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# FUNDAMENTALS OF SOFTWARE TESTING

Following ISTQB curricula

## Course Description

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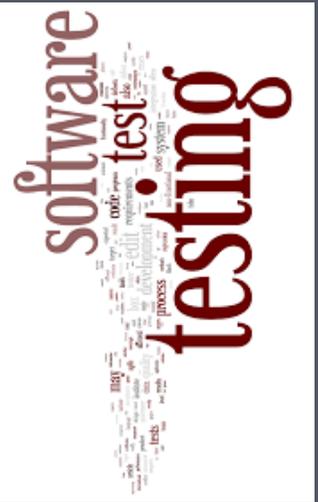
The **Fundamentals of Software Testing** course provides the delegates with the necessary foundations for a career as a **software testing professional**. This course provides comprehensive first-level training for anyone involved directly or indirectly in software testing. The course covers the fundamentals of testing: definitions of testing standards, planning, managing the lifecycle, reviews and the tools available. Techniques for creating tests are described and practiced. It culminates in a half a day practical exercise which will pass through all steps of a testing project. We will spice it with many questions similar to the ones in ISTQB certification exam and will finalize with a one-hour multiple choice exam simulation.

The course will provide an overview of the software testing process and will tell you how to put it in practice. Successful delegates will also be confident and prepared for the ISTQB Certified Tester - Foundation Level, a globally recognized qualification.

## Benefits:

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- ✓ Increase the confidence of your stakeholders and project team members in the efficiency of your approaches regarding test iterations
- ✓ Customize the established testing models to your advantage
- ✓ Improve the efficiency of your test iterations by using testing techniques to design and prioritize tests
- ✓ Learn to lower your costs by using testing as early as possible in the software development lifecycle
- ✓ Avoid the waste of time due to poor communication
- ✓ Become a ISTQB Certified Tester - a globally recognised qualification



## **Training Objectives:**

- ✓ Demonstrate and implement effective testing techniques.
- ✓ Work to international standards and requirements.
- ✓ Demonstrate an understanding of the fundamental principles and terminology of software testing.
- ✓ Undertake testing tasks with a greater degree of confidence.
- ✓ Feel confident and well prepared for exam.
- ✓ Identify the required testing skills for recruitment and career development purposes.



# COURSE OUTLINE

**DAY 1**

- 1 Fundamentals of Software Testing
- 2 Testing Throughout Application Lifecycle
- 3 Fundamental Test Process

- 7 Dynamic Test Design Techniques
- 8 Test Execution
- 9 Optimize testing by using tools

**DAY 3**

- 4 Test Organization
- 5 Test Planning & Risk analysis
- 6 Static Test Design Techniques

**DAY 4**

- 10 Return on investment from testing
- 11 CTFL Exam preparation & simulation

**DAY 2**

# Day 1

## 1 Fundamentals of Software Testing

- Why is testing necessary
- What is testing
- Seven testing principles
- The psychology of testing
- Code of ethics

The course introduces the delegates into the world of software testing by underlining its importance and presenting an overview of the entire process. It establishes the seven pillars, the foundation of software testing and also presents a few elements of efficient communication in this profession. The benefits extracted from this chapter are the awareness of the future testers regarding the importance of their job, improvement of their communication skills and establish the foundation on which all other chapters will be built on.

## 2 Testing Throughout Application Lifecycle

- Software development models
- Test levels
- Test types
- Maintenance testing

During this chapter will be presented the main theoretical models of software development lifecycle. Based on these models testing will fit in one or several phases. The purpose of this chapter is to explain the mandatory phases of SDLC, to help you choose the model that will fit your needs and apply it to your project. We will describe and compare four types of test "target": software functions; "non-functional" characteristics such as performance and usability; software architecture and other structures such as program code; and change-related testing (confirmation testing and regression testing). Also we will present the special environment and considerations of post-release ("maintenance") testing, including impact analysis to establish the need for regression testing. The benefits of this chapter are an informed choice of the most appropriate SDLC model to choose, how to customize this model to your project's needs and how to select and apply testing levels on this model to best cover your needs.

## 3 Fundamental test process

- Fundamental test process
- Main phases
- How to put it in practice
- Lessons learned and their value

Outlines the essential activities of a fundamental test process, consisting of planning and control, analysis and design, implementation and execution, evaluating exit criteria and reporting, and test closure activities. We will discuss each phase using examples from trainer's experience. A very important part of the chapter will be an open discussion regarding how to put this in practice in the real trainee's environments. We will exchange experiences, discuss lessons learned and how to apply these lessons in real life projects. The benefit of this chapter consists in improving the delegate's ability to put in practice the established testing concepts, the fundamental test process, test approaches, and principles to support your project's objectives and increase the efficiency of your current testing process

# Day 2

## 4 Test Organization

- The organization & independence
- Roles and tasks in testing
- Basic testware
- Configuration & incident management
- Apply it to your organization

Test Organization will respond to the question of how to organize your testing team, to put the right people in the right places. Discusses the importance of independent testing, stressing the resulting need for good communication between testers and the rest of the organization. Recognizes and describes the different roles of “tester” and “test leader” (test manager), listing typical tasks of each. Explains why configuration management and change control are necessary, particularly in testing. Discusses the configuration items for testing. We will explore how to record incidents according to the ‘Standard for Software Test Documentation’ (IEEE 829), what needs to be tracked, and analyzing defect statistics. Discusses the difference between severity and priority, and between defects and change requests. The *benefit* of this chapter is the improvement of knowledge regarding how to enhance your testing organization to best fit the needs of your company.

## 5 Test planning & Risk analysis

- Test planning and estimations
- Test progress monitoring and control
- Risk and testing
- Build your test plan and test strategy according to IEEE829

Testing nowadays needs to be more more efficient, faster and accurate. You need a good strategy, good planning and most of all an efficient system of monitoring and control. An essential part of this chapter is the risk assessment and how to prioritize your testing according to the risk to your business. Describes the nature of risk, distinguishing “project risks” from “product risks”, and shows how risk analysis is used throughout testing to determine what to test, how much to test, and what should be tested first. The monitoring and control describes the need to monitor test activities to identify deviations from the Test Plan, so that corrective (“control”) actions may be agreed and undertaken. Identifies common metrics used for monitoring test preparation and execution, such as progress in test case specification, or tests run, passed, and failed. The benefit of this chapter combined with previous ones is to put in practice the established testing concepts, the fundamental test process, test approaches, and principles to support your project’s objectives and increase the efficiency of your current testing process.

## 6 Static test design techniques

- Static techniques and the test process
- Review process
- Static analysis by tools
- Apply it in your projects

The static design techniques will help you to introduce testing as early as possible in your ALM. I will describe in detail the steps and types of reviews, will show what is appropriate and when. Throughout the chapter we will continuously answer the question “how to put it in practice” in your environment. It explains why reviews are beneficial, what can be reviewed, and when in the lifecycle they should be carried out. Discusses the costs and benefits of reviews, and the relationships and differences between static and dynamic techniques. Also we will introduce the static analysis by tools and analyze together with the delegates if it is beneficial or not for them. The greatest benefit of this chapter is that it shows how to put in practice one of the seven pillars of testing: test as early as possible”.

## Day 3

### 7 Dynamic Test Design Techniques

- The Test development process
- Categories of test Design Techniques
- Specification based of black box techniques
- Structure based or white box techniques
- Experience based techniques
- Choosing the test techniques

Dynamic test techniques are the essence of black-box testing and will improve your capacity of building relevant test cases for almost every type of software application. It covers the analysis of test conditions from a test basis document, the design of tests to exercise those conditions (“Test Design Specification”), and the implementation of tests via detailed “Test Case Specifications”, “Test Procedure Specifications”, and test execution schedules. Describes the concept and importance of statement and decision coverage, including their potential use at all test levels. Explains how to identify test cases based on process flows by using statement testing and decision testing. The main asset of the chapter is it shows how different techniques can be used for different kinds of testing and the importance of choosing the appropriate techniques for particular kinds of problem. Of course we will answer the question “how to choose the right test techniques”. The main *benefit* of this chapter is Improve the efficiency of your test iterations by using testing techniques to design and prioritize tests

### 8 Test Execution

- From test cases to scenarios
- Test case & scenario prioritization
- Types of testing scenarios
- Apply in your project

The test execution chapter has as main purpose to execute what you have done in the previous chapters. From chapters 2 to 7 you developed a strategy and a complete test plan using techniques to optimize your activity. In this chapter we will see several ways how to create testing scenarios, how to aggregate all knowledge accumulated so far and deliver an usable product (in our case efficient testing scenarios). Once we have the scenarios ready we will partially execute them on a test system. The main benefit of this chapter is that it will demonstrate to delegates how to apply all the theory studied so far.

### 9 Optimize testing by using tools

- Types of test tools
- Effective use of tools
- Introducing tools into your organization

In full expansion of IT industry testing needs to be faster, accurate and high quality. Manual testing is very good but it needs to be speeded up where possible to achieve faster time to market. In this chapter we will study to possibility of introducing tools who will automate testing or automate your processes. The main purpose is to increase the speed while having the same level of quality. The chapter describes seven categories of software test tools, outlining what each type can do, and particularly identifying tools that might benefit testers in their testing. We will summarize the potential benefits and risks of tools and will explore the main principles of introducing a tool into an organization. The main *benefit* of this chapter is the introduction of knowledge regarding how to evaluate the implementation of automated tools in your company.

## Day 4

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### 10 Return on investment from testing

- Financials impact of quality
- Cost & revenue calculations
- Apply on our exercise

Return on Investment is a key factor in any business today. A testing department being part of a business needs to be productive. We will explore the theory behind the return on investment and analyze, based on our example, what to do to obtain a positive ROI. During this chapter we will explore theoretical principles who will increase your ROI like test first or early testing, test automation or reviews and see in what conditions we can apply them in practice. The benefit of this chapter is that it invites test managers to make informed decisions based on calculations which include ROI as well.

### 11 CTFL Exam preparation & simulation

- Exam preparation

We will allocate one hour for an exam simulation to prepare the delegates for what happens during the exam. At the end of each chapter we will have a set of questions similar to those in the examination who will verify the knowledge accumulated at the end of each chapter. During this simulation we will ask questions from all areas of the syllabus, we will have time limit and evaluate the results as it would be a real exam. After the simulation we will discuss all points and build confidence in success at the real examination.



### Hands-on & exercises

- Practical application of theory presented

*Make IT Work !*

The course is different from other similar attempts due to its practical side and construction of exercises. You will find exercises that will cover two major objectives: "1. Become confident and well prepared for the exam" & "2. How to apply the theory in practice". For the first objective we will have at the end of each chapter questions similar to the ones in the examination and at the end we will simulate a certification exam. Our biggest differentiator compared to other similar trainings is an end to end exercise who will accompany you throughout the entire course. In the fourth day you would have completed an entire testing cycle with all the theory put in practice. During the fourth day review we will see how to expand this condensed exercise to a full testing project.

## What makes this training different:

- Accent on practice "How to use IT in practice" is a question that will be answered at every chapter
- Simulation of the Certification Exam
- Optimal blend between theoretical presentation and practical experience
- Compliant to ISTQB curricula, ISO29119, IEEE829



## Who should attend

- ✓ Those with little or no knowledge of testing, but have been given the responsibility for Software Testing
- ✓ Managers who have the responsibility for carrying out testing activities
- ✓ Developers who need to understand the testing process better
- ✓ Mandatory for anybody who wants to become a Software Testing Professional



## Logistics

- ✓ 4 Days
- ✓ Bucharest – Regus Training Room
- ✓ 28 – 29 November 2016

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