UNIT I

Syllabus : Software Modeling : Introduction to Software Modeling, Advantages of modeling, Principles of modeling. **Evolution of Software Modeling and Design Methods :** Object oriented analysis and design methods, Concurrent, Distributed Design Methods and Real-Time Design Methods, Model Driven Architecture (MDA), 4+1 Architecture, Introduction to UML, UML building Blocks, COMET Use Case–Based Software Life Cycle. **Requirement Study :** Requirement Analysis, SRS design, Requirements Modeling. **Use Case :** Actor and Use case identification, Use case relationship (Include, Extend, Use case Generalization, Actor Generalization), Use case template.

UNIT II

Syllabus : Study of classes (analysis level and design level classes). **Methods for identification of classes :** RUP (Rational Unified Process), CRC (Class, Responsibilities and Collaboration), Use of Noun Verb analysis (for identifying entity classes, controller classes and boundary classes).

Class Diagram : Relationship between classes, Generalization/Specialization Hierarchy, Composition and Aggregation Hierarchies, Associations Classes, Constraints.

Object diagram, Package diagram, Component diagram, Composite Structure diagram, Deployment Diagram.

UNIT III

Syllabus : Activity diagram : Different Types of nodes, Control flow, Activity Partition, Exception handler, Interruptible activity region, Input and output parameters, Pins.

Interaction diagram : Sequence diagram, Interaction Overview diagram, State machine diagram, Advanced State Machine diagram, Communication diagram, Timing diagram.

UNIT IV

Syllabus : Introduction to Software Architecture, Importance of Software Architecture, Architectural Structure and Views. **Architectural Pattern :** common module, Common component-and-connector, Common allocation.
Quality Attributes : Architecture and Requirements, Quality Attributes and Considerations

UNIT V

Syllabus : Architecture in the Life Cycle : Architecture in Agile Projects, Architecture and Requirements, Designing an Architecture.

Documenting Software Architecture : Notations, Choosing and Combining views, Building the documentation Package, Documenting Behavior, Documenting Architecture in an Agile Development Project.

UNIT VI

Syllabus : Design Patterns : Introduction, Different approaches to select Design Patterns.
Creational patterns : Singleton, Factory,
Structural pattern : Adapter, Proxy.
Behavioral Patterns : Iterator, Observer Pattern with applications.

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