SOFTWARE TESTING

Coursecode	PEC-CSE-413				
Category	Professional Elective Course				
Coursetitle	Software Testing				
Scheme and Credits	L	T	P	Credits	Semester 7
	3	0		3	
Class work	25 Marks				
Exam	75 Marks				
Total	100 Marks				
Duration of Exam	03 Hours				

Course Objectives:

1. To study fundamental concepts of software testing including software testing objectives, process, criteria, strategies, and methods.
2. To learn how to plan a test project, design test cases and data, conduct testingoperations, manage software problems and defects, generate a testing report.
3. To gain an insight into techniques and skills on how to use modern software testing toolsto support software testing projects.

Note: Examiner will set nine questions in total. Question one will be compulsory. Question one will have 6 parts of 2.5 marks each from all units and remaining eight questions of 15 marks each to be set by taking two questions from each unit. The students have to attempt five questions in total, first being compulsory and selecting one from each unit.

Unit1

Introduction: Overview of Software Development Life Cycle (SDLC), Significance of Software Testing in SDLC, Objectives and Limitations of software testing. Difference between an Error, Fault and Failure (Software Bug), Software Testing Life Cycle (STLC) and Seven Principles of Software Testing, Role of Software Testing in Software Quality

Unit 2

Test Case Design: Test Cases and Test Suite, Test Case Planning and Designing, Characteristics of Good Test Case Design, Format of test case.

Testing Activities: Levels of Testing- Unit, Integration Testing and System Testing. V Model for Software Testing.

Unit 3

Types of Software Testing: Black box testing, White Box and Gray Box Testing.

Reporting and Analyzing bugs: Problem reports, Content and Characteristics of Problem Report, analysis and Tactics for analyzing a reproducible bug. Making a bug reproducible, Problem/Bug Reporting tools

Unit4

Test Case Selection: Need of Regression Testing, Non-feasibility of Exhaustive Testing,Selection, Minimization and Prioritization of test cases in regression testing.

Testing Tools: Manual vs Automated Testing, Types of Testing Tools, Automated Test Case Generation

Course Outcomes:

CO1. Understand software testing and quality as a fundamental component of softwaredevelopment life cycle
CO2. Understand and design the test cases for a given problem
CO3. Understand the process of Reporting of software failures(bugs) using tools like Bugzilla
CO4. Distinguish characteristics of structural testing methods.
CO5. Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible.
CO6. Discuss about the functional and system testing methods.

Mapping of Paper No. PEC-CSE-413

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4
CO1	S	S	S	M	S	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	M	S	S	S	S	S	S	S	S	M
CO3	M	S	S	S	S	S	S	M	S	S	S	S	S	M	S
CO4	S	S	S	S	M	S	S	S	S	S	S	S	S	M	S
CO5	S	S	S	S	S	M	S	S	M	S	S	S	S	S	S
CO6	S	S	S	S	S	M	S	S	S	S	S	S	S	S	S

S = Strong, M = Medium, W = Weak

Text books:

1. "Software Testing: Principles and Practices", by Naresh Chauhan. Oxford UniversityPress

Reference books

1. "William Perry, Effective Methods for Software Testing, John Wiley & Sons, New York,1995.
2. Boris Beizer, Software Testing Techniques , Second Volume, Second Edition, VanNostrand Reinhold, New York, 1990.
3. Louise Tamres, Software Testing , Pearson Education Asia, 2002
4. Roger S. Pressman, Software Engineering – A Practitioner's Approach , Fifth Edition,McGraw-Hill International Edition, New Delhi, 2001.
5. Boris Beizer, Black-Box Testing – Techniques for Functional Testing of Software and Systems , John Wiley & Sons Inc., New York, 1995.
6. K.K. Aggarwal & Yogesh Singh, Software Engineering , New Age International Publishers,New Delhi, 2003.