



## ISTQB® Certified Tester Advanced Level Test Automation Engineering (CTAL-TAE)

*Duration: 3 days Live online*

### Course Overview

ISTQB is the standard for international qualifications in software testing. This advanced course, with exercises and practice questions, fully prepares attendees for the ISTQB Certified Tester Advanced Level Test Automation Engineering exam. This course covers fundamental processes, concepts, methods, and tools that are important for the successful implementation of a test automation architecture. The contents include detailed explanations, practical exercises, and hands-on activities for each topic covered in the course outline.

### Who should attend?

This course is designed for:

- Testers, test analysts, test automation engineers, test consultants, test architects, test managers, and software developers involved in testing and test automation.
- The Test Automation Engineering syllabus is also targeted at the test engineer looking to implement or improve on test automation.

### Prerequisites & recommended experience

Attendees intending to take the ISTQB® Certified Tester Advanced Level – Test Automation Engineering exam must hold the Certified Tester Foundation Level certificate. Practical experience in software testing is required and practical experience in test automation is recommended. This syllabus does not teach software engineering. However, a test automation engineer is expected to have skills, experience, and expertise in software engineering.

Furthermore, a test automation engineer needs to be aware of industry programming and documentation standards and best practices to make use of them while developing a test automation solution. These practices can increase maintainability, reliability, and security of the test automation solution. Such standards are typically based on quality characteristics.

### Context

The ISTQB® Certified Tester Advanced Level – Test Automation Engineering builds on the Foundation Level v4.0 and is ideal for test engineers aiming to design or enhance sustainable test automation solutions using industry standards, programming best practices, and quality-focused engineering principles.

### Course Objectives

By the end of this course, participants will be able to:

- Describe the purpose of test automation
- Understand test automation through the software development lifecycle
- Understand the Configuration of an Infrastructure to Enable Test Automation
- Learn the evaluation process for selecting the right tools and strategies
- Understand design concepts for building modular and scalable test automation solutions
- Select an approach, including a pilot, to plan test automation deployment within the software development lifecycle
- Design and develop (new or modified) test automation solutions that meet technical needs
- Consider scope and approach of test automation and maintenance of testware
- Understand how automated tests integrate within CI/CD pipelines
- Understand how to collect, analyse, and report on test automation data in order to inform stakeholders
- Verify the test automation infrastructure
- Define continuous improvement opportunities for test automation

### How certification is earned

The course and syllabus are accompanied by a ninety-minute multiple-choice exam. To earn certification, participants must achieve a score of 65% or higher. This exam is scheduled on a separate day online, but a minimum of 3 days' revision is recommended before taking the exam. Additional time may be granted under certain circumstances, such as for non-native English speakers. Requests for additional exam writing time are managed by iSQI, the exam provider.

### Related courses

After completing this course attendees may consider:

- ISTQB® Certified Tester Advanced Level Test Management
- ISTQB® Certified Tester Advanced Level Test Analyst
- ISTQB® Certified Tester Advanced Level Technical Test Analyst

## Course Outline

### 1 Introduction and Objectives for Test Automation

- Purpose of Test Automation
  - Advantages and Disadvantages of Test Automation
- Test Automation in the Software Development Lifecycle
  - Waterfall, V-Model, Agile

### 2 Preparing for Test Automation

- Understand the Configuration to Enable Test Automation
  - Designing for testability of a System Under Test (Observability, Controllability, Architecture transparency)
  - Test Automation within Different Environments (local dev, build, integration, preproduction, production)
- Evaluation Process for Selecting the Right Tools and Strategies
  - Analyse a System Under Test to Determine the Appropriate Test Automation Solution
  - Illustrate the Technical Findings of a Tool Evaluation

### 3 Test Automation Architecture

- Design Concepts Leveraged in Test Automation
  - Generic Test Automation Architecture (Test Generation, Test Definition, Test Execution, Test Adaptation)
  - Test Automation Architecture
  - Test Automation Framework (Test Scripts, Test Business Logic, Core Libraries)
  - Test Automation Solution
  - Different Approaches for Automating Test Cases (Capture / Playback, Linear Scripting, Structured Scripting, Keyword-Driven Testing, Data-Driven Testing, TDD, BDD)
  - Design Patterns (Façade, Page Object Mode, Flow Object Model)

### 4 Implementing Test Automation

- Test Automation Development
  - Test Automation Pilot Project
- Risks Associated with Test Automation Development
- Test Automation Solution Maintainability

### 5 Implementing and Deployment Strategies for Test Automation

- Integration to CI/CD Pipelines
  - Build and Deployment Pipelines
  - Configuration Management for Test ware
  - Test Automation Dependencies

### 6 Test Automation Reporting and Metrics

- Collection, Analysis and Reporting of Test Automation Data
  - Apply Data Collection Methods from the Test Automation Solution and the System Under Test
  - Analyse Data from the Test Automation Solution and the System Under Test to Better Understand Test Results
  - Test Progress Report

### 7 Verifying the Test Automation Solution

- Verification of the Test Automation Infrastructure
  - Verify Test Automation Environment Including Test Tool Setup
  - Identify Where Test Automation Produces Unexpected Results
  - Static Analysis can Aid Test Automation for Code Quality

### 8 Continuous Improvement

- Continuous Improvement Opportunities for Test Automation
  - Discover Opportunities for Improving Test Cases Through Data Collection and Analysis
  - Analyse the Technical Aspects of a Deployed Test Automation Solution and Provide Recommendations for Improvement (Scripting, Test execution, Verification, TAA, TAF, Setup and teardown, Documentation, TAS features, TAF updates and upgrades)
  - Opportunities for Test Automation Tools

## Contact

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