

Syllabus of Software Engineering

UNIT- I

Introduction to Software Engineering, Software Myths, Software Engineering- A Layered Technology, Software Process Framework, Software Process Models, The Waterfall Model, Incremental Process Models, Evolutionary Process Models, Specialized Process Models, The Unified Process Model, Agile Process Models.

UNIT- II

An overview, Communication Practices, Planning Practices, Modeling Practices, Construction Practice & Deployment, System Engineering Hierarchy, Business Process Engineering, Product Engineering, System Modelling, Requirements Engineering.

UNIT- III

An overview, Requirements Analysis, Analysis Modeling Approaches, Data Modeling, Object-Oriented Analysis, Scenario-Based Modeling, Flow-Oriented Modeling, Class-based Modeling, Behavioral Model. Design Engineering Concepts, Design Model, Pattern-Based Software Design

UNIT- IV

An overview, Unit Testing, Integration Testing, Validation Testing, System Testing, Debugging. Software Testing Fundamentals, Black-Box Testing, White-Box Testing

UNIT- V

An overview, Software Quality, A Framework for Product Metrics, Metrics for Analysis & Design Models, Metrics for Source Code, Metrics for Testing & Maintenance. Project management - the management spectrum, Metrics for process & project - Software measurement, metrics for software quality, metrics for small organization, Project scheduling

UNIT- VI

Risk management - Risk strategies, Software risks, Risk identification, Risk refinement, RMMM Quality Management - Quality Concepts, Software Quality Assurance, Software Reviews, Formal Technical Review, Statistical Software Quality Assurance, Software Reliability, Change Management - Software Configuration Management, SCM Repository, SCM Process, Reengineering - Software reengineering, Reverse engineering, Restructuring, Forward Engineering

Text Books:

1. Roger Pressman; Software Engineering-A Practitioner's Approach ; Sixth Edition, McGraw Hill, 2010.
2. Ian Sommerville; Software Engineering; Seventh Edition; Pearson Education. 2008.

Reference Books:

1. David Gustafsan, Software Engineering ; Schaum's Series, Tata McGraw Hill, 2002

2. Sanjay Mohapatra; Software Project Management, First Edition, Cengage Learning, 2011