**Software Engineering & Project Management**

**UNIT‐ I** Introduction: Software Characteristics, Software Engineering‐ A Layered Technology, Software Process Framework, Software Process Models, Waterfall Model, Incremental Process Models, Evolutionary Process Models, Specialized Process Models, The Unified Process Model, Agile Process Models.

**UNIT‐ II** Software engineering Principles and Practice :Communication Practices, Planning Practices, Modeling Practices, Construction Practice & Deployment, System Engineering Hierarchy, Business Process Engineering, Product Engineering, System Modeling, Requirements Engineering.

**UNIT‐ III** System Analysis: Structured Analysis, Data modeling,Object‐Oriented Analysis, Scenario‐Based Modeling, Flow‐Oriented Modeling, Class‐based Modeling, Behavioral Model, Design Concepts : Abstraction , Pattern modularity, Information hiding, Design classes, Refactoring.

**UNIT ‐IV** Software Testing:Testing Fundamentals, Black‐Box Testing, White‐Box Testing, Unit Testing, Integration Testing, Validation Testing, System Testing, Debugging.

**UNIT ‐V** Quality Management: Product Metrics, Metrics for Analysis & Design Models, Metrics for Source Code, Metrics for Testing & Maintenance. Quality concepts, Evolution of Quality Management, Quality assurance, Software reviews, Statistical quality assurance.

**UNIT ‐VI** Project management : Introduction to Software Project Management, Project Planning, Project scheduling, Risk management , Change Management, Software reengineering, Restructuring Reverse engineering, Forward Engineering

**Text Books:** 1. Software Engineering‐A Practitioner’s Approach (Sixth Edition)‐Roger Pressman (TMH) 2. Software Engineering (Ninth Edition)‐Ian Summerville (Pearson Education) 3. Software Engineering: Theory and Practice (Fourth Edition – Pfleeger 4. Software Engineering- Mishra /Mohanty (Pearson Education)

**Reference Books:** 1. Software Engineering‐Schaum’s Series (TMH) 2. Software Project Management ‐ Sanjay Mohapatra (Cengage Learning) 3. Quantitive techniques in project management byRettyvellayudam