COURSE TITLE : SOFTWARE TESTING
COURSE CODE : 6136
COURSE CATEGORY : ELECTIVE
PERIODS/WEEK : 5
PERIODS/SEMESTER : 75
CREDITS : 5

TIME SCHEDULE

MODULE	TOPICS	PERIODS
1	Testing methodology	**19**
2	Testing techniques	**19**
3	Test automation and testing tools	**19**
4	Debugging process	**18**

Course General Outcomes:

Sl.	G.O	On completion of this course the student will be able :
1	1	To understand testing methodology
2	1	To understand Testing techniques
	2	To omprehend various techniques
3	1	To understand test automation and testing tools
4	1	To understand the process of debugging

Specific Outcomes:

MODULE – I: Testing Methodology

1.1 To understand testing methodology
- 1.1.1 Explain the goals of testing
- 1.2.1 Explain the model for software testing and software testing process
- 1.3 1 Describe the software testing life cycle (STLC) and phases
- 1.4.1 Explain software testing methodology
- 1.5.1 Explain how verification and validation of code is done

MODULE – II: Testing Techniques

2.1 To understand Testing techniques
- 2.1.1 explain various dynamic testing techniques
- 2.1.2 Describe Black box testing techniques
- 2.1.3 Describe Boundary value analysis
- 2.1.4 Describe Equivalence class testing
- 2.1.5 State table based testing
- 2.1.6 Describe Decision table based testing

2.1.7 State Cause effect graphing based testing
2.1.8 Describe the method of Error guessing
2.1.9 Describe White box testing techniques
2.1.10 Describe the Need of white box testing
2.1.11 Explain the Logic coverage criteria
2.1.12 Describe Basis path testing
2.1.13 Describe Data flow testing
2.1.14 Describe Mutation testing

2.2 Explain various static testing techniques
2.2.1 Describe the methods of code inspections
2.2.2 Describe how structured walkthroughs are benefitted
2.2.3 State the need of technical reviews
2.2.4 Describe about validation testing
2.2.5 Explain how unit validation testing is carried out
2.2.6 Explain the need and methods of Integration testing
2.2.7 Describe about function testing
2.2.8 Explain system testing
2.2.9 Describe the steps in acceptance testing
2.2.10 Describe what is regression testing
2.2.11 Differentiate between progressive and regression testing
2.2.12 Describe the test for regression testability
2.2.13 State the objectives of regression testing
2.2.14 Explain the different regression testing techniques

MODULE – III: Test Automation and Testing Tools

3.1 To understand test automation and testing tools
3.1.1 Describe advantages of test automation
3.1.2 Explain the Guidelines for automated testing
3.1.3 State the categories of testing tools
3.1.4 Explain the selection of testing tools
3.1.5 Explain the open source testing tools – CUT, Cgreen,Emma and Findbugs
3.1.6 Describe about commercial testing tools – WinRunner, SilkTest, LoadRunner, Jmeter, and TestDirector
3.1.7 State how object oriented testing is done
3.1.8 Describe how testing of web based systems are done

MODULE – IV: Debugging Process
4.1 To understand the process of debugging
4.1.1 Explain the methods of bug tracking
4.1.2 Describe the process of debugging
4.1.3 Explain different debugging techniques
4.1.4 Explain how to correct the bugs
4.1.5 Explain different debugging tools and different types of debuggers

CONTENT DETAILS

MODULE – I: Testing Methodology

Goals of testing - Model for software testing and software testing process - Software Testing Life Cycle (STLC) and phases - Software testing methodology - Verification and validation of code

MODULE – II: Testing Techniques

Dynamic testing techniques - Black box testing techniques - Boundary value analysis, Equivalence class testing, Table based testing, Decision table based testing, Cause effect graphing based testing, method of Error guessing, White box testing techniques - Need of white box testing, Logic coverage criteria, Basis path testing, Data flow testing, Mutation testing

Static testing techniques - Methods of code inspections, Structured walk throughs, Need of Technical reviews, Validation testing, Unit validation testing, Methods of Integration testing, Function testing, System testing, Acceptance testing, Regression testing, Progressive and regression testing, Test for regression testability, Objectives of regression testing, different regression testing techniques

MODULE – III: Test Automation and Testing Tools

Test Automation - Advantages of test automation, Guidelines for automated testing

Testing Tools - Categories of testing tools, selection of testing tools, Open source testing tools – CUT, Cgreen,Emma and Findbugs, Commercial testing tools – WinRunner, SilkTest, LoadRunner, Jmeter, and TestDirector

Object oriented testing, Web based system testing

MODULE – IV: Debugging Process

Methods of bug tracking, Process of debugging, Different debugging techniques, Correcting the bugs, Debugging tools, Types of debuggers

TEXT BOOK(S):

1. Software Testing, Principles and Practice – Naresh Chauhan – Oxford University Press-First Edition.
2.

REFERENCES:

1. Software Engineering : **Ian Sommerville**, Pearson,Nineth Edition
2. Software Engineering a practitioners approach – Roger S Pressman,Seventh Edition