INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad -500 043

INFORMATION TECHNOLOGY

COURSE DESCRIPTOR

Course Title	SOFTWARE TESTING METHODOLOGY LABORATORY								
Course Code	AIT104	AIT104							
Programme	B. Tech	B. Tech							
Semester	VII C	VII CSE IT							
Course Type	Core								
Regulation	IARE - R16								
		Theory	Practical						
Course Structure	Lectures	Tutorials	Credits	Laboratory	Credits				
	-	-	-	3	2				
Chief Coordinator	Ms. M G	eetavani B, Assista	nt Professor						
Course Faculty	Mr. E Sunil Reddy, Assistant Professor								

I. COURSE OVERVIEW:

The software testing is a process of executing a program or application with the intent of finding the bugs. This course will help students learn catch bugs and break software as you discover different testing methods that will help build better software. It will teach and make students think like a software tester and help in finding bugs in code earlier and write better code. The course demonstrates an in-depth understanding of the tools and technologies for software testing and do better programming and test the programs efficiently

II. COURSE PRE-REQUISITES:

Level	Course Code	Semester	Prerequisites	Credits
UG	ACS008	V	Software Engineering	4

III. MARKS DISTRIBUTION:

Subject	SEE Examination	CIA Examination	Total Marks		
Software Testing Methodology	70 Marks	30 Marks	100		

IV. DELIVERY / INSTRUCTIONAL METHODOLOGIES:

~	Chalk & Talk	×	Quiz	~	Assignments	×	MOOCs		
٢	LCD / PPT	×	Seminars	×	Mini Project	7	Videos		
٢	Open Ended Experiments								

V. **EVALUATION METHODOLOGY:**

Each laboratory will be evaluated for a total of 100 marks consisting of 30 marks for internal assessment and 70 marks for semester end lab examination. Out of 30 marks of internal assessment, continuous lab assessment will be done for 20 marks for the day to day performance and 10 marks for the final internal lab assessment.

Semester End Examination (SEE): The semester end lab examination for 70 marks shall be conducted by two examiners, one of them being Internal Examiner and the other being External Examiner, both nominated by the Principal from the panel of experts recommended by Chairman, BOS.

20 %	To test the preparedness for the experiment.
20 %	To test the performance in the laboratory.
20 %	To test the calculations and graphs related to the concern experiment.
20 %	To test the results and the error analysis of the experiment.
20 %	To test the subject knowledge through viva – voce.

The emphasis on the experiments is broadly based on the following criteria:

Continuous Internal Assessment (CIA):

CIA is conducted for a total of 30 marks (Table 1), with 20 marks for continuous lab assessment during day to day performance, 10 marks for final internal lab assessment.

Table 1. Assessment pattern for CIA								
Component		Laboratory						
Type of Assessment	Day to day	Day to day Final internal						
	performance	lab						
		assessment						
CIA Marks	20	10	30					

Table 1. Assessment pattern for CIA

Continuous Internal Examination (CIE):

One CIE exams shall be conducted at the end of the 16th week of the semester. The CIE exam is conducted for 10 marks of 3 hours duration.

Preparation	Performance	Calculations and Graph	Results and Error Analysis	Viva	Total
2	2	2	2	2	10

VI. HOW PROGRAM OUTCOMES AREASSESSED:

	Program Outcomes (POs)	Strength	Proficiency assessed by
PO 1	Engineering knowledge : Apply the knowledge of mathematics science angineering fundamentals and	3	Videos
	an angineering specialization to the solution of		
	complex engineering problems		
PO 2	Problem analysis: Identify, formulate, review	2	Case Studies
102	research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and	_	
DO 2	engineering sciences.	2	
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	2	Assignments
PO 4	Conduct investigations of complex problems : Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	2	Case Studies
PO 5	Modern tool usage : Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	3	Videos

3 = High; **2** = Medium; **1** = Low

VII. HOW PROGRAM SPECIFIC OUTCOMES AREASSESSED:

	Program Specific Outcomes (PSOs)	Strength	Proficiency assessed
		and a gr	by
PSO 1	Professional Skills: The ability to understand, analyze and	2	Videos
	develop computer programs in the areas related to		
	algorithms, system software, multimedia, web design, big		
	data analytics, and networking for efficient design of		
	computer-based systems of varying complexity.		
PSO 2	Software Engineering Practices: The ability to apply standard practices and strategies in software service management using open-ended programming environments with agility to deliver a quality service for business success.	1	Case Studies
PSO 3	Successful Career and Entrepreneurship: The ability to	1	Case Studies
	employ modern computer languages, environments, and		
	platforms in creating innovative career paths to be an		
	Entrepreneur and a zest for higher studies.		
	3 = High; 2 = Medium; 1 = Low		

VIII. COURSE OBJECTIVES(COs):

The co	The course should enable the students to:							
Ι	Learn the importance of web testing tool and bug tracking tool.							
Π	Develop test case and test plan document for banking application.							
III	Learn to write system specifications of any application and report various bugs in it.							
IV	Use automated functional testing tool like Quick Test Professional.							

IX. COURSE LEARNING OUTCOMES(CLOs):

CLO	CLO's	At the end of the course, the	PO's	Strength
Cada	CLO 3	atudent will have the ability to	Monnod	of
Coue		student will have the admity to:	Mappeu	01 Monning
A 17710401			DO 1	Mapping
AI1104.01	CLO I	to the case tools problems.	POT	3
AIT104.02	CLO 2	Analyze online system and study its system specifications and report the various bugs.	PO 1, PO 4	3
AIT104.03	CLO 3	Write down the test cases for any online system	PO 1, PO 2	3
AIT104.04	CLO 4	Design a test plan for library management system using testing tools.	PO 1, PO 2	3
AIT104.05	CLO 5	Understand the benefits of win runner	PO 2, PO 3	3
AIT104.06	CLO 6	Execute how to do performance testing using testing tools including selenium.	PO 1, PO 5	3
AIT104.07	CLO 7	Demonstrate the Bug Tracking Tool for Testing	PO 2, PO 5	3
AIT0104.08	CLO 8	Simulate test cases for a software project using different testing and tracking tools	PO 2	2
AIT104.09	CLO 9	Analyze different testing tools like test director and test link for web testing and bug tracking.	PO 1, PO 3	3
AIT104.10	CLO 10	Demonstrate the Bug Tracking Tool for Testing	PO 1	3
AIT104.11	CLO 11	Study of QTP (Quick Test Professional) automated functional testing tool	PO 1, PO 2	3
AIT104.12	CLO 12	Analyze and design test cases for Matrix problem.	PO 3, PO 5	2

3 = High; **2** = Medium; **1** = Low

X. MAPPING COURSE LEARNING OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES AND PROGRAM SPECIFICOUTCOMES:

Course Learning	Program Outcomes (POs)										Program Specific Outcomes (PSOs)				
Outcomes (CLOs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO 1	3												3		1
CLO 2	3			2									1		1
CLO 3	3	3												1	
CLO 4	3	2											2		
CLO 5		2	3												1
CLO 6	3				3										
CLO 7		2											2		
CLO 8		2													
CLO 9	3		3										2	1	
CLO 10	3												2		
CLO 11	3	2											2		
CLO 12			2		3								2		

3 = High; **2** = Medium; **1** = Low

XI. ASSESSMENT METHODOLOGIES -DIRECT

CIE Exams	PO 1, PO2	SEE	PO 1, PO2	Assignments	PO 1,	Seminars	PSO1
	PO 3,	Exams	PO 3,	-	PO2		
	PO4,PSO1		PO4,PSO2				
Laboratory	PO 1, PO2	Student	PO 1, PO2	Mini Project	-	Certification	-
Practices	PO 4,	Viva	PO 3, PO4				
	PSO2,PSO3						

XII. ASSESSMENT METHODOLOGIES -INDIRECT

~	Early Semester Feedback	~	End Semester OBE Feedback
×	Assessment of Mini Projects by Experts		

XIII. SYLLABUS

LIST OF EXPERIMENTS				
Week-1	CONSTRUCTS			
Write programs in C language to demonstrate the working of the following constructs:				
a) while b) switch c) for d) if-else e) do-while				
Week -2	SYSTEM SPECIFICATIONS			

- 2012.
- 2. P. C. Jorgensen, —Software Testing^{||}, Auerbach Publications, 3rd Edition, 2000.

XIV. COURSEPLAN:

Week	Topics to be covered	Course Learning Outcomes	Reference
No.		(CLOs)	
1	Write programs in C language to	CLO 1, CLO 2	T1:1.4
	demonstrate the working of the following		R1:1.2
	constructs:		
	a) while b) switch c) for d) if-else e) do-		
2	a. Study the system specifications of ATM	CLO 1. CLO 2	T1:1.5
	system and report various bugs in it.	,	R1·2.4
	b. Study the system specifications of		R1.2.1
	banking application and report various bugs		
2			TT1 0 5
3	a. Write the test cases for ATM system.	CLO 1, CLO 2, CLO 3,	11:2.5
	application.	CLO 4	R1:2.5
4	Create a test plan document for any	CLO 1, CLO 2, CLO 3,	T1:2.5
	Application (e.g. Library management	CLO 4	R1:2.6
	system).		
5	Study of any testing tool (e.g. Win runner).	CLO 3, CLO 4, CLO 5	T1:22.7
6	Study of web testing tool (a.g. Solonium)	CLO 3, CLO 4, CLO 5,	T1:6.3
0	Study of web testing tool (e.g. Selenium).	CLO 6	R1:5.3
7		CLO 3, CLO 4, CLO 5,	T1:7.5
/	Study of bug tracking tool (e.g. Bugzilla).	CLO 6,CLO 7	R1:6.3
0	Study of hus tracking tool (a.g. Dushit)	CLO 1, CLO 2, CLO 8	T1:8.5
0	Study of bug tracking tool (e.g. Bugolt).		R1:6.8
9	Study of any test management tool (e.g. Test	CLO 1, CLO 3, CLO 6,	T1:12.2
	director).	CLO 9	R1:13.1
10	Study of any Open Source Testing Tool (e.g.	CLO 8, CLO 9, CLO 10	T1:12.3
	Test Link).		R1:13.2
11	Study of QTP (Quick Test Professional)	CLO 8, CLO 9, CLO 11	T1:12.10
	automated functional testing tool.		R1:13.7
12	A program written in C language for matrix	CLO 8, CLO 9, CLO 12	T1:11.2
	multiplication fails, introspect the causes for		R1:10.2
	its failure and write down the possible		
1	reasons for its failure.		

The course plan is meant as a guideline. Probably there may be changes.

XV. GAPS IN THE SYLLABUS - TO MEET INDUSTRY / PROFESSIONREQUIREMENTS:

S No	Description	Proposed actions	Relevance with POs	Relevance with PSOs
1	Node reduction algorithm, building tools	Seminars	PO 1, PO 4	PSO 1