Lok Jagruti Kendra University
University with a Difference

Diploma
in
Gaming & Animation

Course Code: 025110509
Software Testing

Programme / Branch Name	Diploma in Gaming & Animation				
Course Name	Software Testing			**Course Code**	025110509
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses   BSC: Basic Science Courses
ESC: Engineering Science Courses   PCC: Program Core Courses
OEC: Open Elective Courses   PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week / Credits				Evaluation Scheme			
L	**T**	**P**	**Total Credit**	**CCE**	**SEE (Th)**	**SEE (Pr)**	**TOTAL**
3	0	4	5	50	50	50	150

Legends:
L: Lectures   T: Tutorial   P: Practical
CCE: Continuous & Comprehensive Evaluation
SEE (Th):   Semester End Evaluation (Theory)
SEE (Pr):   Semester End Evaluation (Practical)

2. Prerequisites

✔ Basic knowledge of Software Engineering.

3. Rationale

Software Testing is the process of verifying a system with the purpose of identifying any errors, gaps or missing requirements versus the actual requirements. Software Testing is important because software bugs could be expensive or even dangerous. Learning this subject will help students to plan effective test approaches and to find bugs in earlier phases of software development. In addition, this subject will introduce automation testing which will utilize student's creativity to explore new ways to test a system, and thus students will spend less time as a tester and more time being the Quality Analyst.

4. Objectives

✔ The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning outcomes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.
- Learn various types and levels of Software Testing.
- Prepare various test cases for different types and levels of testing.
- Prepare a test plan for any application.
- Identify bugs to create defects reported to a given application.

5. Contents

Unit No.	Topics	Sub-Topics	Learning Outcomes	% Weightage	Hours
1	**Fundamentals of Software Testing**	1.1. Introduction to Software Testing 1.2. Objectives of Testing 1.3. Bug 1.4. Software Testing Life Cycle 1.5. V model of Software Testing 1.6. Makes a good software tester 1.7. Software Testing Terms: Precision and Accuracy, Verification and Validation 1.8. Quality Assurance and Quality Control	● Basics of Software Testing ● Reason to study Software Testing ● Knowledge about bugs, errors, and defects in a software ● Skills of a software tester ● Get an overview of Software Testing types, techniques, skills required, tools needed etc.	25	11
2	**Software Testing Types**	2.1. White Box Testing: Classification of White Box Testing, Static Testing and Structural Testing 2.2. Black Box Testing: Techniques for Black Box Testing, Boundary Value Analysis, Decision Tables, Equivalence Partitioning 2.3. Grey Box Testing 2.4. Comparison of Various Testing Types	● Types of Software Testing ● Importance of different types of Software Testing ● Comparison of different types of Software Testing methods	20	7
3	**Software Testing Levels**	3.1. Unit Testing 3.2. Integration Testing 3.3. System Testing 3.4. User Acceptance Testing 3.5. Special Tests 3.6. Application Testing: Web based Testing	● Types of Software Testing ● Basics of Application Testing ● Basics of Web Testing	20	10

4	**Test Documentation and Planning**	4.1. Test Plan 4.2. Test Planning Process: Resource Requirements, Tester Assignments, Test Schedule, Test Case 4.3. Test Case Planning: Test Design, Test Case, Test Procedures, Test Case Organization & Tracking 4.4. Requirement Traceability Matrix	● Planning a Software Test ● Process execution of a Software Test ● Scheduling of a Test ● Traceable scheduling of Software Testing	20	8
5	**Defect Management**	5.1. Defect (Bug) Classification 5.2. Defect Management Process 5.3. Bug Life Cycle and Template 5.4. Estimate Expected Impact of a Bug, Techniques for finding Bug 5.5. Bug Reporting	● Different types of defects, bugs, errors ● Managing a defect ● Learn life cycle of a bug ● Knowledge about template for Testing ● Impact of applied bug on a software ● Analyzing and reporting of bug in a software	15	6
			Total Hours		**42**

6. List of Practicals / Exercises

The practical/exercises should be properly designed and implemented in an attempt to develop different types of skills so that students can acquire the competencies/programme outcomes. Following is the list of practical exercises for guidance.

Sr. No.	Practical / Exercises	Key Competency	Hours
1	Study Software Testing concepts, types & methods.	To learn about concepts of Software Testing	2
2	Identify system specification & design test cases for Inventory management.	To prepare test case for a managerial inventory	2
3	Design and write test cases for simple calculator applications.	To prepare test case for a calculator	2
4	Design a set of test cases for Flight Ticket Reservation System.	To prepare test case for a flight ticket booking	4

5	Write a program and design test cases for White Box Testing all control structures.	To prepare test case for testing control structures	4
6	Design test cases for Black Box Testing for any project.	To prepare test case for project	2
7	Design test cases for any website using Regression Testing.	To prepare test case for a website	4
8	Study various Bug Reporting tools.	To learn basic techniques of bug reporting tools	2
9	Study Bug Life Cycle and reporting bugs for Instagram Application.	To learn reporting a bug for an application	4
10	Study college websites and report various bugs.	To learn different bugs on a website	4
11	Prepare Test Plan for Coffee Vending Machine.	To prepare test plan for a vending machine	2
12	Prepare Test Plan for Railway Ticket Reservation System.	To prepare test plan for a railway ticket booking	4
13	Identify system specification & design test cases for Hotel Management System.	To prepare test case for a hotel management system	4
14	Design a set of test cases for Social Media Platform (any one).	To prepare test case for social media	4
15	Prepare Test Plan for Student Admission Process.	To prepare test plan for admission process	4
16	Prepare a test report, including test plan, test cases. (For any of your own mini/major projects.)	To prepare test case and a plan for any desired project topic	8

Total Hours   **56**

7. Suggested Specification Table with Hours

Unit No.	Chapter Name	Teaching Hours	Distribution of Topics According to Bloom's Taxonomy					
			R %	U %	App %	C %	E %	An %
1	Fundamentals of Software Testing	11	40	30	20	-	5	5
2	Software Testing Types	7	30	30	20	-	10	10
3	Testing Levels	10	30	30	20	-	10	10
4	Test Documentation and Planning	8	30	25	20	-	15	10
5	Defect Management	6	20	30	30	-	10	10

Legends: R: Remembering   U: Understanding
               App: Applying   C: Creating
               E: Evaluating   An: Analyzing

8. Textbooks

1) Software Testing, Ron Patton, Pearson 2nd edition.

9. Reference Books

1) Software Testing: Principles, Techniques and Tools, M. G. Limaye.
2) Software Testing: Principles and Practices, Srinivasan Desikan, Gopalaswamy Ramesh, Pearson

10.Open Sources (Website, Video, Movie)

1) https://nptel.ac.in/courses/106105150
2) https://www.educba.com/software-development/software-development-tutorials/software-testing-tutorial/
3) https://www.codecademy.com/learn/learn-testing-for-web-development