

1	Course Code	CSE320
2	Course Title	SOFTWARE ENGINEERING
3	Credits	4
4	Contact Hours	3-1-0
5	Course Objective	The objective of this course is to provide fundamental knowledge of software engineering, and make student aware of best software engineering practices, and contemporary software engineering tools.
6	Course Outcomes	After successful completion of this course students should be able to: 1. Illustrate software characteristics. 2. Implement different software development methodologies. 3. Perform requirement gathering in requirement analysis. 4. Conduct all aspects of software development process. 5. Design UML diagrams/DFD/ER diagrams for development of a software.
7	Prerequisite	
8	Course Contents	
8.01	Unit A	INTRODUCTION TO SOFTWARE ENGINEERING AND PROCESS MODELS
8.02	Unit A Topic 1	Significance challenges and Software Myths in software engineering.
8.03	Unit A Topic 2	Software Development Methodologies: Waterfall model, prototyping model, Incremental model, Spiral model.
8.04	Unit A Topic 3	Agility, Agile Process models: Extreme Programming (XP), Adaptive Software Development (ASD), Scrum.
8.05	Unit B	SOFTWARE REQUIREMENT ENGINEERING
8.06	Unit B Topic 1	Requirement Elicitation: Interviews, Brain Storming Sessions, Quality Function Deployment.
8.07	Unit B Topic 2	Functional & Non Functional Requirements, Known Requirements, Unknown Requirements, Undreamt Requirement.
8.08	Unit B Topic 3	Requirement Documentation: Characteristics of SRS, Document SRS according to IEEE standards.
8.09	Unit C	SOFTWARE DESIGN
8.10	Unit C Topic 1	Fundamental concepts of software design: Data Flow Diagrams, Coupling and Cohesion measures and types.
8.11	Unit C Topic 2	Introduction to UML and Designing a UML concept. Introduction to UML Diagrams (Using Rational Rose tool)

8.12	Unit C Topic 3	Implementing UML scenario in programming environment.
8.13	Unit D	SOFTWARE IMPLEMENTATION AND TESTING
8.14	Unit D Topic 1	Fundamental of testing, Some Terminologies: Error, Mistake, Bug, Fault and Failure.
8.15	Unit D Topic 2	Acceptance Testing, Alpha Testing, Beta Testing, Levels of testing: Unit Testing, Integration Testing, System Testing.
8.16	Unit D Topic 3	White Box Testing, Black Box Testing, Verification and Validation, Debugging Process and Approaches
8.17	Unit E	QUALITY MANAGEMENT
8.18	Unit E Topic 1	Quality Concepts: Quality, Quality Control, Cost of Quality, Software Quality Assurance.
8.19	Unit E Topic 2	Software Reliability: Measures of Reliability and Availability, Software Safety, Statistical Software Quality Assurance: Six Sigma For Software Engineering.
8.20	Unit E Topic 3	The ISO 9000 Quality Standards, Capability Maturity Model, The Software Quality Assurance Plan.
10	Reading Content	
9.1	Text book*	1.Pressman R S, Software Engineering: A Practitioners Approach, McGraw Hill.
9.2	other references	1. Datta S, Software Engineering: Concepts and Applications, Oxford University Press, 2010. 2.Sommerville, Ian. “Software Engineering”, Pearson(Latest Ed). 3.Schaum’s Series, “Software Engineering” TMH. 4. Internet as a resource for reference