ISTQB Certified Tester Advanced Level - Test Automation Engineer Training

Duration: **3 Day**

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ISTQB Certified Tester Advanced Level - Test Automation Engineer (CTAL-TAE) is an advanced qualification for professionals involved in software testing and test automation.

The course explores the purpose, limitations, architecture, and lifecycle integration of test automation in detail. Participants learn how to design sustainable automation solutions, assess appropriate tools and strategies, configure supporting infrastructure, and integrate automated testing into CI/CD workflows.

The programme also covers modular and scalable test automation architecture, maintainable automation code, reporting and metrics, solution verification, and continuous improvement.

The syllabus is particularly relevant to professionals who are implementing or improving test automation solutions. It does not teach software engineering itself, so participants are expected to bring practical experience in programming, software development lifecycles, documentation standards, and software engineering practices.

Prerequisites

To attend this course and take the certification exam:

- Candidates must hold an **ISTQB Certified Tester Foundation Level** certificate.
- Certified Tester Foundation Level v4.0 or earlier Foundation Level certificates are accepted.
- Candidates should have sufficient practical experience in software testing and test automation.
- Working knowledge of software engineering, programming technologies, and relevant development standards is recommended.
- Familiarity with industry programming and documentation standards is beneficial when designing maintainable, reliable, and secure automation solutions.

Who Should Attend

This course is designed for:

- Testers,
- Test Analysts,
- Test Automation Engineers,
- Test Consultants,
- Test Architects,
- Test Managers,
- Software Developers.

It may also be suitable for professionals who need a general understanding of test automation, including Project Managers, Quality Managers, Software Development Managers, Business Analysts, IT Directors, and Management Consultants.

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What You Will Learn

Candidates who successfully complete the qualification will be able to:

- Describe the purpose and value of test automation,
- Explain how test automation supports the software development lifecycle,
- Understand how to configure infrastructure that enables test automation,
- Apply evaluation processes for selecting suitable tools and strategies,
- Use design concepts for modular and scalable test automation solutions,
- Select an appropriate deployment approach, including a pilot, for introducing automation into the software development lifecycle,
- Design and develop new or modified test automation solutions that meet technical needs,
- Evaluate the scope, approach, and maintenance requirements of test automation and testware,
- Explain how automated tests integrate into CI/CD pipelines,
- Collect, analyse, and report test automation data to support stakeholder decision-making,
- Verify the test automation infrastructure,
- Identify opportunities for continuous improvement.

Training Outline

Chapter 1: Introduction and Objectives for Test Automation

This chapter introduces the benefits and limitations of test automation and its role within different development lifecycle models.

- Benefits of test automation
- Limitations of test automation
- Test automation across different Software Development Lifecycle models
- How System Under Test (SUT) architecture affects the suitability of test tools

Chapter 2: Preparing for Test Automation

Participants explore the technical and architectural factors required to create an environment suitable for automation.

- Design for SUT testability through observability, controllability, and clearly defined architecture
- Test automation across different environments
- Factors used to assess an appropriate automation solution
- Technical considerations for developing test automation recommendations

Chapter 3: Test Automation Architecture

This chapter focuses on test automation architecture and framework design.

- Test automation architecture
- Components of a test automation solution
- Framework layers and their application
- Different approaches to using test automation tools
- Applying design principles and design patterns to test automation

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Chapter 4: Implementing Test Automation

- Plan an effective test automation pilot project
- Deploy a pilot solution
- Identify deployment risks
- Apply risk mitigation strategies
- Improve the maintainability of test automation code

Chapter 5: Implementation and Deployment Strategies for Test Automation

- CI/CD pipelines
- Automated test execution across different test levels
- Configuration management for test automation components
- Dependencies associated with API testing and contract testing

Chapter 6: Test Automation Reporting and Metrics

Participants learn how automation data can be collected, analysed, and presented to support decision-making.

- Collect data from the SUT and test automation environment
- Use automation data for analysis and reporting
- Analyse test results to identify causes of failures
- Use test reports and dashboards to inform stakeholders

Chapter 7: Verifying the Test Automation Solution

- Examine and verify the correct operation of test automation components
- Validate the test environment
- Ensure test scripts and test suites execute correctly
- Understand when root cause analysis should be performed
- Apply techniques for analysing test automation code quality

Chapter 8: Continuous Improvement

- Use additional data analysis to improve test cases
- Improve and upgrade test automation solutions and components
- Identify opportunities to consolidate and streamline automation
- Use automation tools to support test setup and test support activities

Exams and Assessments

Exam Structure

- **Number of Questions:** 40 multiple-choice questions
- **Total Points:** 66
- **Pass Mark:** Minimum 65%
- **Exam Duration:** 90 minutes
- **Additional Time for Non-Native Language Candidates:** 25%

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