

Foundation Level Automotive Software Tester Contents

The following image demonstrates the contents of the Foundation Level Automotive Software Tester syllabus:

ISTQB® CTFL Automotive Software Tester (CTFL-AuT)				
Introduction	Standards for E/E Testing	Testing in Virtual Environments	Automotive-specific Test Techniques (Static)	Automotive-specific Test Techniques (Dynamic)
Automotive System Development Challenges	ASPICE Essentials	Automotive Test Environments	MISRA 2012 Compliance	Condition Testing
Automotive Product Developmt. Process	ISO 26262 Essentials	Closed Loop vs. Open Loop	Requirements Quality Review	Back-to-Back Testing
Influence of Standards	AUTOSAR Essentials	Model in the Loop (MiL)		Fault Injection Testing
Tester's Contrib. to Release Process	E/E Standards Compared	Software in the Loop (SiL)		Requirements-based Testing
	E/E Test Levels Compared	Hardware in the Loop (HiL)		Choosing the adequate Test Techniques
		Comparison XIL Test Environments		

Foundation Level Automotive Software Tester Business Outcomes

Foundation Level testers who have passed the “CTFL Automotive Software Tester Specialist” module exam should be able to accomplish the following Business Objectives:

- Collaborate effectively in a test team.
- Adapt the test techniques known from the ISTQB® Certified Tester Foundation Level (CTFL®) to the specific automotive project requirements.
- Consider the basic requirements of the relevant automotive standards (Automotive SPICE®, ISO 26262, etc.) and select suitable test techniques.
- Apply the virtual test methods (e.g. HiL, SiL, MiL, etc.) in test environments.

Foundation Level Automotive Software Tester Learning Objectives

Certified Automotive Software Testers should be able to demonstrate their skills in the following areas:

Introduction

- The tester should be able to explain and give examples of the challenges of automotive product development that arise from divergent project objectives and increasing product complexity.
- The tester should be able to recall project aspects that are influenced by standards such as time, cost, quality and project/product risks.
- The tester should be able to recall the six generic phases in the system life cycle per ISO/IEC 24748-1
- The tester should be able to recall the contribution and the collaboration of the tester in the release process.

ASPICE

- The tester should be able to recall the two dimensions of Automotive SPICE® (ASPICE).
- The tester should be able to explain the Capability levels 0 to 3 of ASPICE.
- The tester should be able to explain the meaning of the 4 rating levels and the capability indicators of ASPICE from the test perspective.
- The tester should be able to explain the requirements of ASPICE for the test strategy including the regression test strategy.
- The tester should be able to recall the requirements of ASPICE for the test documentation.
- The tester should be able to design a verification strategy (in contrast to a test strategy) and criteria for unit verification.
- The tester should be able to explain the different traceability requirements of ASPICE from the test perspective.

ISO 26262

- The tester should be able to explain the objective of functional safety for E/E systems.
- The tester should be able to recall his contribution as a tester for the safety culture.

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- The tester should be able to present the role of the tester in the framework of the safety life cycle per ISO 26262.
- The tester should be able to recall the volumes (part titles) of ISO 26262 that are relevant for him.
- The tester should be able to recall the criticality levels of ASIL.

- The tester should be able to explain the influence of ASIL on applicable test design techniques and test types for static and dynamic tests and the resulting test extent.
- The tester should be able to apply the selected method table of the ISO 26262.

AUTOSAR

- The tester should be able to recall the objectives of AUTOSAR.
- The tester should be able to recall the influences of AUTOSAR on the work of the tester.

Comparison

- The tester should be able to recall the different objectives of ASPICE and ISO 26262.
- The tester should be able to explain the differences between ASPICE, ISO 26262 and CTFL® regarding the test levels.

Test Environment in General

- The tester should be able to recall the purpose/the motivation of a test environment in the automotive environment.
- The tester should be able to recall the general parts of an automotive specific test environment.
- The tester should be able to recall the differences between Closed-Loop systems and Open-Loop systems.
- The tester should be able to recall the essential functions, databases and protocols of an electronic control unit (ECU).

Testing in XiL environments

- The tester should be able to recall the structure of a MiL test environment.
- The tester should be able to explain the application area and the boundary conditions of a MiL test environment.
- The tester should be able to reproduce the structure of an SiL test environment.
- The tester should be able to recall the structure of an HiL test environment.
- The tester should be able to explain the application areas and the boundary conditions of an HiL test environment.
- The tester should be able to summarize the advantages and disadvantages for the testing with the help of criteria of the XiL test environments (MiL, SiL and HiL).
- The tester should be able to apply criteria for the assignment of a given test scope to one or more test environments.
- The tester should be able to classify the three XiL test environments (MiL, SiL, HiL) in the Vmodel.

Static test techniques

- The tester should be able to explain the purpose, the types and obligations of the MISRAC: 2012 programming guideline with the help of examples.
- The tester should be able to apply a review of requirements with the quality characteristics of the ISO/IEC 29148 that are relevant for him.

Dynamic test techniques

- The tester should be able to create test cases to achieve modified condition/decision testing coverage.
- The tester should be able to explain the use of back-to-back testing by giving examples.
- The tester should be able to explain the principle of fault injection tests by giving examples.
- The tester should be able to recall the principles of requirement-based testing.
- The tester should be able to apply context dependent criteria for the choice of suitable and necessary test design techniques.

Foundation Level Automotive Software Tester Exam Structure

Similar to the Foundation Level Certification Core exam, the Specialist Automotive Software Tester Certification exam will comprise of 40 multiple choice questions, with a pass mark of 65% to be completed within 60 minutes.

The Foundation Level Core Certificate is a precondition of the CTFL Automotive Software Tester Certificate.

Check the detailed info about the [exam structure](#).

Foundation Level Automotive Software Tester Materials for Download

- [CTFL Automotive Software Tester Sample Exam Questions](#)
- [CTFL Automotive Software Tester Sample Exam Answers and Justifications](#)
- [CTFL Automotive Software Tester Exam Structure and Rules](#)