role of SRS, Characteristics of SRS Document, Functional and Non-functional Requirements, Traceability.	R1, R2	
5	10	Unit 5 : Software Design Hours	Overview of the Design Process, Outcome of the Design Process, Abstraction, Design Pattern, Refactoring, Classification of Design Methodologies, Cohesion and Coupling, Software Design Approaches - Function-oriented, Object-oriented; User Interface Design, User Experience.	R1, R2	
6	10	Unit 6 : Coding and Testing	Software Coding, Coding Standards, Code Review - Code Walkthrough, Code Inspection, Software Documentation, Internal and External Documentation, Software Testing : Testing activities, Unit, Integration, System and Acceptance Testing, Black Box and White Box Testing.	R1, R2	

References:

R1:   Fundamental of Software Engineering by Rajib Mall, PHI

R2:   Software Engineering: A Practitioner's Approach, Roger S. Pressman, McGraw Hill.

COURSE OUTCOMES:

After completing this course students will be able to:

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

01/08/24

Signature of Teacher with Date

Signature of HOD