

## CSE320:SOFTWARE ENGINEERING

**Course Outcomes:** Through this course students should be able to

CO1 :: Recall various software development life cycle models and write software requirement specifications

CO2 :: Construct software design from requirement specifications by following a structured and organized process

CO3 :: Apply the constructs of unified modelling language for object modelling

CO4 :: Analyze and explain fundamentals of testing, levels of testing and various types of testing techniques

CO5 :: Assess project progress using project management techniques

CO6 :: Examine various software quality standards and the current trends in the area of software engineering

### Unit I

**Introduction to software engineering** : Evolution and impact of software engineering, Software life cycle models, Waterfall model, Prototyping model, Evolution and spiral models, Feasibility study, Functional and non-functional requirements, Requirement gathering, Requirement analysis and specification

### Unit II

**Issues in software design** : Basic issues in software design, Modularity, Cohesion, Coupling and layering, Function oriented software design, Data flow diagram and structure chart

### Unit III

**Object modelling** : User interface design, unified process, Object modelling using UML, use case model development, Coding standards and code review techniques

### Unit IV

**Testing** : Fundamentals of testing, Black box testing techniques, White box testing techniques, Levels of testing, Test cases

**Introduction to selenium** : Feature of selenium, Versions of selenium, Record and play back

### Unit V

**Software project management** : Project management, Project planning and control, Cost estimation, Project scheduling using PERT and GANTT charts, Software configuration management

### Unit VI

**Quality management** : Quality management, ISO and SEI CMMI, PSP and six sigma, Computer aided software engineering, Software maintenance, Software reuse, Component based software development

**Advance techniques of software engineering** : Agile development methodology, Scrum, Aspect oriented programming, Extreme Programming, Adaptive software development, Rapid application development (RAD), Software cloning

### Text Books:

1. FUNDAMENTALS OF SOFTWARE ENGINEERING by RAJIB MALL, PRENTICE HALL

### References:

1. SOFTWARE ENGINEERING by IAN SOMMERVILLE, PEARSON
2. SOFTWARE ENGINEERING:A PRACTITIONER APPROACH by ROGER S.PRESSMAN, MCGRAW HILL EDUCATION
3. SOFTWARE ENGINEERING FUNDAMENTALS by ALI BEHFAROOZ AND FREDERICKS J. HUDSON, OXFORD UNIVERSITY PRESS