

7. List of Topics: 322CPE – Software Engineering

List of Topics for Theory:

- **Introduction to Software Engineering:** Defining Software and Software Engineering, Software Application Domains, Legacy Software, Software Process, Software Engineering practice.
- **Software Process Models:** Different Process Models, Comparison of process models, Agile Development, Agile Process, Agility and Cost of Change, Agile process Models. Object Oriented Modeling concepts using UML.
- **Requirements Engineering:** Brief overview of Principles that guide practice. Requirements – Requirements engineering, Eliciting requirements, Case Study, Developing Requirements using UML
- **Design Concepts:** Design Process, Design concepts, The Design Model, Architectural design, Component level design, UI design, UML Class Diagrams
- **Quality Management:** Quality Concepts, Review Techniques, Software Quality, Achieving Software Quality.
- **Software Testing:** Strategic Approach to Software Testing, Strategies – Unit testing, Integration and System Testing, Validation Testing, Black Box and White Box testing
- **Managing Software Projects:** Process and Project Metrics, Software Measurement –LOC, FFP, Software cost Estimation, COCOMO Model.

List of Topics for Laboratory:

- General study of Unified Modeling Language
- Demonstrate the Rational Rose IDE and usage of Use case diagrams
- Demonstrate the usage of Class diagrams
- Demonstrate the usage of Sequence diagrams
- Demonstrate the usage of State chart diagrams
- Demonstrate the usage of Activity diagrams
- Demonstrate the usage of collaboration diagrams
- Demonstrate the usage of Component diagrams
- Demonstrate the usage of Deployment diagrams
- Case study of Use case diagram and Class diagram for online Mobile recharge system - Tutorial
- Case study of Sequence diagram, Activity Diagram and State Chart diagram for online Mobile recharge system - Tutorial
- Case study of Collaboration diagram, Component diagram and Deployment diagrams for online Mobile recharge system - Tutorial
- COCOMO Model - Tutorial