

VERSION

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TESBO COURSE

ELYSIUM
ACADEMY
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CERTIFIED
TESTING
EXPERT

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SR. CODE

EAPL/TESBO/TSTC05

COURSE CODE

EATTE

SUB CATEGORY

SOFTWARE TESTING



TOTAL DURATION
180
HOURS



THEORY TAKEN
50
HOURS



PRACTICAL TAKEN
130
HOURS

COURSE DESCRIPTION



The Testing Framework course provides comprehensive training in popular testing tools such as Cucumber, Appium, SoapUI, and Katlon. Participants will learn fundamental principles of software testing, test automation, and API testing, along with hands-on practice using these industry-standard tools.

COURSE GOALS



By completion, students will proficiently create and execute automated tests using Cucumber for behavior-driven development, Appium for mobile application testing, SoapUI for web service testing, and Katlon for web automation.

FUTURE SCOPE



Graduates will be well-prepared for roles as software testers, automation engineers, or quality assurance analysts. With the increasing demand for automated testing in Agile and DevOps environments, proficiency in these testing frameworks opens doors to diverse career opportunities across industries such as software development, e-commerce, finance, and healthcare, ensuring a promising career trajectory in the field of software quality assurance and testing.

01

CHAPTER

FUNDAMENTALS OF TESTING

O1. What is Testing?

- a. Test Objectives
- b. Testing and Debugging

O2. Why is Testing Necessary?

- a. Testing's Contributions to Success
- b. Testing and Quality Assurance (QA)
- c. Errors, Defects, Failures, and Root Causes

O3. Testing Principles

O4. Test Activities, Testware & Test Roles

- a. Test Activities and Tasks
- b. Test Process in Context
- c. Testware
- d. Traceability between the Test Basis & Testware
- e. Roles in Testing

O5. Test Process

- a. Test Planning
- b. Test Monitoring & Control
- c. Test Analysis
- d. Test Design
- e. Test Implementation
- f. Test Execution
- g. Test Completion



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02

CHAPTER

TESTING THROUGHOUT THE SOFTWARE DEVELOPMENT LIFECYCLE

O1. Software Development Cycle (SDLC) – Introduction

- a. Verification Vs. Validation
- b. Sequential Model
- c. Incremental and iterative Model

O2. Agile Software Development

O3. Testing in the Context of a Software Development Lifecycle

- a. Impact of the Software Development Lifecycle on Testing
- b. Software Development Lifecycle and Good Testing Practices
- c. DevOps and Testing
- d. Shift – Left Approach
- e. Retrospectives and Process Improvement

O4. Test Levels and Test Types

- a. Test Levels
- b. Test Types
- c. Confirmation Testing and Regression Testing

O5. Maintenance Testing



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CHAPTER

STATIC TESTING

O1. Static Testing Basics

- a. Work Products Examinable by Static Testing
- b. Value of Static Testing
- c. Difference Between Static Testing and Dynamic Testing

O2. Feedback and Review Process

- a. Benefits of Early and Frequent Stakeholder Feedback
- b. Reviews Process Activities
- c. Roles and Responsibilities of Reviews
- d. Review Types
- e. Success Factors For Reviews



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04

CHAPTER

TEST ANALYSIS AND DESIGN

O1. Test Techniques Overview

O2. Black Box Test Techniques

- a. Equivalence Partitioning
- b. Boundary Value Analysis
- c. Decision Table Testing
- d. State Transition Testing
- e. Use Case Testing

O3. White Box Test Techniques

- a. Statement Testing and Statement Coverage
- b. Branch Testing and Branch Coverage
- c. The Value of White – Box Testing



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O4. Experience Based Test Techniques

- a. Error Guessing
- b. Exploratory Testing
- c. Checklist Based Testing

O5. Collaboration Based Test Approach

- a. Collaborative User Story Writing
- b. Acceptance Criteria
- c. Acceptance Test – Driven Development (ATDD)

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CHAPTER

MANAGING THE TEST ACTIVITIES

O1. Test Planning

- a. Purpose and Content of a Test Plan
- b. Tester's Contribution to Iteration and Release Planning
- c. Entry Criteria and Exit Criteria
- d. Estimation Techniques
- e. Test Case Prioritization
- f. Test Pyramid
- g. Testing Quadrants

O2. Risk Management

- a. Risk Definition and Risk Attributes
- b. Project Risks and Product Risks
- c. Product Risk Analysis
- d. Product Risk Control



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O3. Test Monitoring , Test Control and Test Completion

- a. Metrics Used in Testing
- b. Purpose, Content and Audience for Test Reports
- c. Communicating the Status of Testing
- d. Configuration Management

O4. Defect Management

06

CHAPTER

TEST TOOLS

- O1. Tool Support for Testing
- O2. Benefits and Risks of Test Automation
- O3. Software Testing Life Cycle
- O4. Alpha Testing + Beta Testing
 - a. Asana Tool_free
 - b. JIRA Tool
 - c. Bugzilla Tool
 - d. Question Bank
 - e. Mock , Mco



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07

CHAPTER

INTRODUCTION OF SOFTWARE TESTING

O1. Introduction of Software Testing

- a. What is Software Testing?
- b. What is Quality?
- c. Importance of Testing
- d. Tools used for Testing
- e. Manual and Automation Testing
- f. Principles of software testing

O2. Software Development Life Cycle

- a. SDLC and SDLC Phases

O3. Waterfall Model

O4. V Model

O5. Spiral Model

O6. Iterative Model

O7. Agile Model

- a. Requirements and Analysis
- b. Design
- c. Development
- d. Testing
- e. Deployment
- f. Operation and Maintenance

O8. Development Architectures

- a. One Tier Architecture
- b. Two Tier Architecture
- c. Three Tier Architecture
- d. N-Tier Architecture



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O9. Software Testing Life Cycle

- a. What is STLC
- b. Entry and Exit Criteria
- c. STLC Phases
- d. Requirement Analysis
- e. Test Planning
- f. Test Design
- g. Test Execution
- h. Sign off
- i. Test Scenario Preparation
- j. Test Case Preparation
- k. Test Environment and Test Data Preparation
- l. Requirement Traceability Matrix

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CHAPTER

BASIC CONCEPT OF SOFTWARE TESTING

O1. Basic Concept of Software Testing

- a. What is Software Testing?
- b. Test Process
- c. Test Levels



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- Testing Techniques used in Levels of Testing
- White Box Testing Technique
- Black Box Testing Technique
- Unit Testing
- Integration Testing
- System Testing
- Functional Testing
- Non Functional Testing
- User Acceptance Testing

c. User Acceptance Testing

- Functional Testing
- Whitebox Testing
- Blackbox Testing
- Positive Testing
- Negative Testing
- Beta Testing
- Live Environment Testing
- Smoke Testing
- Sanity Testing
- Regression Testing
- Formal Testing
- Informal Testing
- Monkey Testing
- Re-Testing
- Risk Based Testing
- Non Functional Testing
- Performance Testing

- Load/Stress Testing
- Usability Testing
- Accessibility Testing
- Security Testing

O2. Test Scenario Writing

- a. What is Test Scenario
- b. Setting Up Trello
- c. Registration Test Scenarios
- d. Web pages Sign-up Test Scenarios
- e. Login Test Scenarios
- f. Search Functionality Test Scenarios

O3. Test Case Writing

- a. Test Case Writing
- b. How to Write Test cases using Google Sheets
- c. Sign-up Valid Test Cases
- d. Invalid Sign-up Test Cases
- e. Username Test Cases
- f. Email Test Cases
- g. Password Test Cases

O4. Test Execution and Bug Reporting

- a. How to Write a Bug Report
- b. Difference Between Landscape & Portrait Mode
- c. Types of Defects
- d. Taking Screenshots for the Defect Report
- e. Video Recording For the Defect Report

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CHAPTER

AGILE TESTING

O1. Introduction of Agile

- a. What is Agile
- b. Why we are using Agile
- c. Advantages of Agile

O2. Agile Methodologies

- a. Overview
- b. Agile Scrum
 - Why we go for Agile?
 - Agile Manifestors and Scrum
 - Roles Involved in Agile
 - Terminologies used in Agile
- c. Agile Ceremonies
 - Spring Grooming
 - Spring Planning
 - Daily Scrum Meeting
 - Spring Review
 - Spring Retrospective
- d. Agile Artifacts
- e. Kanban
- f. Adaptive Project Framework (APF)
- g. Extreme Project Management (XPM)

O3. Mobile Testing

- a. Introduction of Mobile Testing
- b. What is Mobile Application Testing?



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- c. Types of Mobile Applications
- d. Difference Between Mobile Testing & Web Testing
- e. Types of Mobile Devices
- f. Challenges of Mobile Testing
- g. Mobile Analytics Data

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CHAPTER

O1. API Testing with Postman

- a. What is Postman
- b. Installation Process
- c. Request Builder
- d. Create & Save Requests
- e. POST Requests
- f. Writing Tests
- g. Collection Runner
- h. Authorization & Authentication

O2. Performance Testing

- a. What is Performance Testing
- b. Concept of Load Generation
- c. Creating Load Profiles

O3. Performance Testing Using JMeter

- a. How to Install JMeter
- b. Thread Group
- c. Samplers
- d. Listeners
- e. Adding Blazemeter Plugin
- f. Recording Scripts using Blazemeter
- g. Replaying Recorded Scripts
- h. Average & Median



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O5. Advanced Performance Testing Using JMeter

- a. Introduction
- b. Response Time, Throughput, Utilization & Robustness
- c. Performance Test Environment
- d. Serial & Parallel Execution of Threads
- e. User Defined Variables
- f. Action After Sample Error
- g. Controllers
- h. Loop Controller
- i. Throughput Controller

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CHAPTER

JAVA

O1. Java Programming for Software Testers

- a. Introduction
- b. Environment Setup
- c. Sample Java Code
- d. Getting input from User
- e. Arithmetic Operations
- f. If Statement
- g. If Else if
- h. Nested If
- i. Comparing More than One Condition
- j. Switch Case
- k. For Loop



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- I. While Loop
- m. Do While Loop

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CHAPTER

OBJECT- ORIENTED PROGRAMMING USING JAVA

- a.Introduction
- b.Structure of OOPS(Class,method, object)
- c.Inheritance
- d.polymorphism
- e.Encapsulation
- f.Abstraction
- g.Exception handling


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CHAPTER

BLACK BOX

O1.JBlackbox Testing

- a. What is Black-Box Testing
- b. Equivalence Partitioning
- c. Boundary Value Analysis
- d. Finding Defect in a Live Project
- e. Decision Table Testing
- f. State-Transition Testing


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CHAPTER

WHITEBOX

O1.White box Testing

- a. What is White Box Testing
- b. Statement Coverage
- c. Decision coverage
- d. Condition Coverage
- e. Path Coverage
- f. Modified Condition Decision Coverage
- g. Loop Coverage
- h. Loop Testing



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CHAPTER

SELENIUM

O1.About Automation testing

- a. Automation means
- b. Why and when we go for automation
- c. Automation tools
- d. Advantage and disadvantages of automation
- e. Criteria for automation
- f. Fundamentals of test automation
- g. Automation Vs Manual testing process
- h. Automation Frameworks

O2. About selenium

- a. What is selenium tool
- b. User of selenium
- c. Features of selenium tool



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- d. Advantage and disadvantages of selenium
- e. Installation setup

O3. Selenium components

- a. Selenium IDE
- b. Selenium RC
- c. Selenium Web driver
- d. Selenium Grid

O4. Selenium Web Driver

- a. Web driver architecture
- b. Web driver Feature
- c. Web driver VSRC
- d. Web driver Installation
- e. Web driver commands
- f. Running test on chrome
- g. Running test in Firefox
- h. Running test on IE
- i. Running test on safari

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CHAPTER

CHAPTER-10

O1. Locators

- a. ID
- b. Name
- c. Link text
- d. Partial link text
- e. Class name



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- f. Tag name
- g. Absolute Xpath
- h. Relative Xpath
- i. Dynamic Xpath

O2.Xpath

- a. Contains Xpath
- b. Text Xpath
- c. Text contains Xpath
- d. Attribute with contains
- e. Following
- f. Ancestor
- g. Child
- h. Preceding
- i. Following – sibling
- j. Parent
- k. Descendant

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CHAPTER

WEB ELEMENTS

O1. Web Elements in selenium

- a. What are web elements in selenium
- b. Different types of web element
- c. Operations performed in web elements
- d. How to locate web element in web page
- e. Different web element methods
- f. Difficulties while handling web elements
- g. Handling waits



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O2. Web Driver commands

- a. Fetching a webpage
- b. Locating elements and sending user inputs
- c. Clearing the user inputs
- d. Fetching data over any web element
- e. Performing click event
- f. Radio button and check box
- g. Navigating browser in forward and backward direction
- h. Refresh and reload the webpage
- i. Closing windows and closing browser
- j. Drag and drop
- k. Mouse hover action
- l. Right click and double click
- m. Keyboard action by using robot class
- n. Java script executor
- o. Handling drop down
- p. Handling of window
- q. Handling of alert
- r. Handling I Frames
- s. Handling web table and web calendar
- t. Screenshot

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CHAPTER

FRAME WORK

O1. Frame work in selenium

- a. What is Framework
- b. Need of Framework
- c. Type of framework in selenium



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O2.Test NG Framework

- a.What is Test NG
- b.Installation of TestNG
- c.Features of testing and Types of annotations
- d.Priority & invocation count
- e.Rerun for failed test cases
- f.Parallel execution
- g.Grouping
- h.How to set assert in testing
- i.Dependencies and configure maven project
- j.@ data provider using apache poi
(excel sheet)
- k.Report generations

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CHAPTER

PYTHON

O1.Introduction to python

- a.What is python
- b.Why do we need selenium
- c.Selenium with Java and Python
(Pros & Cons)
- d. Program Structure

O2. Python Programming

- a. Basic programming in Python
 - Data Type
 - Collection
- b.Function in python
- c.Modules



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- d. Simple class and objects
- e. Example programs
- f. Installation setup

O3.Selenium Web driver

- a. Introduction to web driver
- b. Accessing forms in Web driver
- c. Accessing link and table

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CHAPTER

AUTOMATION FRAMEWORK

- a. Pytest
- b. Create your first test case
- c. Run Multiple test case
- d. Group multiple test case
- e. Assert creation
- f. Pytest mark, skip
- g. Parallel testing
- h. Pytest fixtures
- i. Unit test
- j. HTML report creation



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CHAPTER

CUCUMBER

O1.Cucumber Basics

- Installation and setup of Cucumber
- Writing and running your first Cucumber test
- Understanding feature files, scenarios, and steps

O2.Step Definitions

- Implementing step definitions in various programming languages (e.g., Java, Ruby, JavaScript)
- Parameterization and data tables in step definitions
- Reusing step definitions across scenarios

O3.Tags and Hooks

- Tagging scenarios and features
- Using hooks for setup and teardown
- Conditional execution of scenarios based on tags

O4.Backgrounds and Hooks

- Using backgrounds to eliminate duplicate steps
- Scenario outlines for data-driven testing
- Implementing hooks for setup and teardown

O5.Cucumber with Selenium(Optional)

- Integrating Cucumber with Selenium WebDriver for web application testing
- Writing step definitions for interacting with web elements
- Best practices for structuring Cucumber tests in Selenium projects



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CHAPTER

KATALON

O1.Introduction to Katalon Studio:

- a.Overview of Katalon Studio.
- b.Understanding its features and capabilities.
- c.Installation and setup.

O2.Basic Concepts:

- a.Test case creation.
- b.Object Repository management.
- c.Test suite organization.
- d.Data-driven testing.

O3.Web Testing:

- a.Basics of web testing.
- b.Recording and playback of web tests.
- c.Web element identification techniques.
- d.Handling dynamic elements.
- e.Advanced web testing techniques.



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CHAPTER

SOAP API

O1.Overview of APIs

- a.Understanding what APIs are and why they are important in software development.

O2.Introduction to SOAP

- a.History and evolution of SOAP.
- b.Key features and characteristics of SOAP.
- c.Comparison with other API protocols like REST.



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O3.SOAP Envelope

- a.Understanding the structure of SOAP messages.
- b.Components of the SOAP envelope.

O4.SOAP Headers and Body

- a.Exploring the purpose and structure of SOAP headers and bodies.
- b.How to include additional information in SOAP messages.

O5.WSDL (Web Services Description Language)

- a.Introduction to WSDL.
- b.Creating and understanding WSDL documents.

O6.SOAP APIs and Web Services

- a.Developing SOAP-based web services.
- b.Consuming SOAP APIs in applications.

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CHAPTER

APPIUM

O1.Introduction to Appium:

- a.Understanding the need for mobile automation.
- b.Overview of Appium and its architecture.
- c.Installation of Appium and its dependencies.

O2.Setting Up Environment:

- a.Installing necessary software like Java Development Kit (JDK), Android SDK, Xcode (for iOS testing), Node.js, etc.
- b.Configuring the environment variables.



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O3. Working with Appium Server:

- a. Starting and stopping the Appium server.
- b. Understanding the server logs.
- c. Configuring server settings.

O4. Locating Elements:

- a. Identifying elements using various locators like ID, Name, XPath, CSS selectors, etc.
- b. Handling dynamic elements.

O5. Working with Mobile Platforms:

- a. Android and iOS specifics.
- b. Configuring devices/emulators/simulators.
- c. Installing/uninstalling apps.

O6. Appium Desired Capabilities:

- a. Setting up capabilities for test execution.
- b. Understanding different capabilities for Android and iOS platforms.

O7. UI Interactions:

- a. Automating user interactions like tapping, swiping, zooming, etc.
- b. Dealing with alerts and dialogs.

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