

### Software Testing Methodologies

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

#### Course Outcomes

Upon successful completion of the course, the student will be able to

<b>CO1</b>	Understand the importance and significance of Software Testing.	<b>L2</b>
<b>CO2</b>	Apply the functional testing techniques to design test cases	<b>L3</b>
<b>CO3</b>	Apply Structural Testing techniques and creating test cases from use cases and requirements	<b>L3</b>
<b>CO4</b>	Apply the selection, minimization, Prioritization of test cases for regression Testing.	<b>L3</b>
<b>CO5</b>	Analyse test strategies and data generation techniques	<b>L4</b>

#### Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	√													
<b>CO2</b>	√													
<b>CO3</b>	√													
<b>CO4</b>														√
<b>CO5</b>		√							√	√				

Syllabus		Mapped CO
Contents		
UNIT-1	<b>Introduction:</b> Testing process, some terminologies. <b>Functional testing:</b> Boundary value analysis, Equivalence class testing, decision table based testing, cause effect graphing technique.	CO1,CO2
UNIT-2	<b>Structural Testing:</b> control flow testing, data flow testing, slice based testing, mutation testing.	CO1,CO3,CO5
UNIT-3	<b>Creating test cases from requirements and use cases:</b> 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	<b>Selection, Minimization and prioritization of test cases for regression testing:</b> 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	<b>Automated Test data generation:</b> 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>