

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

Branch: Computer Engineering

Semester: 4<sup>th</sup>

Subject: Software Engineering

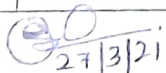
Session: April 2021

Teacher: Chander Shekhar

Laboratory: N/A

| Sr. No. | No of Lectures | Chapter/Unit Description                        | Detailed contents   | Reference Resources | Remarks |
|---------|----------------|---|---|---------------------|---------|
| 1       | 06             | Introduction to Software Engineering            | Software Overview: Definition, Characteristics, Software Evolution, Software Paradigms: Software Development Paradigm, Software Design Paradigm & Programming Paradigm. Software Engineering: Definition, Need of Software Engineering, Emergence of Software Engineering and notable changes in software Development Practices   | R1, R2              |         |
| 2       | 10             | Software Development Life Cycle and Models      | Software Development Life Cycle Activities: Communication, Requirement Gathering, Feasibility Study, System Analysis, Software Design, Coding, Testing, Integration, Implementation and Operation and Maintenance; Software Development Life Cycle Models: Classical Waterfall Model, Prototype Model, Rapid Application Model, Spiral Model, Comparison of Different Life Cycle Models, Selection Criteria of an Appropriate Life Cycle Model for a Project. | R1, R2              |         |
| 3       | 08             | Software Cost Estimation                        | Metrics used for Project Size Estimation, Project Estimation Techniques, Empirical and COCOMO Estimation Techniques.  | R1, R2              |         |
| 4       | 10             | Software Requirement Analysis and Specification | Software Requirements: Goal of the Requirements Analysis and Specification Phase, Types of Requirements - Functional Requirements, Non-Functional Requirements and User Interface Requirements; Requirement Elicitation Process: Requirements Elicitation, Organizing Requirements, Negotiation, Discussion and Documentation; Requirement  | R1, R2              |         |

|   |    |                  |  |        |  |
|---|----|------------------|--|--------|--|
|   |    |                  | Elicitation Techniques:<br>Interviews, Surveys, Questionnaires, Brainstorming, Requirements Analysis, Software Requirements Specification (SRS) Document, User of SRS Document, Characteristics of a Good SRS Document.  |        |  |
| 5 | 08 | Software Design  | Software Design Overview: Goals and Outcome of Software Design Phase, Characteristics of a Good Software Design, Cohesion and Coupling; Software Design Levels: Architectural Design, High-level Design and Detailed Design; Software Analysis and Design Tools (Introduction Only): Data Flow Diagram, Structure Charts. Software Design Strategies: Structured Design, Function Oriented Design, Software Design Approaches: Top Down Design, Bottom up design | R1, R2 |  |
| 6 | 6  | Software Coding  | Software Coding Overview: Goal of Software Coding Phase, Coding Standards and Guidelines. Code Reviews: Code Walkthrough, Code Inspection and Clean Room Testing. Software Documentation: Internal Software Documentation and External Software Documentation  | R1, R2 |  |
| 7 | 8  | Software Testing | Software Testing Overview: Goal of Software Testing Phase, Software Verification versus Software Validation and Testing Activities, Software Testing Approach: Black Box Testing Approach and White Box Testing Approach. Software Testing Techniques: Unit Testing Technique, Integration Testing Technique and System Testing Technique.   | R1, R2 |  |

  
27/3/21

Signature of Teacher with Date



Signature of HOD

References:

R1: Fundamental of Software Engineering by Rajib Mall, PHI

R2: Software Engineering by Pankaj Jlote, Narosa Publication