



# JEPPIAAR INSTITUTE OF TECHNOLOGY

“Self-Belief | Self Discipline | Self Respect”



## IT8076 SOFTWARE TESTING L T P C 3 0 0 3

### OBJECTIVES:

- To learn the criteria for test cases.
- To learn the design of test cases.
- To understand test management and test automation techniques.
- To apply test metrics and measurements.

### UNIT I INTRODUCTION 9

Testing as an Engineering Activity – Testing as a Process – Testing Maturity Model- Testing axioms – Basic definitions – Software Testing Principles – The Tester’s Role in a Software Development Organization – Origins of Defects – Cost of defects – Defect Classes – The Defect Repository and Test Design –Defect Examples- Developer/Tester Support of Developing a Defect Repository.

### UNIT II TEST CASE DESIGN STRATEGIES 9

Test case Design Strategies – Using Black Box Approach to Test Case Design – Boundary Value Analysis – Equivalence Class Partitioning – State based testing – Cause-effect graphing – Compatibility testing – user documentation testing – domain testing – Random Testing – Requirements based testing – Using White Box Approach to Test design – Test Adequacy Criteria – static testing vs. structural testing – code functional testing – Coverage and Control Flow Graphs – Covering Code Logic – Paths – code complexity testing – Additional White box testing approaches- Evaluating Test Adequacy Criteria.

### UNIT III LEVELS OF TESTING 9

The need for Levels of Testing – Unit Test – Unit Test Planning – Designing the Unit Tests – The Test Harness – Running the Unit tests and Recording results – Integration tests – Designing Integration Tests – Integration Test Planning – Scenario testing – Defect bash elimination System Testing – Acceptance testing – Performance testing – Regression Testing – Internationalization testing – Ad-hoc testing – Alpha, Beta Tests – Testing OO systems – Usability and Accessibility testing – Configuration testing –Compatibility testing – Testing the documentation – Website testing.

### UNIT IV TEST MANAGEMENT 9

People and organizational issues in testing – Organization structures for testing teams – testing services – Test Planning – Test Plan Components – Test Plan Attachments – Locating Test

Items – test management – test process – Reporting Test Results – Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group- The Structure of Testing Group- .The Technical Training Program.

## **UNIT V TEST AUTOMATION**

**9**

Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation – Test metrics and measurements – project, progress and productivity metrics.

**TOTAL: 45 PERIODS**

### **OUTCOMES:**

**At the end of the course the students will be able to:**

- Design test cases suitable for a software development for different domains.
- Identify suitable tests to be carried out.
- Prepare test planning based on the document.
- Document test plans and test cases designed.
- Use automatic testing tools.
- Develop and validate a test plan.

### **TEXT BOOKS:**

1. Srinivasan Desikan and Gopaldaswamy Ramesh, —Software Testing – Principles and Practices, Pearson Education, 2006.
2. Ron Patton, —Software Testing, Second Edition, Sams Publishing, Pearson Education, 2007. AU Library.com

### **REFERENCES:**

1. Ilene Burnstein, —Practical Software Testing, Springer International Edition, 2003.
2. Edward Kit Software Testing in the Real World – Improving the Process, Pearson Education, 1995.
3. Boris Beizer, Software Testing Techniques – 2nd Edition, Van Nostrand Reinhold, New York, 1990.
4. Aditya P. Mathur, —Foundations of Software Testing \_ Fundamental Algorithms and Techniques, Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008.