



Advanced Test Analyst Course Outline

General Description

This course provides test engineers with advanced skills in test analysis, design, and execution. This hands-on course provides test engineers with the ability to define and carry out the tasks required to put the test strategy into action. The course will teach attendees how to analyze the system, taking into account the user's quality expectations. They will learn how to evaluate system requirements as part of formal and informal reviews, using their understanding of the business domain to determine requirement validity. Attendees will know how to analyze, design, implement, and execute tests, using risk considerations to determine the appropriate effort and priority for tests. They will be able to report on testing progress and provide necessary evidence to support their evaluations of system quality. Attendees will learn how to implement a testing effort that supports the explicit and implicit testing objectives.

Created by Rex Black, President of the International Software Testing Qualifications Board (www.istqb.org), immediate past President of the American Software Testing Qualifications Board (www.astqb.org), and co-author of the International Software Testing Qualifications Board Advanced Syllabus, this course is also ideal for testers and test teams preparing for certification. It covers the International Software Testing Qualifications Board Advanced Syllabus 2007, and is in the process of accreditation by an ISTQB-recognized National Board.

Learning Objectives

Through presentation, discussion, and hands-on exercises, attendees will learn to:

- Explain why functional and non-functional test types take place in specific stages of an application's life cycle
- Give examples of good and bad structure and level of detail for specification of the test conditions (i.e., the features, attributes, and characteristics of the system to be addressed by the tests)
- Describe how test analysis and design, in addition to creating dynamic tests cases, are also static testing techniques that can reveal defects

- Describe the pre-conditions for test execution, including: testware; test environment; configuration management; and defect management
- Explain the concept of a test oracle and how you can use test oracles in test specifications
- Determine from a given set of test metrics whether a test completion criterion has been fulfilled
- Prioritize test case selection, test coverage, and test data creation, based on risk, documenting this appropriately in a test schedule and test procedure
- Outline the major activities and deliverables entailed in carrying out a risk-based strategy for testing
- List examples of typical defects identified by behavioral test techniques like pairwise testing and equivalent partitioning and by experienced-based techniques like attacks and exploratory testing, and provide coverage criteria for the major behavioral and experience-based techniques
- Write behavioral test cases using the following test design techniques: equivalence partitioning; boundary value analysis; decision tables; state transition testing; classification tree method; pairwise testing; and, use cases
- Analyze a system or its specifications, to determine which specification-based, defect-based, or experienced-based techniques to apply for specific goals
- Analyze a system or its specifications to outline a test specification, especially for functional and domain test cases and procedures
- Describe the principles and reasons for defect-based techniques and differentiate their use from behavioral and structural techniques
- Explain defect taxonomies and their use
- Understand the principles of, opportunities to, and reasons for use of experienced-based test techniques
- Specify, execute, and report tests using exploratory testing
- Classify defects that can be identified by the different types of software fault attacks according to the defects they target
- Explain what testing techniques are appropriate to test of accuracy, suitability, interoperability, functional security, and accessibility characteristics

- Outline, design, specify, and execute usability tests using appropriate techniques, to cover given test objectives and defects to be targeted
- Explain the reasons for including efficiency, reliability, and technical security tests in a testing strategy and provide examples of defects expected to be found
- Characterize non-functional test types for technical testing by typical defects to be targeted, typical application within the application lifecycle, and test techniques for test design
- Use a review checklist to verify code and architecture from a tester's perspective
- Use a review checklist to verify requirements and use cases from a tester's perspective
- Compare review types and show their relative strengths, weaknesses, and appropriate usage
- Analyze, classify, and describe functional and non-functional defects in understandable defect reports
- Summarize the test tool categories by objectives, intended use, strengths, risks, using examples
- Map various testing tools to different levels and types of testing
- Describe professional, objective, and effective communication in a project from the tester's perspective

Course Materials

This course includes the following materials:

<i>Name</i>	<i>Description</i>
Course Outline	A general description of the course along with learning objectives, course materials and an outline of the course topics, including approximate timings for each section.
Noteset	A set of approximately 600 PowerPoint slides covering the topics to be addressed.
Text book	<i>Pragmatic Software Testing: Becoming an Effective and Efficient Test Professional</i> an instructional guide that demonstrates how to carry out the complex tasks associated with testing a system, effectively and efficiently, within designated budget and time constraints.

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ISTQB Foundation Syllabus	The Certified Tester Foundation Level Syllabus which forms the basis for the International Software Testing Qualification at the Foundation Level.
Foundation Sample Exam Questions	A set of approximately 150 pages of review materials for the Foundation level covering every learning objective in the ISTQB Foundation Syllabus.
Foundation Mock Exam	A practice exam containing 40 questions and answers to provide a review of the ISTQB Foundation exam.
ISTQB Advanced Syllabus	The Certified Tester Advanced Level Syllabus which forms the basis for the International Software Testing Qualification at the Advanced Level.
ISTQB Glossary	The latest glossary of terms used in Software Testing produced by member of the ISTQB.
Standard for Software Testing	Standards used in testing which are referenced by the course materials.
Advanced Test Analyst Sample Exam Questions	A complete set of questions for every learning objective in the Test Analyst module of the ISTQB Advanced Syllabus.
Exercise Solutions	A set of approximately 100 pages of detailed solutions for all exercises in the course.
Advanced Test Analyst Mock Exam	A practice exam containing questions and answers to assess your readiness for the ISTQB Advanced exam.
Project Source Documents for Course Exercises	Specifications used in the realistic example project used in exercises for the course.
Bibliography and resources	A set of further readings, Web sites, tools and other resources to help implement the concepts.

The printed course materials are provided in a binder in a way which makes it convenience for course attendees to remove portions as needed for reference; e.g., during exercises.

Session Plan

The course runs for five days, with two hours set aside on the fifth day for the ISTQB Advanced Test Analyst exam if desired. Each day is about 360 minutes of class time, from 9:00 to 5:00. For accredited course offerings, material is covered as described. For custom courses, material may be deleted, added, or expanded upon as needed.

Please note that timings are approximate, depending on attendee interest and discussion. All of the lectures include exercises and/or knowledge-check questions except as noted.

The following shows this session plan in relationship to the chapters and sections of the ISTQB Advanced Syllabus.

- Introduction and Review (60 minutes)**
- 1.0 Basic Aspects of Software Testing (30 minutes)**
- 2.0 Testing Processes (180 minutes)**
 - 2.3 Test analysis and design (45 minutes)
 - 2.5 Test implementation and execution (45 minutes)
 - 2.6 Evaluating exit criteria and reporting (90 minutes)
- 3.0 Test (and Risk) Management (120 minutes)**
- 4.0 Test Techniques (1080 minutes)**
 - 4.2 Specification-based (870 minutes)
 - 4.4. Defect and experienced based (210 minutes)
- 5.0 Test of Software Characteristics (210 minutes)**
 - 5.2 Quality Attributes for Domain Testing (165 minutes)
 - 5.3 Quality Attributes for Technical Testing (45 minutes)
- 6.0 Reviews (180 minutes)**
- 7.0 Incident Management (120 minutes)**
- 8.0 Test Process Improvement (15 minutes)**

[Note: This is an overview only. For a course that focuses on test process improvement, see Advanced Test Manager.]
- 9.0 Test Tools and Automation (90 minutes)**
 - 9.2 Test tool concepts (40 minutes)
 - 9.3 Test tool categories (50 minutes)

10 People Skills and Team Composition (30 minutes)

[Note: This is an overview only. For a course that focuses on people skills and team composition, see Advanced Test Manager.]

Recommended Readings

The class materials include a bibliography of books related to software testing, project management, quality, and other topics of interest to the test professional.