Course Type	Course Code	Name of Course	L	Т	Р	Credit
DC12	CSC306	Software Engineering	3	0	0	9

Course Objective

Develop methods and procedures that can be used to consistently produce high-quality software at low cost. How to use available resources to develop software, reduce cost of software and how to maintain quality of software. Methods and tools of testing and maintenance of software.

Learning Outcomes

Upon successful completion of this course, students will study and learn the following aspects of software engineering: • Different Life cycle models for different software applications.

- Cost estimation techniques
- Understand the techniques and concepts of software project management.
- Learn UML diagrams.
- Testing a software products
- Quality control mechanism

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Objectives and Scope of SE, Introduction to System, Software Definition, and Characteristics of software.	3	Comprehensive introduction about the course content will be delivered. Difference between software and hardware.
2	Software Development Methodologies	5	This section encompasses all phases of software development that are considered crucial to the success of software projects.
3	Requirement Analysis and Specification	4	This section discuss the methods to analyse the problem and detailing the specifications of the software in form of SRS.
4	Software Project Management.	6	Brief discussion on requirements analysis and specification, software metrics, cost estimation methods, efficient way project scheduling.
5	Software Design: Function oriented design	7	Learn some important facets of software design, the methodology of Structured Analysis/Structured Design (SA/SD) in relation to traditional function-oriented design.
6	Object oriented design: UML Diagram, Use Case Model, Class Diagrams, Interaction Diagram, Activity Diagram, State Chart Diagram.	6	Study object oriented design using UML.
7	Introduction to Software Testing: Fundamentals of Verification and Testing. Review of software development models, Test Metrics, Software Testing Principles, Black Box Testing, White Box Testing, Gray Box Testing	7	Learn coding and unit testing techniques. Integration and system testing techniques are elaborately discussed in this module. Elaborate discussion on different types testing.
8	Software Quality Assurance and Quality control, Quality factors, Quality standards – TQM, ISO, SEI CMM, PCMM, Six sigma.	4	Module is exclusively devoted to software quality assurance aspects, ISO 9000 and software reliability models, as these are considered necessary to expose students to basic quality concepts as part of a software engineering course.

Text Books:

- 1. Rajib Mall, Fundamentals of Software Engineering.
- 2. Pankaj Jalote, An integrated approach to Software Engineering

Reference Books:

- 1. Ian Sommerville, Software Engineering
- 2. Roger S. Pressman, Software Engineering: A Practitioner's App