

**UNIT I****Chapter 1 : Software Development Process 1-1 to 1-47****Syllabus :**

- 1.1 Software, Software Engineering as layered approach and its characteristics. Types of Software
- 1.2 Software Development Framework.
- 1.3 Software Process Framework, Process Models : Perspective Process Models, Specialized Process Models.
- 1.4 Agile software development : Agile Process and its importance, Extreme Programming, Adaptive Software Development, Scrum, Dynamic Systems Development Method (DSDM), Crystal.
- 1.5 Selection criteria for Software process model.

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UNIT II**Chapter 2 : Software Requirement Engineering****2-1 to 2-44****Syllabus :**

- 2.1 Software Engineering Practices and its importance, Core Principles
- 2.2 Communication practices, Planning practices, Modeling practices, construction practices, software deployment (Statement and meaning of each principle for each practice).



2.3 Requirement Engineering : Requirement Gathering and Analysis, Types of requirements (Functional, Product, Organizational, External Requirements), Eliciting Requirements, Developing Use-cases, Building requirement models, Requirement Negotiation, Validation.

2.4 Software Requirement Specification : Need of SRS, Format and its Characteristics.

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UNIT III

Chapter 3 : Software Modelling and Design 3-1 to 3-49

Syllabus :

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| 3.2 | Analysis Modeling : Elements of Analysis model. | |
| 3.3 | Design modeling : Fundamental Design Concepts (Abstraction, Information hiding, Structure, Modularity). | |
| 3.4 | Design notations : Data Flow Diagram (DFD), Structured Flowcharts, Decision Tables. | |
| 3.5 | Testing : Meaning and purpose, testing methods : Black-box and White-box. | |
| 3.6 | Test Documentation : Test Case Template, test plan, Introduction to defect report, test summary report. | |
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UNIT V

Chapter 5 : Software Quality Assurance and Security

5-1 to 5-43

Syllabus :

- 5.1 Project Scheduling: Basic Principles, Work breakdown structure, Activity network and CPM, scheduling Techniques.
- 5.2 Project Tracking: Timeline charts, Earned Value Analysis, Gantt Charts.
- 5.3 Software Quality Management vs. Software Quality Assurance. Phases of Software Quality Assurance: planning, activities, audit and review.
- 5.4 Quality Evaluation Standards: Six sigma, ISO for software, CMMI levels, Process areas.
- 5.5 Software security, Introduction to DevOps, Secure Software Engineering.

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