

**Course No: MCA-2T4**  
**Software Engineering & Management**

**Unit I**

**Introduction:** Software engineering, Evolving role of software, Concept of software, Changing nature of software, Software Myths, Software Importance, Characteristics, Software Components, Software crises, Software Engineering Challenges (Scale, Quality Productivity, Consistency and Repeatability, Change), Software standard, Software Engineering approach.

**Unit II**

**Software Process Management:** Software process, phase's framework, capability maturity model integration (CMMI), Process patterns, process assessment, personal and team process models (PSP, TSP) process technology, characteristics of software process. Introduction to software process models waterfall, incremental process models, Evolutionary process model. Process Planning, Estimation, COCOMO Model, Project Scheduling and staffing Risk management (concepts, Risk assessment, and Risk control)

**Unit III**

**Introduction to Software Requirement Analysis and Specification:** software requirement, (need for SRS requirement process), problem analysis (informal approach, data flow modeling, object –Oriented modeling, prototyping), requirement specification (characteristics, components), Concept of Use Cases, Concept of validation.

**Unit IV**

**Design Engineering:** Function oriented design, Design principles, Coupling and Cohesion, Design Notations & Specifications, Structured Design Methodology; Object-Oriented Design, OO Concepts, Design Concepts, Design Methodology (Dynamic & Functional Modeling), Design Verification.  
**CASE (Computer Aided Software Engineering):** Concept, scope, CASE Support in Software Life Cycle, Documentation, Project management.

**Suggested Readings:**

1. **ROGER S. PRESSMAN** - Software Engineering - A Practitioner's Approach, Sixth edition,
2. **PankajJalote** - An Integrated approach to Software Engineering, 3rd edition, **Narosa Publication.**
3. **Sommerville** - Software Engineering. **Pearson** , 7/e , 2006.
4. **SCHAUM'S Outlines**, TMH.
5. **JAMES F. PETERS** Software Engineering – An Engineering Approach, Wiley& Sons