

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

Information Science and Engineering (IS)

Course Name : SOFTWARE TESTING (15IS63)

Class : Semester 6 A

**Mr Sudarshana K,
Assistant Professor,
2017-18**



1 . Faculty Details

Name	:	Mr Sudarshana K
Qualification	:	BE, M.Tech
Department	:	IS
Permanent Address	:	3/16 Bhujanga Nagara, Sandur, 583119, India
Phone Number	:	9986223053
Email ID	:	sk5353@aiet.org.in
Specimen Signature	:	_____



2 . Course Allotted

Allotted Duty	Course Title	Course Code
Theory 1	SOFTWARE TESTING	15IS63

**3 . Academic calendar 2017-18 (Semester 6)**

Date	Day	Event
4 Feb 2018	SUNDAY	Term End Date
8 Feb 2018	THURSDAY	Project Evaluation – Phase-II
9 Feb 2018	FRIDAY	Project Evaluation – Phase-II
5 Mar 2018	MONDAY	I-IA Test for I-Year BE
6 Mar 2018	TUESDAY	I-IA Test for I-Year BE
7 Mar 2018	WEDNESDAY	I-IA Test for I-Year BE
8 Mar 2018	THURSDAY	Project Evaluation – Phase-III
9 Mar 2018	FRIDAY	Project Evaluation – Phase-III
26 Mar 2018	MONDAY	I-IA Test for II, III & IV Year BE
27 Mar 2018	TUESDAY	I-IA Test for II, III & IV Year BE
28 Mar 2018	WEDNESDAY	I-IA Test for II, III & IV Year BE
5 Apr 2018	THURSDAY	Final Project Evaluation
6 Apr 2018	FRIDAY	Final Project Evaluation
10 Apr 2018	TUESDAY	Last date for Draft copy of Project Report Submission
11 Apr 2018	WEDNESDAY	II-IA Test for I-Year BE
12 Apr 2018	THURSDAY	II-IA Test for I-Year BE
13 Apr 2018	FRIDAY	II-IA Test for I-Year BE
20 Apr 2018	FRIDAY	Final Year BE Project Exhibition
26 Apr 2018	THURSDAY	II-IA Test for II, III & IV Year BE
27 Apr 2018	FRIDAY	II-IA Test for II, III & IV Year BE
28 Apr 2018	SATURDAY	II-IA Test for II, III & IV Year BE
30 Apr 2018	MONDAY	Last date for Final Project Report Submission
17 May 2018	THURSDAY	III-IA Test for I, II, III & IV Year BE



Date	Day	Event
18 May 2018	FRIDAY	III-IA Test for I, II, III & IV Year BE
19 May 2018	SATURDAY	III-IA Test for I, II, III & IV Year BE
22 May 2018	TUESDAY	III Year BE - Mini Project Exhibition
23 May 2018	WEDNESDAY	Last Working Day of EVEN Semester BE
26 Jul 2018	THURSDAY	Term not found

4 . Timetable

	1	2	3	4		5	6	7
	09:00 AM 09:55 AM	09:55 AM 10:50 AM	11:10 AM 12:05 PM	12:05 PM 01:00 PM	01:00 PM 02:00 PM	02:00 PM 03:00 PM	03:00 PM 04:00 PM	04:00 PM 05:00 PM
MON				BE 15IS63 IS Semester 6 A				
TUE	BE 15IS63 IS Semester 6 A					BE 15ISL68 IS Semester 6 A		
WED			BE 15IS63 IS Semester 6 A					
THU	BE 15IS63 IS Semester 6 A					BE 15ISL67 IS Semester 6 A		
FRI			BE 15IS63 IS Semester 6 A					
SAT								

5 . Department Details

5 . 1 Preliminary Information

THE VISION

To Impart quality learning and nurture students to become successful technocrats by achieving excellence in information science and engineering field for addressing the evolving needs of the industry as well as the society.;

THE MISSION

1. To provide quality technical education and research training for preparing competent professionals in the Information technology field.
2. To provide the suitable infrastructure and environment that inculcates best engineering practices for the Socio-economic development of the society
3. To foster the students to become successful technocrats to meet the global competency in the field of IT industry.

PROGRAM EDUCATIONAL OBJECTIVES

Peo 1 : . Apply the principles of Information Science & engineering and fundamentals of mathematics to provide solutions to the societal needs.

Peo 2 : Pursue higher education and engage in research to meet the challenges of the cutting edge technologies.

Peo 3 : Design and develop reliable software systems to satisfy the industrial needs through multidisciplinary projects

Peo 4 : Able to work in various IT related fields and contribute to the society.

PROGRAM OUTCOMES(PO's)

1. **Engineering knowledge :** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
2. **Problem analysis :** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
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
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

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
6. **The engineer and society** : Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
7. **Environment and sustainability** : Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
8. **Ethics** : Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
9. **Individual and team work** : Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
10. **Communication** : Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
11. **Project management and finance** : Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
12. **Life-long learning** : Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

PROGRAM SPECIFIC OUTCOMES(PSO's)

PSO 2 : Design, Develop, Test and maintain the software systems that satisfy the needs of the IT industry.

PSO 3 : Develop programs and projects using different modern software tools for industrial & scientific applications.

PSO 1 : Apply the knowledge of computer networking, database and computations to provide the solutions to the real-world engineering problems.

6 . Course Information

6 . 1 Course Content

Title of the Course : SOFTWARE TESTING

Semester : 6

Academic Year : 2017-18

Subject Code : 15IS63	IA Marks : 20
Hours/week : 4	Total Hours : 50
Exam Hours : 3	Exam Marks : 80
Course Plan Author : Sudarshana	Planned Date : -
Checked by : Jayantkumar Arjun Rathod	At the end of this course student will be able to : -
Objectives: To enable students 1 . Differentiate the various testing techniques 2 . Analyze the problem and derive suitable test cases 3 . Apply suitable technique for designing of flow graph 4 . Explain the need for planning and monitoring a process	
Course Outcomes (COs) : 1 . Derive test cases for any given problem 2 . Compare the different testing techniques 3 . Classify the problem into suitable testing model 4 . Apply the appropriate technique for the design of flow graph 5 . Create appropriate document for the software artefact	

6 . Course Information

6 . 1 . 1 Course Syllabus

Objectives: To enable students **Title of the**
Course : SOFTWARE TESTING

Subject Code : 15IS63

Module 1

Basics of Software Testing :

Basic definitions, Software Quality , Requirements, Behaviour and Correctness, Correctness versus Reliability, Testing and Debugging, Test cases, Insights from a Venn diagram, Identifying test cases, Test-generation Strategies, Test Metrics, Error and fault taxonomies , Levels of testing, Testing and Verification, Static Testing

Problem Statements :

Generalized pseudocode, the triangle problem, the NextDate function, the commission problem, the SATM (Simple Automatic Teller Machine) problem, the currency converter, Saturn windshield wiper

Module 2

Functional Testing :

Boundary value analysis, Robustness testing, Worst-case testing, Robust Worst testing for triangle problem, Nextdate problem and commission problem, Equivalence classes, Equivalence test cases for the triangle problem, NextDate function, and the commission problem, Guidelines and observations, Decision tables, Test cases for the triangle problem, NextDate function, and the commission problem, Guidelines and observations

Based Testing :

Overview, Assumptions in fault based testing, Mutation analysis, Fault-based adequacy criteria, Variations on mutation analysis

Module 3

Structural Testing :

Overview, Statement testing, Branch testing, Condition testing , Path testing: DD paths, Test coverage metrics, Basis path testing, guidelines and observations, Data –Flow testing: Definition-Use testing, Slicebased testing, Guidelines and observations

Test Execution :

Overview of test execution, from test case specification to test cases, Scaffolding, Generic versus specific scaffolding, Test oracles, Self-checks as oracles, Capture and replay

Module 4

Process Framework :

Basic principles: Sensitivity, redundancy, restriction, partition, visibility, Feedback, the quality process, Planning and monitoring, Quality goals, Dependability properties , Analysis Testing, Improving the process, Organizational factors

Planning and Monitoring the Process :

Quality and process, Test and analysis strategies and plans, Risk planning, monitoring the process, Improving the process, the quality team

Documenting Analysis and Test :

Organizing documents, Test strategy document, Analysis and test plan, Test design specifications documents, Test and analysis reports

Module 5

Integration and Component-Based Software Testing :

Overview, Integration testing strategies, Testing components and assemblies, System, Acceptance and Regression Testing: Overview, System testing, Acceptance testing, Usability, Regression testing, Regression test selection techniques, Test case prioritization and selective execution

Levels of Testing, Integration Testing :

Traditional view of testing levels, Alternative life-cycle models, The SATM system, Separating integration and system testing, A closer look at the SATM system, Decomposition-based, call graph-based, Path-based integrations

6 . Course Information**6 . 1 . 2 Text Books and Reference Books****TEXT BOOKS :**

- 1 . Paul C. Jorgensen: Software Testing, A Craftsman's Approach, 3rd Edition, Auerbach Publications, 2008. (Listed topics only from Chapters 1, 2, 5, 6, 7, 9, 10, 12, 13)
- 2 . Mauro Pezze, Michal Young: Software Testing and Analysis – Process, Principles and Techniques, Wiley India, 2009. (Listed topics only from Chapters 3, 4, 16, 17, 20,21, 22,24)
- 3 . Aditya P Mathur: Foundations of Software Testing, Pearson Education, 2008.(Listed topics only from Section 1.2 , 1.3, 1.4 ,1.5, 1.8,1.12,6. 2.1,6. 2.4)

REFERENCE BOOKS :

- 1 . Software Testing – Ron Patton, 2nd edition, Pearson Education, 2004.
- 2 . The Craft of Software Testing – Brian Marrick, Pearson Education, 1995.
- 3 . Anirban Basu, Software Quality Assurance, Testing and Metrics, PHI, 2015.
- 4 . Naresh Chauhan, Software Testing, Oxford University press.

6 . Course Information

6 . 2

Semester : 6
Section : A
Course : SOFTWARE TESTING

P e r i o d	Planned			Execution		
	Date	Topic	Source material to be referred	Date	Topic	Source material to be referred
1						
1	2018-02-05	Basic definitions, Software Quality	-	2018-02-05	Basic definitions, Software Quality	Text 1, Text 3,
2	2018-02-06	Requirements, Behaviour and Correctness, Correctness versus Reliability	-	2018-02-06	Requirements, Behaviour and Correctness, Correctness versus Reliability	Text 3
3	2018-02-07	Testing and Debugging, Test cases	-	2018-02-07	Testing and Debugging, Test cases, Correctness versus Reliability	Text 3
4	2018-02-08	Insights from a Venn diagram, Identifying test cases	-	2018-02-08	Testing and Debugging, Test cases	Text 3
5	2018-02-12	Test-generation Strategies, Test Metrics, Error and fault taxonomies	-	2018-02-09	Insights from a Venn diagram, Identifying test cases	Text 1
6	2018-02-14	Static Testing, Testing and Verification	-	2018-02-14	Test-generation Strategies, Test Metrics, Error and fault taxonomies	Text 1
7	2018-02-15	Testing and Verification, Static Testing	-	2018-02-15	Static Testing, Testing and Verification	Text 3
8	2018-02-19	Generalized pseudocode, the triangle problem	-	2018-02-15	Testing and Verification, Static Testing	Text 1
9	2018-02-20	the NextDate function, the commission problem	-	2018-02-19	Generalized pseudocode, the triangle problem	Text 1
10	2018-02-21	the SATM (Simple Automatic Teller Machine) problem, the currency converter, Saturn windshield wiper	-	2018-02-20	the NextDate function, the commission problem	Text 1
56	2018-05-22	Basic definitions	-	2018-05-08	Traditional view of testing levels	Text 1
57	2018-05-23	Generalized pseudocode	-	2018-05-10	Basic principles: Sensitivity, restriction, redundancy, partition, visibility, Feedback	Text 2

58	2018-05-24	the triangle problem, the NextDate function, the commission problem	Text 1	2018-05-15	Quality and process, Test and analysis strategies and plans	Text 2
2						
11	2018-02-22	Boundary value analysis, Robustness testing, Worst-case testing, Robust Worst testing for triangle problem	-	2018-02-21	the SATM (Simple Automatic Teller Machine) problem, the currency converter, Saturn windshield wiper	Text 1
12	2018-02-26	Nextdate problem and commission problem, Equivalence classes, Equivalence test cases for the triangle problem	-	2018-02-22	Boundary value analysis, Robustness testing, Worst-case testing, Robust Worst testing for triangle problem	Text 1
13	2018-02-27	Equivalence test cases for the triangle problem, NextDate function, and the commission problem	-	2018-02-26	Nextdate problem and commission problem, Equivalence classes, Equivalence test cases for the triangle problem	Text 1
14	2018-02-28	Guidelines and observations, Decision tables, Test cases for the triangle problem	-	2018-02-27	Equivalence test cases for the triangle problem, NextDate function, and the commission problem	Text 1
15	2018-03-01	Test cases for the triangle problem, NextDate function, and the commission problem	-	2018-02-28	Guidelines and observations, Decision tables, Test cases for the triangle problem	Text 1
16	2018-03-02	NextDate function, and the commission problem, Guidelines and observations	-	2018-03-01	Test cases for the triangle problem, NextDate function, and the commission problem	Text 1
17	2018-03-05	Overview, Assumptions in fault based testing, Mutation analysis	-	2018-03-02	Boundary value analysis, Equivalence classes, Decision tables	Text 1
18	2018-03-06	Basis path testing, Fault-based adequacy criteria	-	2018-03-05	Assumptions in fault based testing, Mutation analysis	Text 2
19	2018-03-07	Variations on mutation analysis	-	2018-03-06	Fault-based adequacy criteria, Variations on mutation analysis	Text 2
20	2018-03-08	Overview, Assumptions in fault based testing, Mutation analysis, Fault-based adequacy criteria, Variations on mutation analysis	Text 1	2018-03-07	Overview	Text 2
55	2018-05-21	Boundary value analysis, Equivalence classes, Decision tables	-	2018-05-07	Overview	Text 2

59	2018-05-24	Worst-casetesting, Robustness testing, Boundary value analysis	Text 1	2018-05-16	Overview	Text 1
3						
26	2018-03-19	Overview of testexecution, from test case specification to test cases	-	2018-03-13	Test coverage metrics, Basis path testing	Text 1, Text 3, Text 2,
27	2018-03-20	Scaffolding, Generic versusspecific scaffolding, Test oracles, Self-checks as oracles	-	2018-03-14	guidelines and observations, Data –Flow testing: Definition-Use testing	-
28	2018-03-21	Capture and replayT3:Section 6	-	2018-03-16	Slicebasedtesting, Guidelines and observations	Text 1
29	2018-03-22	Capture and replayT3:Section 6	-	2018-03-19	Overview of testexecution, from test case specification to test cases	Text 1, Text 2, Text 3,
54	2018-05-16	Overview	-	2018-05-03	Decomposition-based	Text 1
4						
21	2018-03-09	Basic principles: Sensitivity	Text 2	2018-03-08	Overview, Assumptions in fault based testing, Mutation analysis, Fault- based adequacy criteria, Variations on mutation analysis	Text 2
22	2018-03-12	the quality process, Planning and monitoring	Text 2	2018-03-08	Overview, Assumptions in fault based testing, Mutation analysis, Fault- based adequacy criteria, Variations on mutation analysis	Text 2
23	2018-03-13	Quality and process, Test and analysisstrategies and plans	Text 2	2018-03-08	Overview, Assumptions in fault based testing, Mutation analysis, Fault- based adequacy criteria, Variations on mutation analysis	Text 2
24	2018-03-14	Test and analysisstrategies and plans	Text 2	2018-03-09	Overview, Statement testing, Branch testing	Text 1, Text 3,
25	2018-03-15	Test and analysisstrategies and plans	Text 2	2018-03-12	Conditiontesting, Path testing: DD paths	Text 1, Text 3,
30	2018-03-22	Basic principles: Sensitivity, redundancy, restriction	-	2018-03-20	Scaffolding, Generic versusspecific scaffolding, Test oracles, Self-checks as oracles	Text 2
31	2018-03-23	visibility, Feedback, the quality process	-	2018-03-21	Capture and replayT3:Section 6	Text 2
32	2018-04-02	Planning and monitoring, Quality goals	-	2018-03-22	Capture and replayT3:Section 6	Text 2

33	2018-04-03	Dependability properties, Analysis Testing	-	2018-03-22	Basic principles: Sensitivity, redundancy, restriction	Text 2
34	2018-04-04	Quality and process, Test and analysis strategies and plans	-	2018-03-23	visibility, Feedback, the quality process	-
35	2018-04-05	Risk planning, monitoring the process	-	2018-04-02	Planning and monitoring, Quality goals	-
36	2018-04-09	Improving the process, the quality team	-	2018-04-03	Dependability properties, Analysis Testing	-
37	2018-04-10	the quality team, Organizing documents	-	2018-04-04	Quality and process, Test and analysis strategies and plans	-
38	2018-04-11	Test strategy document, Analysis and test plan	-	2018-04-05	Risk planning, monitoring the process	-
39	2018-04-12	Analysis and test plan, Test design specifications documents, Test and analysis reports	-	2018-04-10	Risk planning, monitoring the process	-
52	2018-05-10	Basic principles: Sensitivity, restriction, redundancy, partition, visibility, Feedback	-	2018-04-30	The SATM system	Text 1
53	2018-05-15	Quality and process, Test and analysis strategies and plans	-	2018-05-02	Separating integration and system testing, A closer look at the SATM system	Text 1
60	2018-05-25	Basic principles: Sensitivity	-	2018-05-21	Boundary value analysis, Equivalence classes, Decision tables	Text 1
5						
40	2018-04-16	Traditional view of testing levels, Alternative life-cycle models	-	2018-04-10	Improving the process, the quality team	-
41	2018-04-17	The SATM system, Separating integration and system testing, A closer look at the SATM system	-	2018-04-11	the quality team, Organizing documents	Text 2
42	2018-04-18	Acceptance and Regression Testing: Overview, System testing, Acceptance testing, Usability	Text 1	2018-04-12	Test strategy document, Analysis and test plan	Text 2
43	2018-04-19	Path-based integrations	Text 1	2018-04-12	Analysis and test plan, Test design specifications documents, Test and analysis reports	Text 2
44	2018-04-23	Regression testing, Regression test selection techniques, Test case prioritization and selective execution	Text 1	2018-04-13	Analysis and test plan, Test design specifications documents, Test and analysis reports	Text 2

45	2018-04-24	Test case prioritization and selective execution	-	2018-04-18	Traditional view of testing levels, Alternative life-cycle models	-
46	2018-04-25	Traditional view of testing levels, Alternative life-cycle models	Text 1, Text 2,	2018-04-17	The SATM system, Separating integration and system testing, A closer look at the SATM system	-
47	2018-04-30	The SATM system, Separating integration and system testing	Text 2	2018-04-18	Acceptance and Regression Testing: Overview, System testing, Acceptance testing, Usability	Text 1
48	2018-05-02	Separating integration and system testing, A closer look at the SATM system, Decomposition-based	Text 2	2018-04-19	Path-based integrations	Text 1, Text 2,
49	2018-05-03	call graph-based, Path-based integrations	-	2018-04-23	Regression testing	Text 1, Text 2,
50	2018-05-07	Overview	-	2018-04-24	Regression test selection techniques, Test case prioritization and selective execution	Text 2, Text 1,
51	2018-05-08	Traditional view of testing levels	-	2018-04-25	Traditional view of testing levels, Alternative life-cycle models	Text 1, Text 2,
61	-	-		2018-05-22	Basic definitions	Text 2, Text 1, Text 3,
62	-	-		2018-05-23	Generalized pseudocode	Text 1

**6 . Course Information****6 . 2 . 1 Compliance Report****Semester : 6****Section : A****Course : SOFTWARE TESTING**

Module No.	# of Classes Planned(till date)	Planned Effort(till date)	# of Classes Executed(till date)	Actual Efforts(till date)	% Coverage
1	13	13hrs 0min	13	13hrs 0min	100.0
2	13	13hrs 0min	13	14hrs 0min	107.69
3	10	10hrs 0min	10	10hrs 0min	100.0
4	14	14hrs 0min	14	14hrs 0min	100.0
5	12	12hrs 0min	12	12hrs 0min	100.0

6 . Course Information**6 . 2 . 2 CO PO Mapping**

Slight (Low) = 1 ,

Moderate (Medium) = 2 ,

Substantial (High) = 3 .

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	3	3	3	1	1	1	1	1	2	3	1	3
CO 2	3	3	3	2				2	1	3		2
CO 3	3	3	3	1								2
CO 4	3	3	3	2					2	1	1	2
CO 5	2	2	2	1		2				3	2	2



6 . Course

6 . 2 . 3 CO-PSO Mapping

Slight (Low) = 1 ,

Moderate (Medium) = 2 ,

Substantial (High) = 3 .

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	3	3	3	
CO 2	2	3	3	
CO 3	2	3	3	
CO 4	3	3	3	
CO 5	1	2	3	

6 . Course Information**6 . 3 Other Assessment****ASSIGNMENT****: SOFTWARE TESTING****: 15IS63**

# : 1	: 5
: 2018-05-07	: 2018-05-14
: 3 , 2 , 1	: Apply
: Write a note	

UNIT TEST**: SOFTWARE TESTING****: 15IS63**

Unit Test # : 1	: 5
Unit Test Date : 2018-03-23	: 4
: Evaluate	
: 1 Which of the following is / are the Review Technique documented? 2 A retail company purchased commercial off the shelf application for automating their billing process. But before introducing it on large scale they are going for beta testing .What will be the reason for doing this? * 3 Who is responsible for Component Testing? * 4 What is the order in which test levels are performed? * 5 Which things are measured by Software Test Effectiveness? *	

3/28/2018

SOFTWARE TESTING 1

SOFTWARE TESTING 1

*Required

Testing Types and Levels

Which of the following is / are the Review Technique documented? *

1 point

- ☐ Inspection
- ☐ walkthrough
- ☐ Both of These
- ☐ None of these

A retail company purchased commercial off the shelf application for automating their billing process. But before introducing it on large scale they are going for beta testing .What will be the reason for doing this? *

1 point

- ☐ a. To find defects
- ☐ b. To train employees
- ☐ c. To gain confidence in system
- ☐ d. All of the above

3/28/2018

SOFTWARE TESTING 1

Who is responsible for Component Testing? *

1 point

- ☐ a. Software tester
- ☐ b. Designer
- ☐ c. User
- ☐ d. Developer

What is the order in which test levels are performed? *

1 point

- ☐ a. Unit, Integration, System, Acceptance
- ☐ b. Unit, System, Integration, Acceptance
- ☐ c. Unit, Integration, Acceptance, System
- ☐ d. It depends on nature of a project

Which things are measured by Software Test Effectiveness? *

1 point

- ☐ a. How many customer requirements are implemented in system?
- ☐ b. How well the customer specifications are achieved by the system?
- ☐ c. How much effort is put in developing the system?
- ☐ d. All of the above

BACK**SUBMIT**

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Google Formshttps://docs.google.com/forms/d/e/1FAIpQLSdMiWIN_6sDMOKHIdnbHWg_WSMox3kdkAMiHzGtWxzU8rqVrA/formResponse

2/3



3/28/2018

SOFTWARE TESTING 1



https://docs.google.com/forms/d/e/1FAIpQLSdMiWIN_6sDMOKHIdnbHWg_WSMox3kdkAMiHzGtWxzU8rqVrA/formResponse

3/3





USN	Name	Assignment 1	Unit Test 1
4AL15IS001	Aishwarya J Shetty	5	5
4AL15IS006	Anvaya Kini	5	0 (Absent)
4AL15IS007	Chandan Ramesh Shastri	5	5
4AL15IS008	Deepashree V	5	0 (Absent)
4AL15IS009	Ganesh Prasad E	5	0 (Absent)
4AL15IS011	Harshitha K O	5	5
4AL15IS012	Kavana M G	5	5
4AL15IS015	Minal Pinto	5	5
4AL15IS016	K J MYTHRI	5	5
4AL15IS017	Nikshitha	5	5
4AL15IS018	Nisha	5	5
4AL15IS020	Pavan Kumar M R	5	5
4AL15IS022	Pooja	5	5
4AL15IS023	Pooja Gangadhara Hegde	5	5
4AL15IS024	Pooja R	5	5
4AL15IS025	Pooja T S	5	5
4AL15IS026	Poojitha	5	5
4AL15IS027	Prajna M	5	5
4AL15IS031	Rachana S	5	5
4AL15IS036	Sameeksha Hegde	5	5
4AL15IS038	Shaziya Banu	5	5
4AL15IS041	Shetty Vignesh Suresh	5	5
4AL15IS043	Srinivas S	5	5
4AL15IS044	Sukanaya Viruprakashi Madiwalar	5	5
4AL15IS045	Sushmitha H S	5	5
4AL15IS046	Swarna Gowri R S	5	5
4AL15IS047	Thaizeera A S	5	5
4AL15IS049	Vishal Naik N	5	5



USN	Name	Assignment 1	Unit Test 1
4AL15IS050	Vishwath Putti	5	5

6 . Course Information

6 . 4 Internal Assessment

Internal : 1

Semester:6-CBCS

Date : 26/03/2018

Subject : SOFTWARE TESTING (15IS63)

Time : 09:30 - 11:00

Faculty : Sudarshana

Max Marks: 30

Answer Any 2 Questions					
1	a	Build the terminologies for the software testing context.	7.5	5	L3
1	b	Compare the different test case generation techniques	7.5	3	L4
OR					
2	a	Build the for errors and faults terminologies.	7.5	5	L3
2	b	Compare the testing phases with respect to software development life cycles.	7.5	3	L4
3	a	Build and evaluate the test cases for solving the Commission problem using Boundary value analysis.	7.5	1	L5
3	b	Analyze the fault based testing.	7.5	2	L4
OR					
4	a	Justify the test cases for triangle problem using Decision table approach.	7.5	1	L5
4	b	Compare various mutation analysis techniques.	7.5	2	L4

			Q1		Q2		Q3		Q4			
			a	b	a	b	a	b	a	b		
4AL15IS001	Aishwarya J Shetty	P	6.5	2.5	0	0	0	0	4	3	16	Analyze
4AL15IS006	Anvaya Kini	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS007	Chandan Ramesh Shastri	P	1	2	0	0	0	0	4	3	10	Analyze
4AL15IS008	Deepashree V	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS009	Ganesh Prasad E	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS011	Harshitha K O	P	7	5	0	0	0	0	4	3	19	Analyze
4AL15IS016	K J MYTHRI	P	0	0	7.5	3.5	0	0	6	3	20	Analyze
4AL15IS012	Kavana M G	P	0	0	4	4	0	0	5	0	13	Analyze

			Q1		Q2		Q3		Q4			
			a	b	a	b	a	b	a	b		
4AL15IS015	Minal Pinto	P	6	4	0	0	0	0	5.5	4.5	20	Analyze
4AL15IS017	Nikshitha	P	7	0	7	7	0	0	6	3	23	Analyze
4AL15IS018	Nisha	P	7.5	2.5	4	0	0	0	3	4	17	Analyze
4AL15IS020	Pavan Kumar M R	P	0	0	0	6	1	2	0	0	9	Analyze
4AL15IS022	Pooja	P	5.5	4.5	0	0	7	2	6	2	19	Analyze
4AL15IS023	Pooja Gangadhara Hegde	P	7.5	3.5	0	0	5	5	0	0	21	Analyze
4AL15IS024	Pooja R	P	6	4	0	0	6	3	0	0	19	Analyze
4AL15IS025	Pooja T S	P	6	6	0	0	6	1	6	3	21	Analyze
4AL15IS026	Poojitha	P	5	2	0	0	5	2	5	1	14	Analyze
4AL15IS027	Prajna M	P	0	0	2	0	6	2	6	0	10	Analyze
4AL15IS031	Rachana S	P	1	6	0	0	5	4	4	0	16	Analyze
4AL15IS036	Sameeksha Hegde	P	0	0	2	7	0	0	6	2	17	Analyze
4AL15IS038	Shaziya Banu	P	0	0	4	3	0	0	4	3	14	Analyze
4AL15IS041	Shetty Vignesh Suresh	P	0	0	7	7	7	6	0	0	27	Analyze
4AL15IS043	Srinivas S	P	0	0	2	4	0	0	4	3	13	Analyze
4AL15IS044	Sukanaya Viruprakash Madiwalar	P	0	0	3	0	0	0	6	4	13	Analyze
4AL15IS045	Sushmitha H S	P	5	7	0	0	6	3	6	0	21	Analyze
4AL15IS046	Swarna Gowri R S	P	6	5	6	6	5	3	5	0	20	Analyze
4AL15IS047	Thaizeera A S	P	0	0	3	7	7	5	0	0	22	Analyze
4AL15IS049	Vishal Naik N	P	0	0	2	6	3	3	0	0	14	Analyze
4AL15IS050	Vishwath Putti	P	0	0	5	3	0	0	6	5	19	Analyze

Scheme of Evaluation

4b) Mutation Analysis and Types:-

⇒ MA is a common ~~and~~ ^{test} based analysis technique.

⇒ Following are the three MA variations:

- 1) Strong Mutation Analysis
- 2) Weak Mutation Analysis
- 3) Static Mutation Analysis.

1.5

1) Strong Mutation Analysis:-

⇒ MA in which core say mutants are killed based on op.

⇒ Requires

* large number of mutants.

* large number of test cases are required.

⇒ It's more accurate mutation analysis.

2

2) Weak-Mutation Analysis:-

⇒ It is a variant of strong MA, where in the number of mutants required is reduced. But it ~~requires~~ does not reduce no. of test cases required.

⇒ It reduces the time for execution and cost effective.

2

3) Static Mutation Analysis:-

⇒ MA can be used to estimate to the extent to which a test cases distinguishes the seeded program with original program.

⇒ Requires less number of mutants.

⇒ Partial coverage is another limitation.

2

⇒ Can be used to determine/estimate the number of undetected mutants.

FACULTY IN CHARGE

20/9

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY												
SN	SOLUTION										MARKS	
3b)	<u>Fault Based Testing:</u>											
	> Engineers study the failures to prevent similar failure. > Experience with leads to improvements in design and product development.										1	
	> <u>Assumptions:</u> 1) Competent programmer hypothesis, 2) Coupling effect hypothesis.										2	
	> <u>Terminologies:</u> 1) PUT, 2) Program location, 3) Alternate expression, 4) Alternate program, 5) Distinct behavior, 6) Set of distinct behaviors.										2	
	> <u>General Mechanism:</u> >> Build the test cases for the program under test. >> Create 'n' number of alternative programs by altering an expression in the PUT (sending faulty). >> Apply the test cases on these 'n' alternative programs. >> If test outcomes are different than the original behavior, then program is corruptly working; else, the errors are false. >> In the case 2, go on improving the test suites.										1.5	
4a)	<u>Triangle Program and Decision Table Approach:</u>											
	> The test cases derived by using the decision table approach for Triangle programs are explained below:											
	Stubs	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11
	Conditions											
	C1: $a < (b+c)$	F	T	T	T	T	T	T	T	T	T	T
	C2: $b < (a+c)$		F	T	T	T	T	T	T	T	T	T
	C3: $c < (a+b)$			F	T	T	T	T	T	T	T	T
	C4: $a = b$				T	T	T	F	T	F	F	F
	C5: $b = c$				T	T	F	T	F	F	T	F
	C6: $c = a$				T	F	T	T	F	T	F	F
	Actions											
	A1: Not a Triangle	X	X	X								
	A2: Equilateral Triangle				X							
	A3: Isosceles Triangle							X	X	X		
	A4: Scalene Triangle										X	
	A5: Not possible				X	X	X					
	The possible Test cases are:											
	1) 5, 5, 5 \Rightarrow Equilateral Triangle. 2) 5, 5, 6 \Rightarrow Isosceles Triangle. 3) 5, 6, 7 \Rightarrow Scalene Triangle. 4) 5, 10, 10 \Rightarrow Not a Triangle. 5) 5, 5, 10 \Rightarrow Not possible.										2.5	
	Remaining test cases are impossible to build.										3	

2a) Building Error and Fault Terminologies:

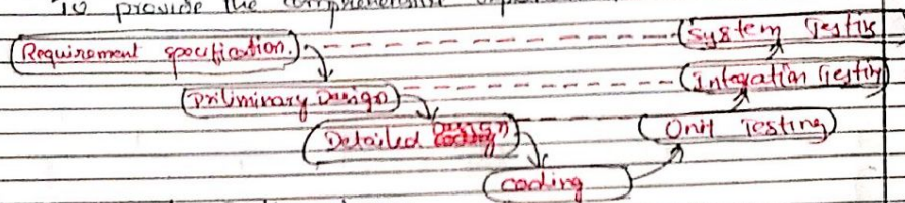
Generally errors are classified as follows:
 1) mild, 2) moderate, 3) Annoying, 4) Disturbing, 5) Serious
 6) Very serious, 7) Extreme, 8) Intolerable, 9) catastrophic.
 10) Infectious.

The faults are classified into following types:

- 1) Input/output faults, 2) Logic faults, 3) computation faults,
- 4) Interface faults, 5) Data faults.

2b) Testing phases vs Development phases:

To provide the comprehensive explanation, V model is used:



Relation b/w testing phases and development phases.
 Explanation about the relation.

3a) Test cases for commission problem using BVA:

For Commission Problem, test cases are derived using the Output BVA, as explained below:

Commission Ranges:

- 1) $C1 = 10\%$ Sales - if sales < 1000
- 2) $C2 = 10\% \times 1000 + 15\% \times (\text{sales} - 1000)$ - if sales > 1000 but < 1800 .
- 3) $C3 = 10\% \times 1000 + 15\% \times 800 + 20\% \times (\text{sales} - 1800)$ -

Hence we generate following test cases:

Id	Units	Stock	Barrels	Sales	Commission	Remark
1)	1	1	1	100	10	open.
2)	1	1	2	125	12.5	open +
3)	5	5	5	500	50	midpt (1)
4)	10	10	10	1000	100	Border pt (1)
5)	10	10	11	1025	103.75	BP +
6)	14	14	14	1900	160	midpt (2)
7)	18	18	18	1975	216.25	BP -
8)	48	48	48	4800	820	Midpt (3)
9)	70	80	90	7800	1420	output max

FACULTY INCHARGE

Roll

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI		
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING		
SUBJECT/ SUBJECT CODE	SOFTWARE TESTING/15IS63 (IA-I).	
MAXIMUM MARKS	30	
SN	SOLUTION	MARKS
a)	<p><u>Terminologies for software testing context.</u></p> <ol style="list-style-type: none"> 1) Error → mistakes made by developers - Bugs. 2) Fault → A fault is a result of an error - commission and commission faults. 3) Failure - An executing faults results in failure. 4) Incident - It is a symptom that alerts the system failure. 5) Test - An act of exercising the SW with test cases to find errors and to ensure correctness. 6) Test case - A record containing necessary information about a test - input, output, behaviour, etc. 7) Test Suite: Collection of test cases. <p>Listing all of them & Explaining any 5 terms.</p>	2.5+5+7.5
b)	<p><u>Test case generation Techniques:</u></p> <p>There are 2 approaches to test case identification or generation.</p> <ol style="list-style-type: none"> <u>Functional Testing</u> <ol style="list-style-type: none"> 1) Program is a function that maps input domain to values in its range. 2) Uses the specification for test case design. 3) These methods rarely used to identify unspecified behaviour. 4) They are not based on test coverage metrics. 5) Generally applicable at integration and system testing level. 6) Ex: BVA, ECT, DTA etc <u>Structural Testing</u> <ol style="list-style-type: none"> 1) Program implementation is known to tester; based on it test cases are derived. 2) Uses implementation details for test case derivation. 3) Generally unspecified behaviour can be caught easily. 4) They require the test coverage metrics. 5) Generally applied at unit testing level. 6) Both test in, Stress based Testing etc <p>Any 5 differences. + Explanation.</p>	5+1+2.5

Internal : 2

Semester:6-CBCS

Subject : SOFTWARE TESTING (15IS63)

Faculty : Sudarshana

Date : 26/04/2018

Time : 09:30 - 11:00

Max Marks: 30

Answer Any 2 Questions

1	a	Define a DD Path. For the triangle problem build the test cases using the DD path testing.	8	4	L3
1	b	What is Scaffolding and test oracle? Build the scaffolding for the following module. Analyze the results. void intSwap(int x, int y) { x=x+y; y=x-y; x=x-y; }	7	3	L4
OR					
2	a	Define the different terminologies used in data flow testing. For the following program build the DC paths for the variable "sum". class Test { static int arr[] = { 12,3,4,15 }; static int sum() { int sum = 0; int i; for (i = 0; i < arr.length; i++) sum += arr[i]; return sum; } public static void main(String[] args) { System.out.println("Sum of given array is " + sum()); } }	8	4	L3
2	b	Analyze the "Allocation of responsibilities and rewarding mechanisms".	7	3	L4
OR					
3	a	Build the Test and Analysis Plan for testing the quality of the "https://www.flipkart.com" website.	8	5	L4
3	b	Discuss the various risk related issues addressed in "https://www.flipkart.com" for the Test and Analysis Plan.	7	4	L4
OR					
4	a	Prepare the Test Design Specification Document for testing the quality of the "https://www.amazon.in" website. Discuss the document content.	8	5	L3
4	b	Discuss the various principles used in Software Testing	7	4	L3

			Q1		Q2		Q3		Q4			
			a	b	a	b	a	b	a	b		
4AL15IS001	Aishwarya J Shetty	P	8	7	0	0	8	7	0	0	30	Analyze
4AL15IS006	Anvaya Kini	P	6	6	0	0	7	5	0	0	24	Analyze
4AL15IS007	Chandan Ramesh Shastri	P	7	7	0	0	7	3	6	0	24	Analyze
4AL15IS008	Deepashree V	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS009	Ganesh Prasad E	P	7	7	0	0	6	6	0	0	26	Analyze
4AL15IS011	Harshitha K O	P	8	7	0	0	8	7	0	0	30	Analyze
4AL15IS016	K J MYTHRI	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS012	Kavana M G	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS015	Minal Pinto	P	8	7	0	0	8	7	0	0	30	Analyze

			Q1		Q2		Q3		Q4			
			a	b	a	b	a	b	a	b		
4AL15IS017	Nikshitha	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS018	Nisha	P	7	7	0	0	7	5	0	0	26	Analyze
4AL15IS020	Pavan Kumar M R	P	7	5	0	0	5	5	0	0	22	Analyze
4AL15IS022	Pooja	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS023	Pooja Gangadhara Hegde	P	7	7	4	0	7	7	0	0	28	Analyze
4AL15IS024	Pooja R	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS025	Pooja T S	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS026	Poojitha	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS027	Prajna M	P	8	6	0	0	7	7	0	0	28	Analyze
4AL15IS031	Rachana S	P	8	7	0	0	8	3	0	0	26	Analyze
4AL15IS036	Sameeksha Hegde	P	6	6	0	0	6	6	0	0	24	Analyze
4AL15IS038	Shaziya Banu	P	7	7	0	0	7	3	0	0	24	Analyze
4AL15IS041	Shetty Vignesh Suresh	P	6	6	0	0	6	6	0	0	24	Analyze
4AL15IS043	Srinivas S	P	7	7	0	0	5	5	0	0	24	Analyze
4AL15IS044	Sukanaya Viruprakash Madiwalar	P	6	6	0	0	6	6	0	0	24	Analyze
4AL15IS045	Sushmitha H S	P	7	7	6	4	7	7	0	0	28	Analyze
4AL15IS046	Swarna Gowri R S	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS047	Thaizeera A S	P	7	7	0	0	7	7	0	0	28	Analyze
4AL15IS049	Vishal Naik N	P	7	7	0	0	7	5	0	0	26	Analyze
4AL15IS050	Vishwath Putti	P	7	7	0	0	7	7	0	0	28	Analyze



Internal : 3

Semester:6-CBCS

Date : 18/05/2018

Subject : SOFTWARE TESTING (15IS63)

Time : 09:30 - 11:00

Faculty : Sudarshana

Max Marks: 30

Answer Any 2 Questions

1	a	Differentiate between system testing and acceptance testing.	8	2	L2
1	b	Build the level 1 dataflow diagram for the SATM system.	7	4	L3
OR					
2	a	Differentiate between various integration testing strategies.	8	2	L2
2	b	Build the upper level finite state machine for the SATM system.	7	4	L3
OR					
3	a	Build a partial decomposition tree for the SATM system.	8	4	L3
3	b	What is a thread? Explain the basic concepts in requirements specification to identify the threads to support the testing.	7	3	L2
OR					
4	a	For the Nextdate program build the call graph.	8	4	L3
4	b	Explain the basic concepts in MM Path testing and identify the MM path for the 19-05-2018 using the nextdate program.	7	3	L2

			Q1		Q2		Q3		Q4			
			a	b	a	b	a	b	a	b		
4AL15IS001	Aishwarya J Shetty	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS006	Anvaya Kini	P	0	0	7	7	1	0	0	0	15	Apply
4AL15IS007	Chandan Ramesh Shastri	P	6	4	0	0	3	5	0	0	18	Apply
4AL15IS008	Deepashree V	P	0	0	8	5	5	3	0	0	21	Apply
4AL15IS009	Ganesh Prasad E	P	0	0	6	6	6	0	0	0	18	Apply
4AL15IS011	Harshitha K O	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS016	K J MYTHRI	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS012	Kavana M G	P	7	7	0	0	7	3	0	0	24	Apply
4AL15IS015	Minal Pinto	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS017	Nikshitha	Ab	0	0	0	0	0	0	0	0	0	No Level



			Q1		Q2		Q3		Q4			
			a	b	a	b	a	b	a	b		
4AL15IS018	Nisha	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS020	Pavan Kumar M R	P	6	6	4	4	4	2	0	0	18	Apply
4AL15IS022	Pooja	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS023	Pooja Gangadhara Hegde	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS024	Pooja R	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS025	Pooja T S	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS026	Poojitha	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS027	Prajna M	P	6	7	0	0	6	3	0	0	22	Apply
4AL15IS031	Rachana S	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS036	Sameeksha Hegde	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS038	Shaziya Banu	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS041	Shetty Vignesh Suresh	P	0	0	6	6	7	5	0	0	24	Apply
4AL15IS043	Srinivas S	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS044	Sukanaya Viruprakashi Madiwalar	P	0	6	0	0	6	6	0	0	18	Apply
4AL15IS045	Sushmitha H S	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS046	Swarna Gowri R S	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS047	Thaizeera A S	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS049	Vishal Naik N	Ab	0	0	0	0	0	0	0	0	0	No Level
4AL15IS050	Vishwath Putti	Ab	0	0	0	0	0	0	0	0	0	No Level



Terminologies for software testing context.

- 1) Error → Mistakes made by developers - Bugs.
- 2) Fault → A fault is a result of an error - commission and omission faults.
- 3) Failure - An executing faults results in failure.
- 4) Incident - It is a symptom that alerts the system failure.
- 5) Test - An act of exercising the sw with test cases to find errors and to ensure correctness.
- 6) Test case - A record containing necessary information about a test - input, output, behavior, etc.
- 7) Test Suite: collection of test cases.

Listing all of them & Explaining any 5 terms.

2.5+5=7.5

Test case generation Techniques:

There are 2 approaches to test case identification & generation. 1) Functional Testing 2) Structural Testing.

Functional Testing:

1) Program is a function that maps input domain to values in its range.

2) Uses the specification for test case design.

3) These methods rarely used to identify unspecified behavior.

4) They are not based on test coverage metrics.

5) Generally applicable at integration and system testing level.

6) EX:- BVA, ECT, DTA etc

Structural Testing:

1) Program implementation is known to tester; based on it test cases are derived.

2) Uses implementation details for test case derivation.

3) Generally unspecified behavior can be caught easily.

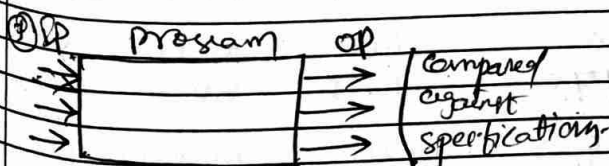
4) They require the test coverage metrics.

5) Generally applied at unit testing level.

6) Path testing, Statement Testing etc

5X1+

2.5



Any 5 differences. + Explanation.

2a) Building Error and Fault Terminologies:

Generally errors are classified as follows:

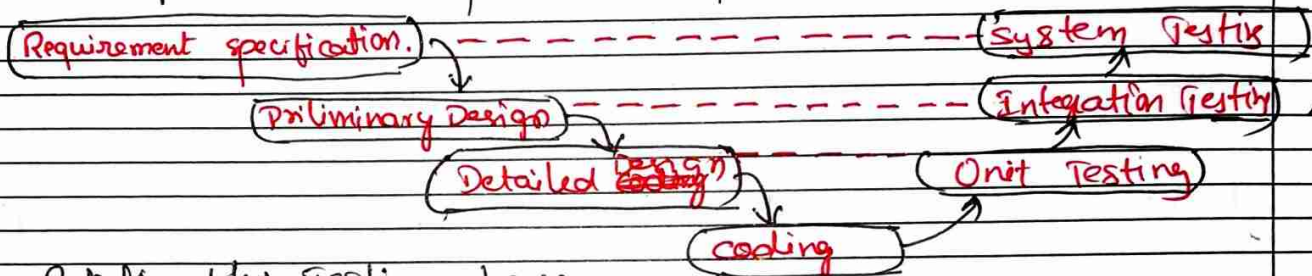
- 1) mild, 2) moderate, 3) Annoying, 4) Disturbing, 5) Serious
- 6) Very serious, 7) Extreme, 8) Intolerable 9) catastrophic
- 10) Infectious.

The faults are classified into following groups:

- 1) Input output faults 2) logic faults, 3) computation faults
- 4) Interface faults, 5) Data faults.

2b) Testing phases vs Development phases:

To provide the comprehensive explanation, 'V' model is used:



Relation b/w Testing phases and Development phases.
Explanation about the relation.

3a) Test cases for commission problem using BVA:

For Commission Problem, test cases are derived using the Output BVA, as explained below:

Commission Ranges:

- 1) $C_1 = 10\%$ Sales - if sales < 1000
- 2) $C_2 = 10\% \text{ of } 1000 + 15\% \text{ of } (\text{sales} - 1000)$, if sales > 1000 but < 1800 .
- 3) $C_3 = 10\% \text{ of } 1000 + 15\% \text{ of } (800) + 20\% \text{ of } (\text{sales} - 1800)$ -

Hence we generate following test cases.

Id	Lock	Stock	Barrels	Sales	Commission	Remark
1)	1	1	1	100	10	op min.
2)	1	1	2	125	12.5	op min +.
3)	1	1	1	1	1	op min -.
5)	5	5	5	500	50	mid pt (1)
9)	10	10	10	1000	100	Border pt (1)
10)	10	10	11	1025	103.75	Bp +.
13)	14	14	14	1400	160	mid pt (2)
14)	18	18	18	1775	216.25	Bp -
21)	48	48	48	4800	820	Mid pt (3)
25)	70	80	90	7800	1420	output max

FACULTY INCHARGE

HoD

Fault Based Testing:

- > Engineers study the failures to prevent similar failure.
- > Experience with leads to improvements in design and product development.

> Assumptions: 1) Competent programmer hypothesis. 2) Coupling effect hypothesis.

> Terminologies: 1) PUT, 2) Program location, 3) Alternate expression, 4) Alternate program, 5) Distinct behavior, 6) set of distinct behaviors.

General Mechanism:

- > Build the test cases for the program under test.
- > Create 'n' number of alternative programs by altering an expression in the PUT (seeding fault).
- > Apply the test cases on these 'n' alternative programs.
- > If test outcomes are different than the original behavior, then program is corruptly working; else, the errors are alive.
- > In the case 2, go on improving the test suites.

4a) Triangle Program and Decision Table Approach:

> The test cases derived by using the decision table approach for triangle program are explained below:

Stubs.	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11
<u>Conditions</u>											
C1: $a < (b+c)$	F	T	T	T	T	T	T	T	T	T	T
C2: $b < (c+a)$		F	T	T	T	T	T	T	T	T	T
C3: $c < (a+b)$			F	T	T	T	T	T	T	T	T
C4: $a = b$				T	T	T	F	T	F	F	F
C5: $b = c$				T	F	F	T	F	F	T	F
C6: $c = a$				T	F	T	T	F	T	F	F
<u>Actions</u>											
A1: Not a Triangle.	x	x	x								
A2: Equilateral Δ.				x							
A3: Isosceles Δ.								x	x	x	
A4: Scalene Δ.											x
A5: Not possible.					x	x	x				

The possible test cases are:

- 1) 5, 5, 5 ⇒ Equilateral Δ.
- 2) 5, 5, 6 ⇒ Isosceles Δ.
- 3) 5, 6, 7 ⇒ Scalene Δ.
- 4) 5, 10, 5 ⇒ Not a Δ.
- 5) 5, 5, 10
- 6) 10, 5, 10

Remaining test cases are impossible to build.

45) Mutation Analysis and Types:-

> MA is a common SW ~~base~~ fault based analysis Techni-
-que.

>> Following are the three MA variations:

- 1) Strong Mutation Analysis
- 2) Weak Mutation Analysis
- 3) Static Mutation Analysis.

2.5

1) Strong Mutation Analysis:-

> MA in which we say mutants are killed based on op.

> Requires

* Large number of mutants.

* Large number of test cases are required.

> It's more accurate mutation analysis.

2

2) Weak-Mutation Analysis:

> It is a variant of strong MA, where in the number of mutants required is reduced. But it ~~doesn't~~ does not reduce no. of test cases required.

>> It reduces the time for execution and cost effective.

2

3) Static Mutation Analysis:

> MA can be used to estimate to the extent to which a test cases distinguishes the seeded program with original program.

>> Requires less number of mutants.

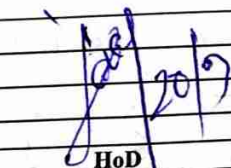
>> Partial coverage is another limitation.

2

>> Can be used to determine/estimate the number of seeded/covered mutants.



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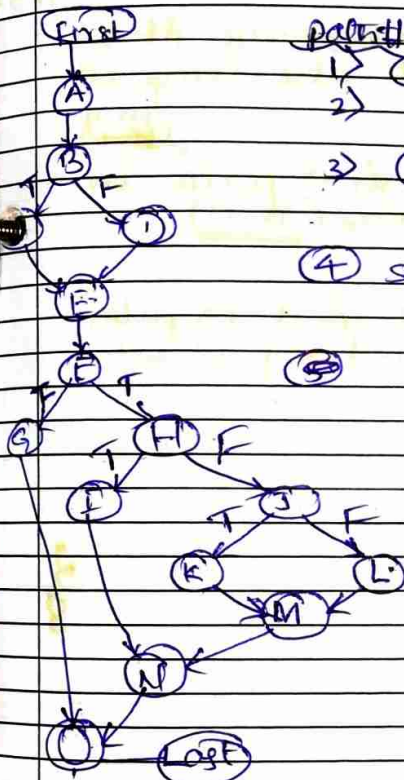

HoD

Dep. Alva's Institute
Mijar, MOODBIDRI - 574 225

SN SOLUTION MARKS

- 1) A DD Path is a sequence of nodes with ~~indeg~~ in a graph
 → case-1: It consists of a single node with $\text{indeg} = 0$.
 → case-2: It consists of a single node with $\text{outdeg} = 0$.
 → case-3: It consists of a single node with $\text{indeg} \geq 2$ & $\text{outdeg} \leq 0$.
 → case-4: It consists of a single node with $\text{indeg} = 1$ & $\text{outdeg} = 1$.
 → case-5: It is a maximal chain of length ≥ 1 .

2



- path outcome
 1) $S \rightarrow A \rightarrow B \rightarrow D \rightarrow E \rightarrow F \rightarrow G \rightarrow O \rightarrow \text{Last}$ NOT a DD path
 2) $S \rightarrow A \rightarrow B \rightarrow C \rightarrow E \rightarrow F \rightarrow H \rightarrow I \rightarrow J \rightarrow K \rightarrow L \rightarrow M \rightarrow N \rightarrow O \rightarrow \text{Last}$ Equilateral
 3) $S \rightarrow A \rightarrow B \rightarrow C \rightarrow E \rightarrow F \rightarrow H \rightarrow J \rightarrow K \rightarrow L \rightarrow M \rightarrow N \rightarrow O \rightarrow \text{Last}$ Scalene
 4) $S \rightarrow A \rightarrow B \rightarrow C \rightarrow E \rightarrow F \rightarrow H \rightarrow J \rightarrow K \rightarrow L \rightarrow M \rightarrow N \rightarrow O \rightarrow \text{Last}$ Isosceles

2

2

Feasible paths.
 Test cases:

Id	A	B	C	output
1	5	5	1	Not a DD
2	5	5	5	Equilateral
3	5	6	6	Scalene
4	5	6	5	Isosceles

2

Test Suites:-

2

1) DD path graph.

2) Scaffolding:-

Code produced to support development activities including - Test harness, delivery, stubs.

(ii) Oracles:- The mechanism that determines test pass/fail criteria is called as an oracle.

1+1

+3

In order to execute the code - additional code is generated. It is as shown below:

```
#include <stdio.h>
int x, y;

void Read()
{
    printf("Enter the values for x, y\n");
    scanf("%d %d", &x, &y);
}

void Display()
{
    printf("The elements are\n");
    printf("%d %d\n", x, y);
}
```

```
void intSwap(int x, int y)
{
    x = x + y;
    y = x - y;
    x = x - y;
}
```

```
void main()
{
    Read();
    Display();
    intSwap(x, y);
    Display();
}
```

Driver

For the above program the oracle is built as below:

- 1) if the values of x , and y are exchanged, then the test will result in success;
- 2) else, in failure.

2

7

2a) Terminologies used in Dataflow testing: Let G be a program graph, V and E be the vertex and edge set respectively.

1) Defining node: $Def(v, N)$ is a defining node of a variable $v \in V$ is a statement fragment 'n' where 'v' is defined.

2) Usage Node ($Use(v, n)$): Node $n \in G$ is an usage node for $v \in V$ iff the value of v is used at the statement fragment 'n'.

1x5=5

3) P-Use: A usage node $Use(v, n)$ is a predicate use iff the statement 'n' is ~~not~~ a decision making node else computation base.

4) D-U path: A D-U path wrt a variable 'v' is a path in Set of paths of G such that $Def(v, m)$ and $Use(v, n)$.

5) D-C path: A D-C path wrt a variable 'v' is a D-U path for 'v' such that there is no other definition of 'v' between (m, n) .

Variable	paths	(D-C)?
1) Sum.	(4, 7)	Y
2) Sum	(7, 7)	Y
3) Sum	(7, 8)	Y
4) sum	(4, 8)	N

2/8

2b) Allocation of responsibilities and Rewarding mechanism.

Plan A:

- > Allocation of Responsibilities:
 - * Developers responsible for development measures with $LOC/H/M$
 - * Quality team responsible for quality.

> Possible Effect:-

- * Development tries to maximise productivity, without considering quality.
- * Quality team will not have enough resources for bad quality product.

> Results: Product of bad quality and overall project failure.

Plan B:

> Responsibility: Developers responsible for quality.

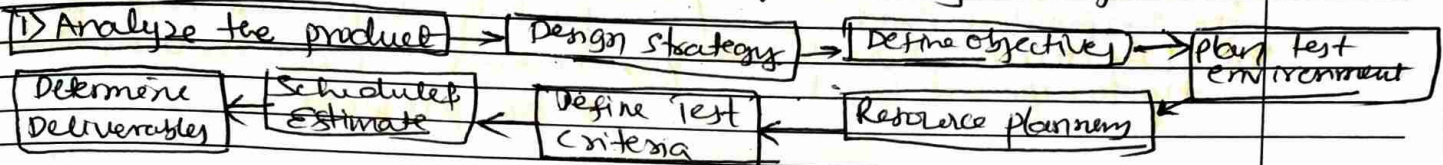
> Possible effect: Testing delayed and overall project fail.

3

7

1) Test and Analysis Plan for web product:

- > TA plan is detailed document that outlines the test strategy, objectives, resources, test schedule, test estimation, deliverables.
- > To build a TA plan use the following templates:



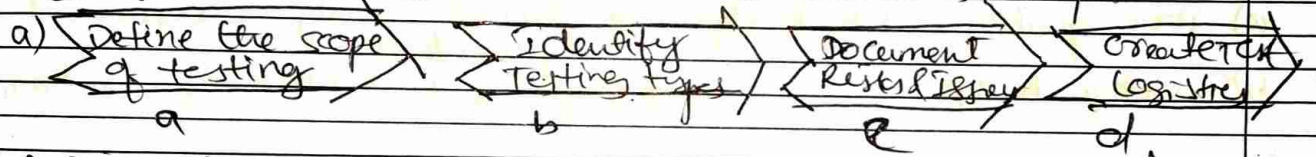
1) Analyze the Product:

Answers the following questions.

- > who are the web site users? why it's used? How?
- > what are software products used? How do they work?
- > Also review the product documentation.

1x8
8M

2) Develop a strategy: Use the following steps:



3) Define test objectives: steps to be included are:

- a) List out the features to be tested.
- b) Define the target / goal of the test based on test features.

4) Test Criteria: It is a rule, which is based on:

- a) suspension criteria and b) exit criteria.

5) Resource planning: List out required type and level

of resources - Human, System, - resources.

6) Plan the test Environment: It's a setup of SW/HW where testing is carried out. It includes - real time and user environment, physical environment also.

7) Schedule & Estimation:

8) Test deliverables: Following are the different test deliverables at every phase of SDLC. Following list of deliverables are generated at a) Before testing, b) During testing, c) After testing.

3b) Addressing different types of Risks:

SLN Risk Type Controlling strategies:

1.a) Personal Risk:

→ Loss of staff → Cross training the employees
 → Under qualified staff → Continuous education, skill gap filling through training; compensation.

2 → Technology Risk:

a) High fault rate due to unfamiliar COTS → Anticipate & schedule extra time for testing unfamiliar interfaces
 b) TA automation is not tip to expected level → Introduce new tools in lower cost pilot projects.

3) Schedule Risks

a) Inadequate unit testing leads to delay in integration → Track & reward the quality team

4) Development Risks:

a) Poor quality SW by developers → provide easy warnings & feedback.
 b) Inadequate TA → Require test coverage Criteria.

5) Test Execution Risks:

> Execution is longer than planned → minimize the parts that require full system to be executed

6) Requirement Risks:

> High assurance critical reqs. Avoid underestimating test
 requirements increase expenses & effort by comparison.
 & uncertainty

4a) Test Design documentation for Amazon.in

The document is expected to address the following areas. This includes:

- a) Title page → Project Name < Name of the item to be tested >
 < Date > < Security Notice > < Reviewers - (Instructions) >
 < Approvals > < Date >
 < Table of contents >
 - 1) Test Design specification Id
 - 2) Features to be tested
 - 3) Approach Refinement.
 - 4) Test identification.
 - 5) Feature Pass/Fail criteria.
 - 6) Document control < History, storage, ownership >

4b) Discussion on above document.

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SN	SOLUTION	MARKS
45)	<p><u>Principles used in Software Testing:</u></p> <p>The principles used in software testing:</p> <ol style="list-style-type: none"> 1) Sensitivity → better fail every time than sometimes. 2) Restriction → Making the intention explicit. 3) Redundancy → making the problem easier. 4) Partition → Divide and Conquer. 5) Visibility → Making information accessible. 6) Feedbacks → Tuning the development process. 	3 Marks
	<p><u>Explaining any four principles</u> →</p>	4 Marks

Incharge.

SN	SOLUTION	MARKS
1)	List out any four different features. 2x4	8M.
2)	> Building the Data Flow diagram.	4M
3)	> Explaining the different components. > Diagram	3M.
4)	Describing 1) call-Graph Based IT 2) Path Based IT 3) Bottom Up and Top Down approaches } listing - 1M	
	Explanation + Diagrams	7M.
5)	> Describing the System.	3M
	> Building the FSM for SATM	6M.
6)	> Building the partial Decomposition Tree	3M.
	> Identifying the various components.	3M.
	> Diagram.	2M.
7)	> Defn. of thread	2M.
	> Identifying the system threads using requirement specification - explanation * system threads * Integration threads }	5M

4a) Describing the process of call graph building
explaining the program control flow

2m

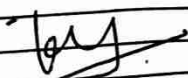
1m

4b) > Defining various terminologies associated with
MM path Testing

1m

> Drawing the graph for the test case 19-05-2018

3m



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H.O.D.

Dept. Of Information Science & Engineering
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VI SEMESTER ISE - RESULT ANALYSIS : AUGUST 2018

Sl. No	USN	NAME OF THE STUDENT	15CS61			15CS62			15IS62			15IS63			15CS64			15CS64			15ISL67			15ISL68			Grand Total	Act-%	RESULT
			CN & C			SS			FS			ST			PYTHON			OS			ST LAB			FS LAB					
			IA	Ex	TOT	IA	Ex	TOT	IA	Ex	TOT	IA	Ex	TOT	IA	Ex	TOT	IA	Ex	TOT	IA	Ex	TOT	IA	Ex	TOT			
1	4AL15IS001	AISHWARYA J SHETTY	20	35	55	18	28	46	18	40	58	17	32	49	17	44	61	17	49	66	19	70	89	16	62	78	502	62.75	FC
2	4AL15IS006	ANVAYA KINI	19	38	57	15	33	48	15	28	43	15	29	44	18	30	48	16	34	50	18	73	91	17	55	72	453	56.63	SC
3	4AL15IS007	CHANDAN RAMSRI SHASTRI	19	47	66	15	28	43	16	38	54	16	46	62	18	65	83				20	76	96	20	78	98			
4	4AL15IS008	DEEPASHREE V	20	52	72	19	60	79	18	42	60	18	58	76	20	47	67	19	56	75	20	77	97	18	73	91	617	77.13	FCD
5	4AL15IS009	GANESH PRASAD E	19	44	63	17	30	47	15	28	43	16	45	61	19	49	68	16	28	44	20	77	97	17	64	81	504	63.00	FC
6	4AL15IS011	HARSHITHA K O	20	65	85	20	45	65	19	51	70	18	68	86	19	68	87	19	55	74	20	70	90	16	64	80	637	79.63	FCD
7	4AL15IS012	KAVANA M G	20	63	83	17	37	54	19	47	66	18	62	80	17	52	69	19	51	70	19	74	93	17	57	74	589	73.63	FCD
8	4AL15IS015	MINAL PINTO	20	43	63	19	52	71	19	42	61	18	42	60	18	36	54	17	50	67	20	70	90	17	64	81	547	68.38	FC
9	4AL15IS016	MYTHRI K J	20	52	72	19	60	79	18	41	59	17	62	79	18	29	47	17	57	74	18	70	88	19	59	78	576	72.00	FCD
10	4AL15IS017	NIKSHITHA	20	43	63	16	39	55	18	48	66	18	47	65	17	38	55	19	44	63	17	73	90	16	55	71	528	66.00	FC
11	4AL15IS018	NISHA	19	32	51	17	29	46	16	31	47	16	41	57	16	35	51	18	38	56	18	68	86	16	55	71	465	58.13	SC
12	4AL15IS020	PAVAN KUMAR M R	20	48	68	17	28	45	17	30	56	15	51	60	16	32	48	16	38	54	18	67	85	16	53	69	494	61.75	FC
13	4AL15IS022	POOJA	16	45	61	16	34	50	16	30	46	17	57	74	18	49	67	16	39	55	20	56	76	15	52	67	496	62.00	FC
14	4AL15IS023	POOJA GANGADHARA HEGDE	18	41	59	17	39	56	18	45	63	18	56	74	17	52	69	19	44	63	20	61	81	17	51	68	533	66.63	FC
15	4AL15IS024	POOJA R	20	42	62	18	30	48	19	53	72	17	65	82	18	30	48	18	45	63	20	59	79	19	53	72	526	65.75	FC
16	4AL15IS025	POOJA T S	20	69	89	19	37	56	18	43	61	18	60	78	18	46	64	18	41	59	20	72	92	16	51	67	566	70.75	FCD
17	4AL15IS026	POOJITHA	18	57	75	15	34	49	19	53	72	16	62	78	17	45	62	18	53	71	20	77	97	16	67	83	587	73.38	FCD
18	4AL15IS027	PRAJNA M	19	33	52	20	40	60	20	46	66	18	35	53	18	28	46	17	38	55	19	70	89	16	54	70	491	61.38	FC
19	4AL15IS031	RACHANA S	20	53	73	19	47	66	19	46	65	16	57	73	19	40	59	17	34	51	20	72	92	19	53	72	551	68.88	FC
20	4AL15IS036	SAMEEKSHA HEGDE	19	33	52				17	43	60	16	31	47	16	28	44	15	28	43	19	78	97	15	54	69			
21	4AL15IS038	SHAZIYA BANU	17	31	48	18	40	58	15	32	47	15	50	65	16	29	45	16	39	55	18	72	90	16	60	76	484	60.50	FC
22	4AL15IS041	SHETTY VIGNESH SURESH	20	60	80	17	43	60	20	64	84	18	58	76	20	59	79	16	40	56	20	78	98	20	78	98	631	78.88	FCD
23	4AL15IS043	SRINIVAS S	20	57	77	14	37	51	15	41	56	15	51	66	16	50	66	18	32	50	19	60	79	12	40	52	497	62.13	FC
24	4AL15IS044	SUKANAYA VIRUPRAKASHI MADIWALAR	17	40	57	16	28	44	18	32	50	16	48	64	17	28	45	14	43	57	18	70	88	16	66	82	487	60.88	FC
25	4AL15IS045	SUSHMITHA H S	18	51	69	18	43	61	18	42	60	18	47	65	18	48	66	15	49	64	18	76	94	16	60	76	555	69.38	FC
26	4AL15IS046	SWARNA GOWRI R S	20	45	65	19	42	61	19	46	65	17	48	65	20	47	67	18	41	59	20	77	97	16	56	72	551	68.88	FC
27	4AL15IS047	THAIZEERA A S	20	49	69	19	38	57	19	45	64	18	50	68	17	33	50	19	68	87	19	77	96	19	52	71	562	70.25	FCD
28	4AL15IS049	VISHAL NAIK N	18	46	64	17	37	54	16	50	66	15	45	60	16	36	52	16	42	58	19	70	89	16	66	82	525	65.63	FC
29	4AL15IS050	VISHWATH PUTTI	18	50	68				15	36	51	17	41	58	17	28	45	15	29	44	19	76	95	15	42	57			

No. of fails

% of Pass

Faculty Name

RESULT ANALYSIS ISE VI SEM- AUGUST 2018							
CN & C	SS	FS	ST	PYTHON	OS	ST LAB	FS LAB
0	2	0	0	0	1	0	0
100.00	93.10	100.00	100.00	100.00	96.55	100.00	100.00
Mrs. Swapna Laxmi K.	Ms. Kaveri B Kari	Mrs. Divya Ravi	Mr. Sudarshana Kerenalli	Mr. Manjunath H R	Dr. Roopalakshmi	Mr. Sudarshana Kerenalli	Mrs. Divya Ravi

Class Topper :	HARSHITHA K O (4AL15IS011)
First Class with Distinction :	8
First Class :	16
Second Class :	2
No. of Fails :	3
% of Pass :	89.66

AJET	Lesson Plan & Execution			Format No.	ACD 08	
				Issue No.	01	
				Rev. No.	00	
Name of the faculty			Sudarsana . K			
Semester and Section			6 th - ISE			
Date of Commencement			05-02-2018			
Last Working Day of the Semester			23-05-2018			
Source Materials List						
1. Paul C. Jorgensen :			Software Testing : A craftman's Approach Edn - 3, Addison Publication - 2008.			
2. Mauro Perze, Michael Younger.			Software Testing and Analysis - process, principles and Techniques - Wiley Publication - 2004			
3. Aditya P. Motur :			Foundations of Software Testing. PE - 2008.			
4. Ron Patton.			Software Testing - 2nd Edition - 2004			
5.						
Subject Name Software Testing - ISTQB						
Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
1	5/02	<u>Basics of sw Testing</u> Basic definitions, sw quality, Requirements, Behavior and correctness	T1, T3	<u>Basics of ST:</u> > Basic Definitions. > sw quality	05/02	1, 3
2	6/02	correctness vs Reliability Testing & Debugging Test cases Insights from Venn diagram.		> Requirements, Behavior, and program correctness.	06/02	T3, 1
3	7/02	Identifying a test case. Test generation strategies. Test Metrics.		> Correctness vs Reliability > Testing and debugging.	07/02	T3
4	08/02	Error and Fault taxonomies. Levels of testing		> Insights from Venn diagram. > Test metrics	08/02	T1




Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
5	12/2	Testing & Verification		> Identifying a test cases, > test generation strategies	09/2	T3
6	12/2	static Testing		> Test metrics	14/2	T3
7	15/2	<u>Problem statements.</u> Generalized pseudo code		Errors and fault taxonomy	15/2	T1
8	19/2	The triangle problem Next-Date function		Levels of Testing, Testing vs verification	19/2	T1, T3
9	20/2	Commission problem Guidelines & observations		Static Testing Generalized pseudocode.	20/2	T1, T3
10	21/2	SATM problem, Currency converter saturn windshield wiper.		Triangle program	21/2/18	T1
11	22/2	Module-2: <u>Boundary value analysis, Robustness</u>	T1, T2	Commission problem, and Next date problem.	23/2	T1
12	26/2	<u>Test Testing</u> , worst-case-Testing, Robust Worst case test		Guidelines and observations. SATM, and others.	24/2	T1
13	27/2	ng for Triangle, Next Date and commission problem.		Module-2: <u>Black-Box Testing</u>	26/2	T1
14	28/2	<u>Equivalence classes</u> : Equivalence test cases for the triangle problem		Boundary Value Analysis	27/2	T1
15	2/3	m, NextDate Function, and commission problem. <u>Decision table</u>		Worst, Robust-worst case Testing. Guidelines.	28/2	T1
16	5/3	Guidelines and observations. <u>Fault Based Testing</u> :		<u>Equivalence Examples</u>	2/3	T1
17	6/3	Overview, Assumptions, mutation analysis		Equivalence Class Testing.	04/3	T1

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
18	1/3	Fault based Adequacy criteria.		Derivation of test cases for 1) Triangle	05/3	T1
19	2/3	Variations on mutation Analysis		program. 2) Commission	06/3	T1
20	12/3	Revision		problem. 3) Next date problem.	07/3	T2
21	13/3	module-3: <u>Structural Testing</u>	T1/2 T3	<u>Decision Table Approach</u>	08/3	T1
22	14/3	> Overview, > Statement Testing > Branch testing > Condition testing,		> DT for all problem. > DT for next	12/3	T1
23	15/3	> path testing, > DD paths, > Test coverage metrics		date problem > Guidelines & observation	13/3	T1
24	19/3	> Basis path testing > Guidelines and observations, > <u>Data flow testing</u> .		<u>Fault Based Testing</u>	14/3	T2
25	20/3	> DU Testing > slice based Testing > Guidelines and observations.		mutation Analysis: <u>Variants mmm</u>	15/3	T2
26	21/3	> <u>Test execution</u> : Overview > Test case specification into test cases.		<u>Module-4</u> : <u>Process and Framework</u>	16/3	T2
27	22/3	> Scaffolding > Generic VS Specific scaffolding		Basic principles	19/3	T2
28	29/3	> Test oracles. > Self checks as oracles > Capture & Reply.		> Quality process	20/3	T2
29	2/4	> <u>Test execution</u>		> Quality Goals + Dependability:	21/3	T2
→ 30	3/4	> Data flow testing		> Improving process.	22/3	T2

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
31	4/4	modules: <u>Process Framework</u> :	T2	Improving the process.	23/3	T2
32	6/4	1) Basic principles. 2) The quality process.	T2	Organizational Factors.	2/4	T2
33	9/4	3) Quality goals. 4) Dependability properties.	T2	<u>Quality process</u> : AT strategies.	2/4	T2
34	10/4	5) Analysis Testing 6) Improving the process.	T2	Risk planning	3/4	T2
35	11/4	7) Organizational factors.	T2	Risk planning	4/4	T2
36	12/4	<u>Planning and Monitoring the process</u> . 8) Quality and	T2	Monitoring the process.	5/4	T2
37	16/4	processes. 9) Test and analysis strategies, plans	T2	Improving the process.	10/4	T2
38	17/4	10) Risk planning, monitoring the process.	T2	Quality Teams	10/4	T2
39	18/4	11) Improving process, 12) Quality teams.	T2	<u>Documentation</u> organizing the documents.	11/4	T2
40	19/4	13) Documenting Analysis & Test 14) Organizing documents 14) Test analysis reports	T2	Plan documents	12/4	T2
41	23/4	module-5: <u>Integration and Component Test</u>	T1, T2	Specification Documents.	13/4	T2
42	24/4	1) Integrating Strategies 2) Testing components & assembly.	T1, T2	Report Documents.	18/4	T2
43	25/4	3) System acceptance and regression testing.	T1, T2	Report-Test Analysis.	19/4	T2

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
44	20/4	4) Regression test selection strategies. 5) Test case prioritization & selective execution.	T1, T2	<u>Module-5</u> Integration & system testing.	20/4	T2, T1
45	02/5	6) Levels of testing 7) Traditional view of testing levels.	T1, T2	Integration strategies.	23/4	T2, T1
46	03/5	7) Alternative - life cycle models. 8) SATM System.	T1, T2	Testing the components & assemblies.	23/4	T1, T2
47	07/5	9) Separating Integration and system testing.	T1, T2		24/5	T1, T2
48	08/5	10) A closer look at SATM System.	T1, T2	System Acceptance Testing.	27/4	T1, T2
49	09/5	11) Decomposition based 12) call-graph based	T1, T2	Regression Testing.	30/5	T1, T2
50	10/5	13) path based Integrations.	T1, T2	Test case prioritization	30/5	T1, T2
51				Selective execution.	03/5	T1, T2
52				Levels of testing Traditional	03/5	T1, T2
53				view of the testing levels.	04/5	T1, T2
54				Alternative life cycle models.	07/5	T1, T2
55				SATM - system	08/5	T1, T2
56				Separating Integration & System Testing.	09/5	T1, T2

[illegible]

Others	Planned	Actual	Remarks :
Special Classes	02	06	
Tutorials	01/week	01/week	
Assignments	5	2	
Seminars	-	-	
IA Tests	03	03	
Portions Covered in the entire Semester	100% of the syllabus.		
Course Effectiveness			
Students Feedback			
Students Response			
Result	No. of Students AP	No. of Students Passed	% of Result
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 45%;"> <p> Faculty in Charge</p> <p> Signature of Principal (& Remarks if any)</p> </div> <div style="width: 45%; text-align: right;"> <p> HOD's Signature</p> </div> </div>			

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR.

MOODBIDRI - 574 225

Class : 6th Sem - ISE

Subject : Software Testing.

No. of Classes held : 64

ATTENDANCE CUM INTERNAL

Subject

No. of Classes held : 64			T																		T																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Date / Month			05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																													
Sl. No.	U.S.N.	Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
1	01	AISHWARYA J. CHETTY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
2	06	ANVAYA KINI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
3	07	CHANDAN R. SHASTRI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
4	08	DEEPASHREE V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
5	09	GANESH PRASAD E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
6	11	HARSHITHA KO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
7	12	KAVANA M. G	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
8	15	MINAL PINTO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
9	16	MYTHRI K J	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
10	17	NIKSHITHA.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
11	18	NISHA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
12	20	PAVAN KUMAR M. R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
13	22	POOJA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
14	23	POOJA G. HEGDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
15	24	POOJA R.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
16	25	POOJA T. S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
17	26	POOJITHA.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
18	27	PRAJNA M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
19	37	RACHANA S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
20	36	SAMEEKSHA HEGDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
21	38	SHAZIYA BANU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
22	41	SHETTY VIGNESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
23	43	SRINIVAS S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
24	45	SUSHMITHA. H.S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
25	46	SWARNA GOWRIDS.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
26	47	THAIZEERA.A.S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
27	49	VISHAL NAIK. N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
28	50	VISHWATH PUTTI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
29	44	Subanya v.m.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Students Attendance		No. of Class Attended	% of Attendance	Internal Assessment (25)			Average Marks
Inducted				11/5	11/5	11/5	
48	60						
		59	92	08	15 ✓	AB ✓	17
		58	91	AB	12	08	15
		59	92	05	12	09	16
		62	97	AB	14 ✓	21	18
		60	94	AB	13 ✓	09	16
		60	94	10	15 ✓	AB ✓	18
		59	92	07	14 ✓	12	18
		61	95	10	15 ✓	AB ✓	18
		61	95	10	14 ✓	AB ✓	17
		61	95	12	14 ✓	AB ✓	18
		58	91	09	13 ✓	AB ✓	16
		58	91	05	11	09	15
		62	97	10	14 ✓	AB ✓	17
		60	94	11	14 ✓	AB ✓	18
		58	91	10	14 ✓	AB ✓	17
		62	97	11	14 ✓	AB ✓	18
		59	92	07	14 ✓	AB ✓	16
		61	95	05	14 ✓	11	18
		60	94	08	13 ✓	AB ✓	16
		58	91	09	12	AB ✓	16
		60	94	07	12	AB ✓	15
		57	89	14	12	12	18
		59	92	07	12	AB ✓	15
		58	91	11	14 ✓	AB ✓	18
		61	95	10	14 ✓	AB ✓	17
		61	95	11	14 ✓	AB ✓	18
		61	95	07	13 ✓	AB ✓	15
		62	98	10	14 ✓	AB ✓	17
		58	91	07	12	09	16

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61	62	63	64	65	66	67	68	69	70	71	72	73
55	56	57	58	59								
54	55	56	57	58								
56	57	A	58	59								
A	A	60	61	62								
56	57	58	59	60								
56	57	58	59	60								
A	56	57	58	59								
A	A	60	A	61								
57	58	59	60	61								
58	59	60	A	C1								
55	56	57	A	58								
A	A	56	57	58								
59	60	61	A	62								
A	A	59	A	60								
55	56	57	A	58								
A	60	61	A	62								
A	57	58	A	59								
A	A	59	A	60								
57	58	59	A	60								
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56	57	58	59	60								
53	54	55	56	57								
55	56	57	58	59								
56	A	57	A	58								
58	59	60	A	61								
59	58	59	60	61								
59	59	59	60	61								
60	61	62	63	64								
52	53	56	57	58								
A	A	A	A	A								

Assignment masks

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for for for for

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY MOODBIDRI
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
COURSE OUTCOME ASSESSMENT MATRIX

COURSE OUTCOMES (COs) ASSESSMENT MATRIX			
Alva's Institute of Engineering and Technology, Moodbidri			
Department of Information Science and Engineering			
COs	Formative Assessment	Summative Assessment	Total Attainment
CO1	1.00	3	2.60
CO2	0.00	3	2.40
CO3	0.75	3	2.55
CO4	1.60	3	2.72
CO5	2.27	3	2.85

Note:

Total Attainment = (Weightage*Formative Assessment)+(Weightage*Summative Assessment) Weightage for Formative Assessment = 20%; Weightage for Summative Assessment = 80%

PROGRAMME OUTCOME & PROGRAMME SPECIFIC OUTCOME ASSESSMENT MATRIX

Alva's Institute of Engineering and Technology, Moodbidri

Department of Information Science and Engineering

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	2	3	3	2	1		2	2	1		2	2	1	
2	1	2	2	3	2			2	2	1		1	2	2	
3	1	2	2	1				2	1	1		1	2	2	
4	1	2	2	2	2	1		2	1	1		1	2	2	
5	1	1	2	1	1			2	1	1		2	1	1	1
AVG	1.2	1.8	2.2	2	1.75	1		2	1.4	1		1.4	1.8	1.6	1

PO Attainment Calculation

COs	CO Attainment Grade	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PSO1	PSO2	PSO3
C01	2.6	1.73333	1.73333	2.6	2.6	1.73333	0.86667	0	1.73333	1.73333	0.86667	0	1.73333	1.733	0.867	0
C02	2.4	0.8	1.6	1.6	2.4	1.6	0	0	1.6	1.6	0.8	0	0.8	1.6	1.6	0
C03	2.5	0.83333	1.66667	1.66667	0.83333	0	0	0	1.66667	0.83333	0.83333	0	0.83333	1.667	1.667	0
C04	2.72	0.90667	1.81333	1.81333	1.81333	1.81333	0.90667	0	1.81333	0.90667	0.90667	0	0.90667	1.813	1.813	0
C05	2.85	0.95	0.95	1.9	0.95	0.95	0	0	1.9	0.95	0.95	0	1.9	0.95	0.95	0.95
	Weighted Sum --->	5.22333	7.76333	9.58	8.59667	6.09667	1.77333	0	8.71333	6.02333	4.35667	0	6.17333	7.763	6.897	0.95
	Max Weight --->	7.2	10.8	13.2	12	8.75	3	0	12	8.4	6	0	8.4	10.8	9.6	2
PO Attainment in percentage	:----->	72.55	71.88	72.58	71.64	69.68	59.11		72.61	71.71	72.61		73.49	71.88	71.84	47.50
	PO Attained Grade	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PSO1	PSO2	PSO3
		0.88	1.3	1.6	1.44	1.22	0.6	0	1.46	1.01	0.73	0	1.03	1.3	1.15	0.48