Software Testing Methodologies

Course Code	20CS4701B	Year	IV	Semester	I
Course Category	PEC	Branch	CSE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Software Engineering
Continuous Evaluation :	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Understand the importance and significance of Software Testing.	L2
CO2	Apply the functional testing techniques to design test cases	L3
CO3	Apply Structural Testing techniques and creating test cases from use cases and requirements	L3
CO4	Apply the selection, minimization, Prioritization of test cases for regression Testing.	L3
CO5	Analyse test strategies and data generation techniques	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2													
CO2	2													
CO3	3													
CO4														2
CO5		2							1	1				

Syllabus	Mapped CO
Contents	
UNIT-1 **Introduction:** Testing process, some terminologies**.** **Functional testing:** Boundary value analysis, Equivalence class testing, decision table based testing, cause effect graphing technique.	**CO1,CO2**
UNIT-2 **Structural Testing:** control flow testing, data flow testing, slice based testing, mutation testing.	**CO1,CO3,CO5**
UNIT-3 **Creating test cases from requirements and use cases:** Use case diagram and use cases, generation of test cases from use cases, guidelines for generating validity checks, strategies for generating validity checks, strategies for data validity.	**CO1,CO3, CO5**
UNIT-4 **Selection, Minimization and prioritization of test cases for regression testing:** what is regression testing? , Regression test cases selection, reducing the number of test cases, risk analysis, code coverage prioritization technique.	**CO1,CO4, CO5**
UNIT-5 **Automated Test data generation:** what is Automated Test data generation?, Approaches to Test data generation, Test data generation using genetic algorithm, Test data generation tools.	**CO1,CO5**

Learning Resources
Text Books
1. Software Testing, Yogesh Singh, , First Edition,2013, Cambridge .ISBN978-1-107-01296-1
Reference Books
1. Software Testing: Principles and Practices, Naresh Chauhan, Second edition,2016, Oxford.
2. Software Testing Techniques – SPD(Oreille)
3. Software Testing in the Real World – Edward Kit, Pearson.
4. Effective methods of Software Testing, Perry, John Wiley.
5. Art of Software Testing – Meyers, John Wiley.
e- Resources & other digital material
1. https://nptel.ac.in/courses/106105150