

Diploma In Software Testing

Course Contents

Level I

1. C Programming

- a. Programming Approach to a Problem
- b. Algorithm
- c. Drawing Flowcharts
- d. Data types & Operators
 - i. Different Data Type
 - ii. Variable Declaration
 - iii. Classification of Operators
 - iv. Precedence for Different Operators
- e. Conditions and Loops
 - i. If Else Statement
 - ii. Nested If Statement
 - iii. Do Case Statement
 - iv. Loops
 - v. Different kinds of While Loops
 - vi. For Loop
 - vii. Repeat Until Loop
- f. Arrays and Pointers
 - i. Define an Array
 - ii. Declaring an Array
 - iii. Array Index
 - iv. Assigning & Retrieving Values from Array Elements
 - v. Need for Multidimensional Arrays
 - vi. Declaring Two Dimensional Arrays
 - vii. Declaring Pointers
 - viii. Retrieving Values from Pointers
- g. Structures
 - i. Defining a Structure
 - ii. Accessing Members of a Structure
- h. Functions & its Advantages
 - i. Function Declaration
 - ii. User Defined Function

- iii. Function Libraries
- iv. Functions with Parameters

2. Introduction to Testing

- a. What is Quality
- b. What is Testing
- c. Error, Defect and Failure
- d. Software Development Life Cycle
- e. Testing Life Cycle
- f. Need for Software Testing
- g. Pre-requisites of Testing
- h. Testing Methodologies
- i. Risks
- j. Risk Analysis
- k. Economics of Testing

3. Various Levels of Testing

- a. SDLC vs. TLC Stages
- b. V- Model of Testing
- c. Unit Level Testing
- d. Stubs and Drivers
- e. Integration Level Testing
- f. Integration Level Testing Strategy
- g. Big Bang approach
- h. Incremental approach
- i. System Testing
 - i. Performance Testing
 - ii. Security Testing
 - iii. Recovery Testing
 - iv. Release Testing
 - v. Documentation Testing
 - vi. Compatibility Testing
 - vii. Configuration Testing

- viii. Interoperability Testing
- ix. Verification of User Interface
- j. User Acceptance Testing
 - i. Alpha testing
 - ii. Beta testing

4. Writing Test Cases

- a. Use Cases
- b. Actor
- c. Scenarios
- d. Use Case Diagrams
- e. Test Cases
- f. Format for Unit Level Testing
- g. Format for Integration Level Testing
- h. Format for Defect Report
- i. Defect reporting
- j. Defect Tracking
- k. Severity Levels
- l. Priority

5. Dynamic testing Techniques

- a. What is a test technique
- b. Categories of test design techniques
 - i. Specification-Based Techniques
 - ii. Structure-Based Techniques
 - iii. Experienced-Based Techniques
- c. Types of Dynamic techniques
 - i. Systematic Testing Techniques
 - ii. Functional (Black Box) Testing
 - iii. Structural (White Box) Testing
- d. Techniques of Black Box Testing
 - i. Equivalence Partitioning
 - ii. Boundary value analysis
- e. Coverage Techniques in White Box Testing
 - i. Statement Coverage
 - ii. Branch/decision Coverage
 - iii. Cyclomatic Complexity (CC)

- f. Non- Systematic Testing Techniques
 - i. Experience Based Techniques

6. Software Quality Management

- a. What is Software Quality
- b. Quality Management Activities
 - i. Quality Assurance
 - ii. Quality Planning
 - iii. Quality Control
- c. Difference between QA and QC
- d. Verification & Validation
- e. Software Quality Assurance
 - i. Audits
- f. Software Quality Control
 - i. Reviews
 - ii. Inspections
 - iii. Testing
- g. Type of Reviews
 - i. INFORMAL or PEER REVIEW / Technical Review
 - ii. SEMIFORMAL or WALKTHROUGH
 - iii. FORMAL or INSPECTION

7. Web Testing

- a. Types of applications
 - i. Two-tier applications
 - ii. Three-Tier Architecture or n-tier
- b. 3-Tier Web Applications
 - i. Testing Concepts for Web Applications
 - ii. Web Design Quality
- c. The Web application testing process
 - i. Web Application Testing Strategy
 - ii. Web Application Test Planning
 - iii. Characteristics of errors in Web Application
- d. Areas to focus in Testing a Web application
 - i. Web Content Testing Objectives
 - ii. Database (DB) testing
 - iii. User Interface Testing

8. Test Management

- a. Independent Testing (Options for Independence)
 - i. Levels of independence
 - ii. Benefits and drawbacks of independence
 - iii. Common practices
- b. Tasks of a test leader
- c. Tasks of the tester
- d. Fundamental test process
 - i. Test Planning and Control
 - ii. Test Analysis and Design
 - iii. Test Implementation and Execution
 - iv. Evaluating Exit Criteria and Reporting
 - v. Test Closure Activities
- e. Basic Principles of Testing
- f. Factors affecting Test Planning
- g. Test Plan Contents
- h. Test Planning for Different Software Process Models
 - i. Waterfall model
 - ii. Iterative development model
 - 1. Prototyping
 - 2. Rapid application development model (RAD)

9. Practicals (Writing Test Cases for Unit Level Testing)

- a. Using a case Study
- b. Unit Level Test Cases- Reviews

10. Practicals (Writing Test cases for Integration Level of Testing)

- a. Using a Case Study
- b. Integration Level Test Cases-Reviews

11. Test Case Execution --Practicals (Creation of a Defect report)

- a. Using a Case Study
- b. Defect report- Review

Module II :

1. Introduction to Functional Testing Tool

- a. Drawbacks of Manual Testing

- b. Benefits of Automated Testing
- c. Exploring the tool window.
- d. Testing Process
- e. Recording of Test Scripts
- f. Analog recording mode.
- g. Context sensitive recording mode
- h. Analyzing the results.
- i. Creating and Editing GUI Map Files
- j. Using TSL Functions
- k. Setting up GUI map
- l. Understanding the GUI objects
- m. Spying on GUI objects
- n. Using Rapid Test Script Wizard.

Practicals

- a. Recording Test Scripts
- c. Analog Mode
- d. Context-Sensitive Mode
--Using Sample Application

2. Data Driver Wizard

- a. Data driven tests
- b. Creating data driven tests.
- c. Converting normal tests to data driven tests.
- d. Creating data pool.

Practicals—Unit Level Testing ---Using Data Driver Wizard

3. Creating Compiled Modules

- a. Integration Level Testing using Compiled Modules

Practicals – Creating Integration level test Scripts

Using an Application – Creating Compiled Modules

4. File Functions

- a. Creating Files
- b. Using various File functions

Practicals – File functions

5. Database Connection

- a. Using Functions
- b. Database Querying
- c. Database Checkpoints

Practicals—Database Connection

6. Synchronizing the tests.

- a. Need for synchronization.
- b. Synchronizing the tests.
- c. Running the synchronized test.

Practicals—Synchronization

7. Web Testing

- a. Using various web related Functions
- b. Bitmap Checkpoint

Practicals—Web Testing

8. Regression Testing

- a. Inserting GUI Checkpoints

9. Running Scripts in Batch Mode

Practicals—Regression Testing

Module III : Introduction to Test Management Tool(TMT)

- a. Introduction to TMT
- b. Creation of a project
- c. Test Case Designing using TMT
- d. Execution of Win Runner Scripts through TMT
- e. Defect Tracking using TMT

Practicals-Hands On

Module IV : Introduction to Load Testing

Understand the terms load, performance, stress testing

- a. Why load testing?
- b. Planning an effective load test
- c. Scripting

2. Creating Web Virtual Users (Vusers)

- a. Recording user actions using Vugen
- b. Playback action file and review the result
- c. Understanding Vuser runtime settings
- d. Creating transactions
- e. Creating transactions while recording and after recording
- f. Using automatic transactions
- g. Using transactions to analyze response time

3. Parameterization

- a. Creating parameterized script
- b. Executing parameterized scripts

4. Verification & Checks

- a. Image checks
- b. Text checks

5. Inserting Rendezvous Points

Practicals—Hands On

6. Controller

- a. Scheduling a Scenario
- b. Executing a Scenario

7. Analyzer

- a. Analyzing the various performance counters

Module V : Perl Scripting

1. Basic and Useful Commands in UNIX

- a. Introduction to Perl scripting
- b. Basic Concepts , It's use
- c. Programming using Perl Scripting
- d. Arithmetic, Conditional constructs Looping commands
- e. Functions
- f. File Functions.
- g. Creating Test Harness.

Duration : 3 months(Part Time)