



IDM TECHPARK
GUIDE'S FOR PERFECT CAREER PATHWAY



Software Testing Course Syllabus

**SOFTWARE
TESTING** 



N.S.D.C.
National
Skill Development
Corporation



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About Us

IDMTECHPARK global retail & corporate training solutions provider in Coimbatore, Erode, Trichy & Salem that offers a comprehensive range of training and placement services for both fresher's and professionals seeking new opportunities. The company commenced its IT training business in 2016. A pioneer in IT education, over the years, we have trained over 50k students. Idmtechpark has a wide range of courses, maintains education standards & provides placement assistance.

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About IDMTECHpark Education Quality

IDMTECHPARK is managed and developed by industry specialists with more than 8 years of expertise in the field. IDMTECHPARK offers a staff of highly skilled professional trainers who deliver effective IT training in a friendly setting, concentrating on the needs of each individual to help them succeed in a demanding work world. In the book of career and success, our staff never leaves a page unturned.

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IDMTECHPARK's versatile instructor-led training class rooms and lower-class sizes enable people to engage more easily and absorb knowledge, resulting in remarkable results for both themselves and the organizations for which they work. Our training programmes are adaptable and customizable to ensure that each participant gets the most out of their time with us. IDMTECHPARK focuses in providing hands-on IT training in over 30 different courses.

- We teach in-demand courses
- We provide impactful learning material
- Our teachers are well-selected & trained
- We follow world-class teaching methods
- Our courses include E-Projects
- We conduct technical workshops
- Exams are held and based on Exams providing Certification
- Certificates are recognized the world over
- Our course timings are flexible



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Our Recent Placement

Idmtechpark assists students in getting job placements on successful completion of their courses. Idmtechpark also provides recruitment assistance to organizations. Idmtechpark students are shortlisted based on the organization's requirement. To make students job-ready, Idmtechpark conducts workshops e.g. How to do Group Discussions, how to behave in a Personal Interview. From time to time, job fairs & campus recruitments are conducted. Workplace skills such as time management, making effective presentations and communication skills are also provided. All this helps students find appropriate jobs in the IT industry while also helping save companies recruitment costs.

Krishnaveni M

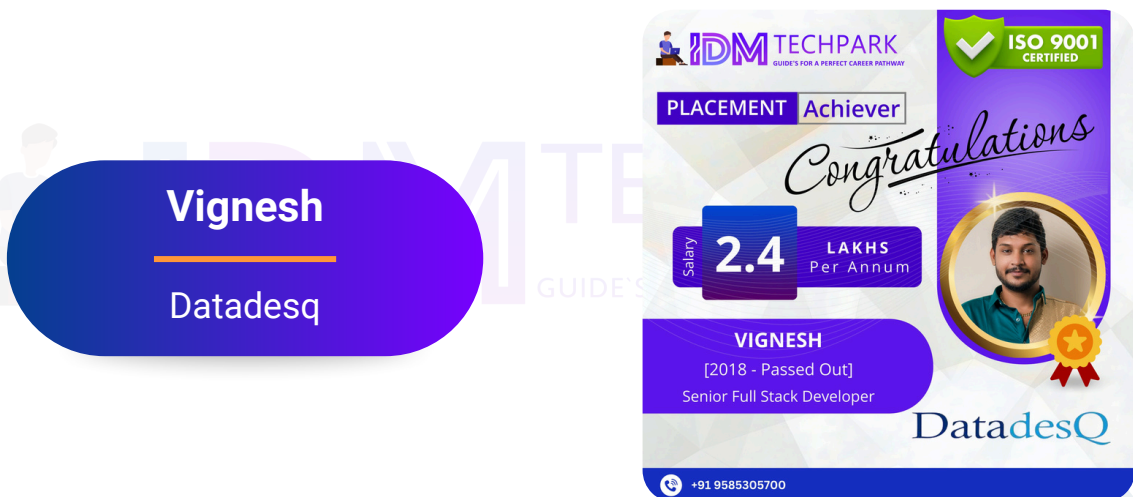
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Surya

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Vel Info Tech



Poovitha

Gray Matter



Ramesh

TDT

Siva Sankar
ST Cloudspark tech

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PLACEMENT Achiever

Congratulations

Salary **3.2** LAKHS Per Annum

Siva sankar
[2018 - Passed Out]
Software Engineer

ISO 9001 CERTIFIED

Cloudspark Tech
Knowledge | Growth | Success

+91 9585305700

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PLACEMENT Achiever

Congratulations

Salary **1.4** LAKHS Per Annum

Mohammed Nabeel Hisham
[2019 - Passed Out]
Digital Marketing Executive

ISO 9001 CERTIFIED

VTail
CORPORATE POLICY

+91 9585305700

Nabeel Hisham
VTail

Kalayarasan
Violet Infotech

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PLACEMENT Achiever

Congratulations

Salary **3** LAKHS Per Annum

Kalayarasan
[2021 - Passed Out]
Junior Python Developer

ISO 9001 CERTIFIED

Violet Infotech
Software Solutions

+91 9585305700

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Our Alumni Working At



MODULE 1

Introduction to Software Testing

● What is Software Testing?

- ☐ Definition, objectives, and importance of software testing
- ☐ The role of testing in software development life cycle (SDLC)

● Types of Software Testing

- ☐ Manual vs. Automated Testing
- ☐ Types of testing: Functional and Non-functional

MODULE 2

Software Testing Life Cycle (STLC)

● Phases of STLC

☐ Requirement analysis, test planning, test design, test execution, defect tracking, test closure

● Test Documentation

☐ Test Plan, Test Cases, Test Scenarios, Test Reports

☐ Introduction to Test Case Design

MODULE 3

Types of Software Testing

● Functional Testing

○ Unit Testing, Integration Testing, System Testing, UAT (User Acceptance Testing)

● Non-Functional Testing

○ Performance, Load, Stress, Usability, Compatibility testing

● Other Testing Types

○ Regression, Smoke, Sanity, Alpha, Beta testing

MODULE 4

Manual Testing Basics

● Manual Testing Overview

- ☐ Introduction to manual testing methodologies and techniques

- ☐ Roles and responsibilities of manual testers

● Test Case Design

- ☐ Writing effective test cases, test case templates, and test scenarios

- ☐ Test case execution and defect logging

MODULE 5

Test Design Techniques

- Black-box Testing Techniques

- Equivalence Partitioning, Boundary Value Analysis, Decision Table Testing, State Transition Testing

- White-box Testing Techniques

- Code Coverage: Statement, Branch, Path, and Condition Coverage

MODULE 6

Bug Life Cycle and Defect Management

● Understanding Bug Lifecycle

- Defect identification, reporting, fixing, and closure

● Defect Tracking Tools

- Introduction to tools like JIRA, Bugzilla, and Redmine
- Best practices for defect management

MODULE 7

Introduction to Automation Testing

● What is Automation Testing?

- Benefits and challenges of automation testing
- When to automate and when not to automate

● Tools for Automation Testing

- Overview of popular tools like Selenium, QTP, and Appium

MODULE 8

Selenium Basics

● Introduction to Selenium

- ☐ What is Selenium and why is it used?
- ☐ Components of Selenium: Selenium WebDriver, Selenium Grid, and Selenium IDE

● Setting up Selenium

- ☐ Installing and configuring Selenium WebDriver
- ☐ Introduction to browser drivers (ChromeDriver, GeckoDriver, etc.)

MODULE 9

Selenium WebDriver and Basic Commands

● Selenium WebDriver Overview

- ☐ Locators in Selenium: ID, Name, XPath, CSS Selectors, etc.
- ☐ Basic WebDriver commands: Open URL, find elements, clicking, sending keys, etc.

● Handling Web Elements

- ☐ Working with Textboxes, Buttons, Dropdowns, and Links
- ☐ Handling pop-ups, alerts, and frames

MODULE 10

Advanced Selenium WebDriver Techniques

● Synchronization in Selenium

- ☐ Implicit and Explicit Waits
- ☐ Fluent Wait and WebDriverWait

● Working with Dynamic Elements

- ☐ Handling AJAX calls and dynamic page elements
- ☐ Stale Element Reference Exception handling

MODULE 11

Selenium Frameworks

● TestNG Framework

- ☐ Introduction to TestNG, annotations, and assertions
- ☐ Creating and running test cases in TestNG

● Data-Driven Testing with Selenium

- ☐ Using Excel or CSV files with Selenium for data-driven testing
- ☐ Parameterized tests in TestNG

MODULE 12

Page Object Model (POM) in Selenium

● What is Page Object Model?

- ☐ Introduction to the POM design pattern
- ☐ Benefits of using POM in test automation

● Implementing POM

- ☐ Creating page classes, elements, and actions for modularity and reusability

MODULE 13

Continuous Integration in Testing

● Introduction to CI/CD

☐ What is Continuous Integration and Continuous Delivery?

☐ Importance of CI in automated testing

● Jenkins for CI

☐ Setting up Jenkins for continuous testing

☐ Integrating Selenium tests with Jenkins

MODULE 14

Performance Testing

● is Performance Testing?

○ Types: Load testing, Stress testing, Scalability testing, Volume testing

● Performance Testing Tools

○ Introduction to tools like JMeter, LoadRunner, and Gatling

○ Creating performance test plans and scenarios

MODULE 15

Load and Stress Testing

● Understanding Load Testing

- ☐ Testing for system behavior under expected load
- ☐ Key metrics in load testing: Response time, throughput, etc.

● Stress Testing

- ☐ Testing system behavior under extreme load
- ☐ Techniques to simulate high traffic or load conditions

MODULE 16

Mobile Testing

- Introduction to Mobile Testing

- Types of mobile testing: Functional, Compatibility, Performance, and Security testing

- Mobile Testing Tools

- Overview of tools: Appium, Robot Framework, and Espresso

- Manual vs automated mobile testing

MODULE 17

Security Testing

- What is Security Testing?

- Types of security testing: Penetration Testing, Vulnerability Testing

- Security Testing Techniques

- Testing for SQL Injection, Cross-Site Scripting (XSS), Cross-Site Request Forgery (CSRF)

- Using tools like OWASP ZAP, Burp Suite for security testing

MODULE 18

Usability Testing

- What is Usability Testing?
 - Importance of user experience in testing
 - Methods of conducting usability testing
- Tools for Usability Testing
 - Tools: Hotjar, CrazyEgg, UserTesting.com

MODULE 19

Agile Testing

● Agile and Testing

☐ Agile development methodology and its impact on testing

☐ Testing in Agile: Scrum, Kanban, and Test-Driven Development (TDD)

● Agile Testing Lifecycle

☐ User stories, sprint planning, test-driven development (TDD), and continuous feedback

MODULE 20

Test-Driven Development (TDD)

● What is TDD?

- ☐ Introduction to TDD principles: Red, Green, Refactor
- ☐ Writing tests before the code (unit testing)

● Using TDD with Tools

- ☐ Introduction to tools like JUnit, Mockito for Java, PyTest for Python, and more

MODULE 21

Behavior-Driven Development (BDD)

● Introduction to BDD

- The philosophy behind BDD: Collaboration between developers, testers, and business
- Gherkin syntax: Writing scenarios in Given, When, Then format

● Tools for BDD

- Introduction to Cucumber and SpecFlow
- Integrating Cucumber with Selenium for BDD automation

MODULE 22

Test Automation Strategy

● Test Automation Frameworks

- ☐ What is a test automation framework?
- ☐ Different types of automation frameworks: Data-driven, Keyword-driven, Hybrid, and BDD frameworks

● Best Practices for Test Automation

- ☐ Maintaining automation scripts, version control, and collaboration
- ☐ Choosing the right tool, test design, and scalability considerations

MODULE 23

Defect Lifecycle and Reporting

● Understanding the Defect Lifecycle

- ☐ Different stages of defect management: New, Open, Fixed, Retest, Closed
- ☐ How defects are tracked and resolved

● Test Reporting and Metrics

- ☐ Test execution reports, defect reports, and test metrics
- ☐ Tools for reporting: Allure, TestRail, Jira

MODULE 24

Test Management Tools

- Introduction to Test Management Tools

- Overview of test management tools like Jira, Quality Center, and TestRail

- Test planning, execution, and reporting with these tools

- Best Practices for Test Management

- Managing test cases, defect tracking, and test result reporting

MODULE 25

Capstone Project: Software Testing Implementation

● Capstone Project Overview

- ☐ Developing a complete test plan, test case design, and execution for a real-world application
- ☐ Automating the test cases using Selenium or other tools

● Project Presentation and Review

- ☐ Reviewing the project for adherence to testing best practices and methodologies
- ☐ Feedback, suggestions for improvement, and performance evaluation

Thank You

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