PVP SIDDHARTHA INSTITUTE OF TECHNOLOGY

LESSON PLAN

Academic Year : **2025-26**

Year & Semester : **III B. Tech & II Semester**

Branch : **Computer Science & Engineering**

Subject Code & Name : **SOFTWARE TESTING METHODOLOGIES**

Name of Faculty : **Mr. A. Yuva Krishna**

Course Outcomes		
CO1	Understand fundamentals of software testing strategies and principles.	L2
CO2	Apply Transaction Flow, Data Flow software testing strategies to the projects.	L3
CO3	Apply path, transition software testing strategies to the projects	L3
CO4	Analyze and choose suitable modern software testing tools for a given project	L4

Unit No.	**Topic of Syllabus to be covered**	**Learning Outcomes**	**Teaching Mode (BB/LCD/ OHP)**	**Hours Required**		**Total no. of Hours (Cumulative)**	**Expected date of completion (for each unit) By HOD**	**Review/ Remarks (By HOD)**
				L	**T**			
1	Introduction to Testing	Know the importance of testing (CO1-L2)	BB/LCD	1		1		
1	Purpose of testing	Understand Evolution , approaches and barriers of testing. (CO1-L2)	BB/LCD	1		2		

1	Testing Vs Debugging, Function Vs Structure, Designer Vs Tester	Understand and analyze the Differentiations (CO4-L4)	BB/LCD	1		3		
1	Modularity Vs Efficiency, Small Vs Large	Understand and analyze the Differentiations(CO4-L4)	BB/LCD	1		4		
1	Model for Testing	Understand the model of testing (CO1-L2)	BB/LCD	1		5		
1	Consequences of Bugs	Understand and analyze the consequences of bugs(CO4-L4)	BB/LCD	1		6		
1	Requirements, features and functionality bugs	Understand requirement ,features and functionality bugs(CO1-L2)	BB/LCD	1		7		
1	Structural bugs, data bugs	Understand the structural ,data bugs(CO1-L2)	BB/LCD	1		8		
1	Coding bugs, integration and system bugs	Understand the coding, integration bugs(CO1-L2)	BB/LCD	1		9		
1	Test and test design bugs	Understand the test design bugs(CO1-L2)	BB/LCD	1		10		
1	Path testing basics	Understand the importance of path testing basics(CO1-L2)	BB/LCD	1		11		
1	Control flow graphs	Draw the control flow graphs(CO1-L2)	BB/LCD	1		12		
1	Path testing	Able to select the paths for testing(CO1-L2)	BB/LCD	1		13		
1	Loops	Able to identity test cases for loops(CO1-L2)	BB/LCD	1		14		
1	Testing multi entry /multi exit routines	Understand the testing of multi entry/exit routines(CO1-L2)	BB/LCD	1		15		
1	Effectiveness of path testing	Understand and analyze the effectiveness of path testing(CO4-L4)	BB/LCD	1		16		

1	Predicates, predicate expressions, predicate coverage	Understand predicates, predicate expressions, predicate coverage(CO1-L2)	BB/LCD	1		17		
1	Testing blindness, Path sensitization	Able to Differentiate blindness, solve the path expressions(CO4-L2)	BB/LCD	1		18		
1	Path instrumentation	Understand different instrumentation techniques(CO1-L2)	BB/LCD	1		19		
1	Implementation and application of path testing	Understand the application of path testing(CO1-L2)	BB/LCD	1		20		
2	Transaction flows	Understand and differentiate types of transactions(CO4-L4)	BB/LCD	1		21		
2	Transaction flow testing techniques	Able to apply about Transaction flow testing techniques(CO2-L3)	BB/LCD	1		22		
2	Transaction based systems & hidden languages	Understand Important elements in transaction testing(CO2-L2)	BB/LCD	1		23		
2	Data flow testing basics	Know about data flow testing(CO1-L2)	BB/LCD	1		24		
2	Data flow graphs	Understand the elements in data flow graph(CO2-L2)	BB/LCD	1		25		
2	The data flow model	Understand the data flow model(CO2-L2)	BB/LCD	1		26		
2	Data flow testing strategies	Apply various data flow testing strategies(CO2-L3)	BB/LCD	1		27		
3	Domains and paths	Understand the domain closure &dimensionality(CO1-L2)	BB/LCD	1		28		
3	Nice domains and ugly domains	Able to know about Qualities of domains(CO1-L2)	BB/LCD	1		29		

3	Domain testing	Understand domain testing(CO1-L2)	BB/LCD	1		30		
3	Domains and interface testing	Understand the compatibilities and its testing(CO1-L2)	BB/LCD	1		31		
3	Domains and testability	Apply the techniques of testing(CO2-L3)	BB/LCD	1		32		
4	Path products and path expressions	Able to Calculate Path products(CO1-L2)	BB/LCD	1		33		
4	Reduction procedure	Able to reduce flow graphs (CO1-L2)	BB/LCD	1		34		
4	Paths in flow graph &approximating minimum number of paths	Able to approximate number of paths(CO1-L2)	BB/LCD	1		35		
4	Probability of getting in the routine	Understand the probability of getting in the routine(CO1-L2)	BB/LCD	1		36		
4	The mean processing time of a routine	Able to calculate and analyze the importance of mean processing time of a routine(CO4-L4)	BB/LCD	1		37		
4	Push/ pop, get/return	Able to design test cases(CO4-L4)	BB/LCD	1		38		
4	Regular expressions and flow anomaly detection	Able to represent the operations as regular expressions, identify and analyze flow anomalies (CO4-L4)	BB/LCD	1		39		
5	State graphs	Able to describe the software behavior (CO1-L2)	BB/LCD	1		40		
5	Good state graphs and bad: state bugs	Understand and analyze the state bugs (CO4-L4)	BB/LCD	2		41		

5	Transition bugs Output errors and encoding bugs	Understand the transition bugs and able to identify transition bugs.(CO3-L2)	BB/LCD	1		42		
5	Output errors and encoding bugs	Understand Encoding Bugs able to identify output errors. (CO3-L2)	BB/LCD	1		43		
5	State testing	Able to apply the state testing(CO3-L3)	BB/LCD	1		44		
5	Testability tips	Understand and analyze the methods for state testing able to utilize the testability tips bugs (CO4-L4)	**Industry Institute Interaction**	2		45		
5	Building tools	Understand and analyze the various building tools(CO4-L4)	**Industry Institute Interaction**	1		46		

Legend: Teaching Mode
BB: Black Board/ LCD: Power Point Presentation/ OHP: Over Head Projector/Flip/GD: Group Discussion

Signature of the Faculty member **Signature of the HOD**