Virtual Foundation Level Performance Tester
Course Outline

General Description

This course provides anyone involved in software testing a chance to broaden their knowledge of performance testing. If someone has a desire to start a specialist career in performance testing, this course will help them understand the fundamentals and theories behind performance testing, and to prepare for the certification exam. In this course, we discuss general principals needed to understand what performance testing is, why it is needed in today's increasingly connected world, how to understand what our performance testing is showing us about our systems, and how to share that information with the stakeholders of our projects. We discuss various activities that may be performed in different life cycles and across different architectures. In addition, we discuss how to use performance testing at different levels of testing. Finally, we dig deep into how to perform performance testing and finish up with a discussion of tool needs for succeeding in performance testing.

While not strictly required, it is recommended that the ISTQB Foundation Level certificate be earned before attempting to take the Foundation Level Performance Testing certification exam. Some background information on software testing may help the candidate pass the exam.

By the end of this course, an attendee should be able to:

- Understand the basic concepts of performance efficiency and performance testing
- Define performance risks, goals, and requirements to meet stakeholder needs and expectations
- Understand performance metrics and how to collect them
- Develop a performance test plan for achieving stated goals and requirements
- Conceptually design, implement, and execute basic performance tests
- Analyze the results of a performance test and state implications to various stakeholders
- Explain the process, rationale, results, and implications of performance testing to various stakeholders

- Understand categories and uses for performance tools and criteria for their selection
- Determine how performance testing activities align with the software lifecycle

Created by Rex Black, President of RBCS, Inc. (www.rbcs-us.com), past President of the International Software Testing Qualifications Board (www.istqb.org), past President of the American Software Testing Qualifications Board (www.astqb.org), and chair or co-author of multiple International Software Testing Qualifications Board Foundation, Agile, Advanced, and Expert Syllabi. Rex has been involved in test automation since 1989.

Co-created by Jamie Mitchell who has over 38 years of testing experience, both hardware and software. Jamie is a pioneer in the test automation field, creating automated tests and writing test tools since 1991. He started speaking at conferences and teaching courses on automation in 1997. Jamie is also a co-author of the ISTQB Advanced Technical Test Analyst Syllabus.

This Foundation level course is ideal for general testers who may be tasked in their jobs with helping create, run, or maintain performance testing, or those who want to specialize in performance testing and earn certification towards that goal. It covers the American Software Testing Qualifications Board Foundation Level Syllabus on Performance Testing.

Learning Objectives

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

- Understand the principles of performance testing
- Understand the different types of performance testing
- Recall testing types in performance testing
- Understand the concept of load generation
- Give examples of common failure modes of performance testing and their causes
- Understand the typical metrics collected in performance testing
- Explain why results from performance testing are aggregated
- Understand the key sources of performance metrics
- Recall the typical results of a performance test
- Understand the principal performance testing activities
- Explain typical categories of performance risks for different architectures
- Analyze performance risks for a given product across the software development lifecycle

- Analyze a given project to determine the appropriate performance testing activities for each phase of the software development lifecycle
- Derive performance test objectives from relevant information
- Outline a performance test plan which considers the performance objectives for a given project
- Create a presentation that enables various stakeholders to understand the rationale behind the planned performance testing
- Give examples of typical protocols encountered in performance testing
- Understand the concept of transactions in performance testing
- Analyze operational profiles for system usage
- Create load profiles derived from operational profiles for given performance testing objectives
- Analyze throughput and concurrency when developing performance tests
- Understand the basic structure of a performance test script
- Implement performance test scripts consistent with the plan and load profiles
- Understand the activities involved in preparing for performance test execution
- Understand the principal activities in running performance test scripts
- Analyze and report performance test results and implications
- Understand how tools support performance testing
- Evaluate the suitability of performance testing tools in a given project scenario

Session Plan

The virtual course is taught in a two or three day format. When run in two days, each day is about 180 minutes of class time, from 12:00 pm to 3:30 pm Central time. When run in three days, each day is about 120 minutes of class time, from 6:00 pm to 8:00 pm Central time. 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 ASTQB Foundation Level Performance Testing Syllabus.

Introduction and Review (30 minutes)

1.0   Basic Concepts (60 minutes)

1.1   Principles and Concepts

1.2   Types of Performance Testing

1.3   Testing Types in Performance Testing

1.4   The Concept of Load Generation

1.5   Common Failures in Performance Testing and Their Causes

2.0   Performance Measurement Fundamentals (55 minutes)

2.1   Typical Metrics Collected in Performance Testing

2.2   Aggregating Results from Performance Testing

2.3   Key Sources of Performance Metrics

2.4   Typical Results for a Performance Test

3.0   Performance Testing in the Software Lifecycle (195 minutes)

3.1   Principal Performance Testing Activities

3.2   Performance Risks for Different Architectures

3.3   Performance Risks Across the Software Development Lifecycle

3.4   Performance Testing Activities

4.0   Performance Testing Tasks (475 minutes)

4.1   Planning

4.2   Analysis, Design and Implementation

4.3   Execution

4.4   Analyzing Results and Reporting

5.0   Tools (90 minutes)

5.1   Tool Support

5.2   Tool Suitability

Course Materials

This course includes the following materials:

Name	*Description*
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 270 PowerPoint slides covering the topics to be addressed.

Name	Description
Exercise Solutions	A set of approximately 30 pages of detailed solutions for all exercises in the course.
Foundation Level Performance Testing Mock Exam	A practice exam containing questions and answers to assess your readiness for the certification exam.
Project Source Documents for Course Exercises	Specifications used in the realistic example project used in exercises for the course.
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.
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 convenient for course attendees to remove portions as needed for reference; e.g., during exercises.