

SOFTWARE ENGINEERING

Course Code: 16CS304

Module 1

Introduction to Software Engineering:

FAQ's about software engineering, Professional and ethical responsibility. Socio-Technical systems: Emergent system properties evolving role of software, Changing Nature of Software, Software myths. A Generic view of process: Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

Module 2

Process models: A simple safety- critical system; System dependability; Availability and reliability, the waterfall model, Incremental process models, Evolutionary process models, The Unified process. Comparison of different models with case studies.

Module 3

Software Requirements: Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document. Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System models: Context Models, Behavioural models, Data models, Object models, structured methods.

Module 4

Testing Strategies: Verification and Validation: Planning; Software inspections; Automated static analysis; Verification and formal methods. A strategic approach to software testing, System testing, the art of Debugging; Component testing; Test case design; Test automation - Selenium, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing.

Module 5

Agile Tech, SCC, Case Study using Rational Suite.