SWARNANDHRA
COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

SEETHARAMPURAM, NARSAPUR-534280, WG- DT, AP

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TEACHING PLAN

Course Code	Course Title	Year/Sem	Branch	Contact Hrs/Week	Academic Year	Commencement of Class work
20MC4TE4	Software Testing Methodologies	II/IV	MCA	6	2024-2025	06.01.2025

COURSE OUTCOMES (CO): Students are able to

1. Identify and understand various software testing problems, apply software testing knowledge and engineering methods and solve these problems by designing and selecting software test models, criteria, strategies, and methods. [K4]
2. Design and conduct a software test process for a software project. [K3]
3. Analyze the needs of software test automation. [K3]
4. Use various communication methods and skills to communicate with their teammates to conduct their practice-oriented software testing projects. [K2]
5. Write test cases for given software to test it before delivery to the customer and write test scripts for both desktop and web-based applications. [K4]

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	CO1: Identify and understand various software testing problems, apply software testing		**Unit - I**			
		1.1	**Software Testing**: Introduction	T1	1	Chalk & Board, PPT
		1.2	Evolution	T1	1	
		1.3	Myths and Facts	T1	1	
		1.4	Goals	T1	1	
		1.5	Psychology	T1	1	
		1.6	Definition	T1	1	
		1.7	Model for Testing	T1	1	
		1.8	Effective Vs Exhaustive Software Testing	T1	1	
		1.9	**Software Testing Terminology**	T1	1	

	[K4]		**and Methodology:** Software Testing Terminology			
		1.10	Software Testing Life Cycle	T1	1	
		1.11	Software Testing Methodology	T1	1	
		1.12	**Verification & Validation:** Verification & Validation activities	T1	1	
		1.13	Verification	T1	1	
		1.14	Verification of Requirements	T1	1	
		1.15	High level & Low-level designs	T1	1	
		1.16	Verifying code	T1	1	
		1.17	Validation	T1	1	
				Total	**17**	
			Unit - II			
II	CO2: Design and conduct a software test process for a software project [K3]	2.1	**Dynamic Testing-Black Box testing techniques:** Boundary Value Analysis	T1	1	Chalk Board & Talk, PPT, Demonstration
		2.2	Equivalence Class Testing	T1	1	
		2.3	State Table Based Testing	T1	1	
		2.4	Decision Table Based Testing	T1	1	
		2.5	Cause-Effect Graphing based Testing	T1	1	
		2.6	Error Guessing	T1	1	
		2.7	**White-Box testing:** Need	T1	1	
		2.8	Logic Coverage Criteria	T1	1	
		2.9	Basis Path Testing	T1	1	
		2.10	Graph Matrices	T1	1	
		2.11	Loop Testing	T1	1	
		2.12	Data Flow Testing	T1	1	
		2.13	Mutation Testing	T1	1	
				Total	**13**	
			Unit - III			
III	CO3: Analyze the needs of software test automation [K3]	3.1	**Static Testing**: Inspections	T1	1	Chalk & Board, Talk, PPT, Demonstration
		3.2	Structured Walkthroughs	T1	1	
		3.3	Technical Reviews	T1	1	
		3.4	**Validation activities**: Unit Testing	T1	1	
		3.5	Integration Testing	T1	1	
		3.6	Function Testing	T1	1	
		3.7	System Testing	T1	1	
		3.8	Acceptance Testing			
			Mid I Exam			
		3.9	**Regression testing**: Progressives Vs. Regression testing	T1	1	
		3.10	Regression Testability	T1	1	
		3.11	Objectives of Regression Testing	T1	1	

	e with their teammates to conduct their practice-oriented software testing projects [K2]		types			
		4.6	Regression Testing Techniques	T1	1	
		4.7	**Efficient Test Suite Management:** Test case design	T1	1	
		4.8	Test Case Suit	T1	1	
		4.9	Minimizing the test suite and its benefits	T1	1	
		4.10	Test Suite Prioritization	T1	1	
		4.11	Types of Test case Prioritization	T1	1	
		4.12	Prioritization Techniques	T1	1	
		4.13	Measuring effectiveness test Suite	T1	1	
		4.15	Software Quality Management: Metrics	T1	1	
		4.16	Debugging Process and Techniques	T1	1	
		4.17	Correcting Bugs	T1	1	
		4.18	Basics of testing management tools	T1	1	
		4.19	Test Link and Jira	T1	1	
				Total	**19**	
			Unit - V			
V	CO5: Write test cases for given software to test it before delivery to the customer and write test scripts for both desktop and web based applications [K4]	5.1	**Automation and Testing Tools:** need for automation	T1	1	Chalk & Board, Talk, PPT, Tutorial
		5.2	Categorization of testing tools	T1	1	
		5.3	Selection of testing tools	T1	1	
		5.4	Cost incurred in testing tools	T1	1	
		5.5	Guidelines for automation testing.	T1	1	
		5.6	Overview of Testing Tools	T1	1	
		5.7	Basics of Object Oriented Testing	T1	1	
		5.8	Object Oriented Testing	T1	1	
		5.9	Testing Web based systems: Challenges	T1	1	
		5.10	Quality aspects	T1	1	
		5.11	Web Engineering	T1	1	
		5.12	Testing of Web based systems	T1	1	

		5.13	Testing Mobile Systems	T1	1	
Course Beyond Syllabus		**Requirements Traceability Matrix – RTM & Project Management Softwares like Wrike, Swift Enterprise, Jira**		**Web Resources**	1	
				Classes	**13**	
MID EXAM 2						
				TOTAL CLASSES	**70**	

Text Books:

S. No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
T1	Naresh Chauhan, Software Testing, Principles and Practices, Oxford, 2016
T2	Aditya P Mathur, Foundations of Software testing, 2ed. Pearson, 2013

Reference Books:

S. No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
R1	Baris Beizer, Software Testing Techniques, International Thomson Computer press, second edition, 2002
R2	M G Limaye, Software Testing Principles, Techniques and Tools, TMH, 2005
R3	William E Perry, Effective Methods for Software Testing, 3rd Wiley, 2006

Web Resources

1	https://www.tutorialspoint.com/software_testing_dictionary/test_tools.html

Faculty **Head of the Department** **Principal**