



Test Engineering Foundation Course Outline

测试工程师初级培训

课程提纲

General Description 概述

This course provides test engineers and test managers with the essential ideas, processes, tools and skills they need in order to set themselves on a path for true testing professionalism. This hands-on course covers the major test design techniques with lecture and exercises. The course provides the methodology behind a successful testing program and covers a wide range of issues, from those related to the individual tester to those related to the testing department as a whole. The testing process is presented, both through theory and hands-on exercises that follow an example project, including the difficult tasks of tracking and presenting tests results. Creation of a test environment and test automation is also covered, along with system development lifecycles and how they affect testing.

本课程为测试工程师和测试管理人员提供了核心概念、过程、工具和技能，这些概念、过程、工具和技能是他们在正确的测试职业发展道路上不可缺少的。本实用课程通过讲座和练习来介绍主要的测试设计技术。本课程提供了成功测试项目背后的方法学，这种方法学覆盖了广泛的问题，从涉及个体测试人员的到涉及测试部门整体的。对测试过程进行了介绍，既有理论，又有基于示例项目的实用练习，包括测试结果的跟踪和展示这种高难度任务。测试环境和测试自动化的建立也有涉及，以及系统开发生命周期及它们如何影响测试。（?和上一个一致）

Created by Rex Black, 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 co-author of the International Software Testing Qualifications Board Foundation Syllabus 2005, this course is ideal for testers and test teams preparing for certification. It covers the International Software Testing Qualifications Board Foundation Syllabus 2007, and has been accredited by an ISTQB-recognized National Board.

Rex

Black是国际软件测试认证委员会 (www.istqb.org) 前任主席、美国软件测试认证委员会 (www.astqb.org) 前任主席、国际软件测试认证委员会初级大纲2005版的作者之一，由他开发的本课程

是测试人员和测试团队在准备认证时的理想选择。课程覆盖了国际软件测试认证委员会初级大纲2007版，并已由ISTQB承认的一个国家委员会认可。

Solutions are provided for the exercises performed in the class, along with two mock exams, 120 sample questions covering every learning objective in the Syllabus, copies of the ISTQB Foundation Syllabus 2007 and Glossary, detailed advice on how to prepare for the exam, and more.

课堂中所做的练习均提供了答案，并附有2套模拟题、覆盖大纲中的所有学习目标的120道试题，以及ISTQB初级大纲2007版及技术表，和关于如何备考考试的详细建议更多内容。

Learning Objectives 学习目标

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

通过讲义、讨论和实用练习，学员将学会：

Explain the effects and harm bugs can cause

说明缺陷可能造成的影响及伤害

- Articulate the necessity of testing
- 说明缺陷可能造成的影响及伤害
- Describe the role of testing in quality assurance
- 描述测试在质量保证中的作用
- Identify the common objectives, principles, and purposes of testing
- 识别测试的常见目标、原则和目的
- Introduce structured, pre-planned testing processes
- 介绍结构化的、提前规划的测试过程
- Adapt to and manage the psychological factors for testing success
- 针对成功测试中的心理因素进行调整管理它们
- Relate development and test activities
- 将开发与测试活动关联
- Adapt software development models to the context of the project and product
- 按项目和产品的背景环境调整软件开发模型
- Select and implement appropriate levels or phases of testing, with the proper participants, objectives, targets, and items under test for each test level or phase
- 为每个测试级别或阶段设定合适的目标、指标和测试项，与合适的参与人员一起进行并实施合适的测试级别或阶段
- Select and plan for major test types or targets, including functional and non-functional tests, structural tests, confirmation tests, and regression tests
- 选择并规划主要的测试类型或目标，包括功能和非功能测试、结构化测试、确认测试和回归测试
- Explain the reasons for maintenance testing and how maintenance testing differs from new application testing
- 说明做维护测试的理由以及维护测试与新应用测试有何不同

- Understand the value, importance and use of static techniques and static analysis, and the difference between static and dynamic techniques
- 理解静态技术和静态分析的价值、重要性运用,以及静态技术和动态技术的区别
- Explain the phases, roles and responsibilities of a typical formal review, and contrast different types of reviews
- 说明一次典型正式评审有哪些阶段、角色和职责,并对比不同类型的评审
- Understand the factors for successful reviews
- 说明一次典型正式评审有哪些阶段、角色和职责,并对比不同类型的评审
- Understand and perform a quality risk analysis to serve as the basis for testing, using the factors of likelihood and impact to determine the level of risk
- 理解并执行质量风险分析,将其作为测试的依据,使用可能性和影响这些因素来确定风险等级
- Write test designs, cases, and procedures, relate them to each other, and trace these items to the test basis
- 编写测试的设计、用例和程序,使它们互相关联并追溯到测试依据
- Develop a test execution schedule
- 制定测试执行进度计划
- Explain the characteristics, differences, and reasons for specification-based (black box), structure-based (white box), and experience-based tests
- 说明基于规格驱动的(黑盒)测试、基于结构的(白盒)测试和基于经验的测试的特性、区别和理由
- Write test cases using equivalence partitioning, boundary value analysis, decision tables, and state transition diagrams, understanding the main purpose of each technique and what sufficiency of coverage is for each technique
- 运用等价划分、边界值分析、决策表和状态转换图来编写测试用例,理解每种技术的主要目的以及其覆盖的充分程度
- Write and measure test cases using structural testing concepts like coverage, statement and decision coverage, and other control-flow test design techniques
- 运用覆盖度、语句和决策覆盖等结构化测试概念,及其他控制流测试设计技术来编写和度量测试用例
- Understand the factors that influence the selection of appropriate test design techniques
- 理解选择适当测试设计技术背景中的因素
- Explain the importance of independent testing
- 说明独立测试的重要性
- Understand the benefits and drawbacks of independent testing
- 理解独立测试的优缺点
- Select different team members for inclusion in a test team
- 选择不同的成员加入测试团队
- Know the tasks of typical test leader and tester

- 了解典型测试组和测试人员的任务
- Understand and write various types of test plans depending on the project, levels, and targets
- 理解并编写基于不同项目、级别和目标的各种类型的测试计划
- Estimating testing via metrics and expertise, and recognize the factors that affect an estimate
- 使用度量数据和专业知识估算测试,并识别影响估算的因素
- Understand, use and interpret common metrics to monitor test preparation and execution
- 理解、使用并解读常见度量数据以监督测试准备和测试执行
- Explain how configuration management supports testing
- 说明配置管理如何支持测试
- Know typical hazards and potential risks for testing
- 了解测试中的典型危害和潜在风险
- Differentiate between project and quality (product) risks
- 区分项目风险和产品质量(产品)风险
- Write a good bug or incident report, with the proper content
- 编写好的缺陷或事件报告,包括合适的内容
- Know the different types of test tools, including programmers' test tools
- 了解不同类型的测试工具,包括程序员测试工具
- Explain different scripting techniques for test execution tools, including data driven and keyword driven
- 说明测试执行工具不同的脚本编写技术,包括数据驱动和关键字驱动
- Know the potential benefits and risks of test automation
- 了解测试自动化的潜在收益及风险
- Plan to introduce a test tool into an organization
- 策划测试工具引入组织
- State the goals of a proof-of-concept for test tool evaluation
- 阐述测试工具评价中概念验证的目的
- Explain the factors required for good tool support
- 说明良好的测试支持需要哪些因素

Course Materials 课程材料

This course includes the following materials:

本课程包括以下材料:

Name 名称	Description 描述
Course Outline 课程提纲	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. 课程概述, 以及学习目标、课程材料和课程内容提纲, 包括每节大致时间长短。
Noteset 记录册	A set of over 400 PowerPoint slides covering the topics to be addressed. 一套400页的幻灯片, 覆盖要讲的内容。
Text book 教科书	<i>Foundations of Software Testing: ISTQB Certification</i> an essential guide to software testing and the ISTQB Foundation qualification, authored by a group involved in the writing of the ISTQB Syllabus. 《软件测试基础: ISTQB 认证》, 软件测试和ISTQB 初级认证不可或缺的指导书, 由参与过ISTQB 大纲编写的一组专家撰写。
Sample Exam Questions 考试题目	A complete set of questions for every learning objective in the ISTQB Foundation Syllabus. Also two mock exams are included to assess your readiness for the ISTQB Foundation exam. 一套针对ISTQB 初级大纲中每一个学习目标的完整题目。另外套模拟试题, 供你评估自己是否已准备好参加ISTQB初级考试。
Project Source Documents for Course Exercises 用于课程练习的项目原文档	Specifications used in the realistic example project used in exercises for the course. 课程练习中所用实际项目的规格说明。
Exercise Solutions 练习答案	A set of approximately 100 pages of detailed solutions for all exercises in the course. 一套近百页的详细答案, 覆盖课程中的所有练习。
Six Study Guides 6份学习指导	Chapter by chapter detailed notes on the slides for each of the six chapters. 6章内容中每章的幻灯片上逐章显示的详细提示。

Name 名称	Description 描述
ISTQB Foundation Syllabus ISTQB 初级大纲	The Certified Tester Foundation Level Syllabus which forms the basis for the International Software Testing Qualification at the Foundation Level. 《认证测试人员初级大纲》是国际软件测试人员初级的基础。
ISTQB Glossary ISTQB 术语表	The latest glossary of terms used in Software Testing produced by member of the ISTQB. 由ISTQB 成员开发的在软件测试中使用词汇的术语表最新版。
ISTQB Exam Guidelines ISTQB 考试指南	Exam format and question writing guidelines. 试题格式和答题指南。
Test Standards 测试标准	A handy reference for standards used in testing. 方便也参考测试中用到的标准。
Information for those pursuing Certification 致要获得认证的人的信息	Tips and advice on how to prepare for the exam. 关于如何为考试做准备的窍门及建议。
Bibliography and resources 参考书目及资源	A set of further readings, Web sites, tools and other resources to help implement the concepts. 更深入的阅读书目、网站、工具和其他资源,有助于概念的实施。

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.

打印课程材料以活页夹的形式提供,方便学员为了参考需要取出其中的部分,如做练习时。

Session Plan 章节时间计划

The course runs for four days, with two hours set aside on the fourth day for the ISTQB Foundation 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.

课程进行4天,需要第一天可拨出2小时进行ISTQB 考试。每天的课堂时间约360分钟,从9点至5点。已订课程提供的材料如上所述。如定制课程,可按需要对材料进行删除、增加或扩展。

Please note that timings are approximate, depending on attendee interest and discussion. All of the lectures include exercises except as noted.

请注意每节的时间长度为大致时间,实际长度取决于学员的兴趣和讨论。如无特别说明,所有的受累时间均包括练习的时间。

1.0 Principles of testing 测试原则

Introduction (20 minutes, no exercise) 简介 (20分钟,无练习)

1.1 Why is testing necessary (25 minutes, no exercise)

测试为何必要 (25分钟,无练习)

1.2 What is testing (30 minutes) 什么是测试 (30分钟)

1.3 General testing principles (45 minutes) 一般测试原则 (45分钟)

1.4 Fundamental test process (40 minutes) 一般测试原则 (45分钟)

1.5 Psychology of testing (40 minutes) 测试的心理学 (40分钟)

2.0 Testing throughout the life cycle 贯穿生命周期的测试

2.1 Software development models (30 minutes) 软件开发模型 (30分钟)

2.2 Test levels (60 minutes) 测试级别 (60分钟)

2.3 Test types: the targets of testing (60 minutes) 测试类型:测试的目标 (60分钟)

2.4 Maintenance testing (30 minutes) 维护测试 (30分钟)

3.0 Static techniques 静态技术

3.1 Reviews and the test process (25 minutes) 评审和测试过程 (25分钟)

3.2 Review process (45 minutes) 评审过程 (45分钟)

3.3 Static analysis by tools (30 minutes) 静态分析 (30分钟)

4.0 Test Design Techniques 测试设计技术

4.1 Identifying test conditions and designing test cases (90 minutes)

识别测试条件和设计测试用例 (90分钟)

4.2 Categories of test design techniques (25 minutes)

测试设计技术的类别 (25分钟)

4.3 Specification-based or black box techniques (150 minutes)

基于规格说明的或黑盒技术 (150分钟)

4.4 Structure-based or white box techniques (60 minutes)

基于结构的或白盒技术 (60分钟)

4.5 Experience-based techniques (30 minutes) 基于经验的技术 (30分钟)

4.6 Choosing test techniques (25 minutes) 挑选测试技术 (25分钟)

5.0 Test management 测试管理

5.1 Test organization (40 minutes) 测试组织 (40分钟)

5.2 Test planning and estimation (70 minutes) 测试规划与估算 (70分钟)

5.3 Test progress monitoring and control (50 minutes) 测试进展监控 (50分钟)

5.4 Configuration management (30 minutes) 配置管理 (30分钟)

5.5 Risk and testing (30 minutes) 风险与测试 (30分钟)

5.6 Incident or bug management (65 minutes) 事件或缺陷管理 (65分钟)

6.0 Tool support for testing 测试的工具支持

6.1 Types of test tools (70 minutes) 测试工具类型 (70分钟)

6.2 Effective use of tools, potential benefits and risks (35 minutes)

有效使用工具,潜在的收益和风险 (35分钟)

6.3 Introducing a tool into an organization (25 minutes)

将工具引入组织 (25分钟)

Question and answer period (15 minutes, no exercise)
答疑时段(15分钟,无练习)

Appendix A: For Those Pursuing Certification

附录A :致要获得认证的人

Appendix B: ISTQB Foundation Level Syllabus

附录A :致要获得认证的人

Appendix C: List of Applicable Standards

附录C: 适用标准列表

Appendix D: ISTQB Glossary of Testing Terms

附录D :ISTQB测试术语表

Appendix D: OmniNet Marketing Requirements Document

附录E :OmniNet市场需求文档

Appendix F: OmniNet System Requirements Document

附录F :OmniNet系统需求文档

Recommended Readings 推荐阅读

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

课堂材料包括了一份涵盖内容广泛的书目,涉及软件测试、项目管理、质量、和其他关系到测试职业人员的课题。