Course Type	Course Code	Name of the Course	L	T	P	Credits
DE	NMCD545	Software Reliability	3	0	0	3

Course Objective

Software Reliability belongs to the broad area Software Engineering. The objective of the course to impart knowledge to the students about various concepts of Software Reliability, Software Dependability Analysis.

Learning Outcomes

Students can carry out research in the area of Software Reliability, Software Dependability Analysis, Software Aging. Also, interested students can develop their basic knowledge of Software Engineering.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Basic Concepts of Software Engineering. Concept of reliability theory: Hazard model, Series and Parallel configuration,.	7	This unit will help students to understand fundamentals of Software Engineering, Basics of Reliability theory and Markov Modelling.
	Markov Modelling, Redundancy. System Definition: System Configuration & Test Run Selection	7	
2	Definition of: Faults, Failures, Environment, Software Reliability, Software Repair & Software Availability and software performability.	9	This unit will help students to understand the concept of software faults, failures, environment for software system and concept of software reliability, software availability and performability.
3	Software Reliability Modelling and Model Classification, Markovian Models, Calendar Time Models, Parameter Estimation, Structural Modelling.	10	This unit will help students to get idea about software reliability modelling and different types of software reliability models.
4	Concept of Redundancy in Software Reliability & Cost modelling. Introduction to Software Reliability Analysis at early phase of development.	3	This unit will help students to get the concept of software cost analysis, release time modelling, and software reliability as well as software dependability analysis at the early phase of development.
5	Comparison Techniques of Software Reliability Models	6	This unit will help students to get the concept different comparison criteria.
	Total	**42**	

Text Books:

1. John.D. Musa, Anthny Iannino and Kazuhira Okumoto, Software Reliability Measurement, Prediction and Application, McGraw-Hill, 1987.

Reference Books:

1. Martin L. Shooman, Software Engineering Design, Reliability and Management, McGraw-Hill, 1983.
2. Hoang, Pham, System Software Reliability, Springer, 2006.
3. Algirdas Avizienis, Ann T. Tai, and John F. Meyer, Software performability, Kluwer Academic Publications, 1995.