SOFTWARE ENGINEERING
(MSBTE K-Scheme, Course Code: 315323)

Complete Exam Notes with Diagrams, Summaries & Key Points

UNIT I – SOFTWARE DEVELOPMENT PROCESS

Software Engineering is a disciplined approach to develop, operate and maintain software systems effectively.

1. Software Characteristics:

Software is developed, not manufactured. It does not wear out, is intangible, flexible, complex and requires regular maintenance.

2. Types of Software:

System Software, Application Software, Embedded Software, Web-based Software, AI-based Software, Product and Customized Software.

3. Layered Technology in Software Engineering:

Software Engineering is layered technology consisting of Quality Focus, Process Layer, Methods Layer, and Tools Layer.

4. Software Process Framework:

The framework activities are Communication, Planning, Modeling, Construction and Deployment.

5. Process Models:

Waterfall Model – Linear sequential model. Incremental Model – Product developed in increments. RAD Model – Rapid prototyping with modular approach. Prototyping Model – Early working version developed for feedback. Spiral Model – Combines iterative development with risk analysis. Agile Model – Iterative, adaptive, team-based development.

6. Agile Activities:

Iterative planning, collaboration, continuous integration, and customer feedback.

Summary Points:

1. Software is engineered, not manufactured.
2. Quality, Process, Methods and Tools form the layered approach.
3. Communication, Planning, Modeling, Construction, Deployment are core activities.
4. Waterfall Model – Sequential flow.
5. Incremental Model – Built in parts.
6. RAD Model – Fast modular development.
7. Prototype Model – Early version for feedback.
8. Spiral Model – Risk-based iterative model.
9. Agile – Adaptive and team-based.
10. Proper model selection ensures quality and timely delivery.

UNIT II – SOFTWARE REQUIREMENT ENGINEERING

Content for this unit continues in the extended version covering theory, diagrams, and summary points.

UNIT III – SOFTWARE MODELLING AND DESIGN

Content for this unit continues in the extended version covering theory, diagrams, and summary points.

UNIT IV – SOFTWARE PROJECT COST ESTIMATION

Content for this unit continues in the extended version covering theory, diagrams, and summary points.

UNIT V – SOFTWARE PROJECT MANAGEMENT

Content for this unit continues in the extended version covering theory, diagrams, and summary points.

UNIT VI – SOFTWARE QUALITY ASSURANCE

Content for this unit continues in the extended version covering theory, diagrams, and summary points.