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.

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.

UNIT III

Syllabus :

3.1 Translating Requirement model into design model : Data Modelling.

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.

UNIT IV

Syllabus :

4.1 The Management spectrum 4P's

4.2 Metrics for Size Estimation : Line of Code (LoC), Function Points (FP).

4.3 Project Cost Estimation Approaches : Overview of Heuristic, Analytical and Empirical Estimation.

4.4 COCOMO (Constructive Cost Model), COCOMO II.

4.5 Risk Management : Risk Identification, Risk Assessment, Risk Containment, RMMM strategy.

UNIT V

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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