

The background of the top half of the cover features a blurred, halftone-style image of two people. On the left, a person with dark hair is seen in profile, wearing a dark jacket. On the right, another person is partially visible, wearing a light-colored shirt. The overall tone is professional and collaborative.

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> COMPUTING

4th Edition

Andreas Spillner, Tilo Linz, Hans Schaefer

# Software Testing Foundations

A Study Guide for the Certified Tester Exam

- Foundation Level
- ISTQB Compliant

## Software Testing Foundations

## About the Authors



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Andreas Spillner · Tilo Linz · Hans Schaefer

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# Preface

In most industrialized countries, the Certified Tester has gained acceptance as a training and education tool for testers. At the end of 2013, the number of certified testers worldwide was more than 300,000. Chris Carter, president of the International Software Testing Qualifications Board (ISTQB), says this: “I think the scheme has been so successful because we freely offer our syllabi and glossary to the public, which helps to standardize professional terminology. We also offer certifications at a range of levels, from foundation through advanced to expert, allowing testing professionals to be supported right through their careers and keeping them up-to-date with the world’s best practices.”

*Worldwide success*

There are more than 20,000 Certified Testers in Germany, more than 1,000 in Norway, and more than 2,000 in Sweden. Even the small country of Iceland has over 100 Certified Testers. In more and more countries, being a Certified Tester is a prerequisite to being employed in testing or to be a contractor in testing services.

*Certified Testers  
in some countries*

A 2011 poll (taken in Germany, Switzerland, and Austria) revealed that nearly 75% of the people asked know the ISTQB scheme. More than 70% of them already have a Foundation Level Certificate. About 90% said the training was helpful.

The first version of this book was published in German in 2002. The first English edition was published in 2006. The German issue is in its 5<sup>th</sup> edition and the English version is in its 4<sup>th</sup> edition. This book conforms to the ISTQB syllabus “Certified Software Tester—Foundation Level” version 2011. Most major changes planned for the 2015 version have been included and are specially marked.

*Ten-year anniversary of the  
German version of this book*

Ten years is a long time in the IT industry; new developments and paradigms are encouraged and used, and new and improved tools are available. On the other hand, there is some basic knowledge in computer science that does not change. In this book, we have concentrated on generic knowledge and techniques. We have not described techniques

whose benefits are yet unknown, or techniques that have to show their practical validity and applicability. The same is true about “special disciplines” in testing; testing of web applications, testing in agile projects, or testing of embedded or mobile systems, for example. These techniques are not part of the standard foundations. There is other literature about such specialized areas.

*Books for the  
advanced level*

The Certified Tester training scheme consists of three levels (see Chapter 1). Besides the foundation knowledge (Foundation Level) described in detail in this text, books are also available from Rocky Nook for the syllabus for the Advanced Level. These books are available:

- The Software Test Engineer's Handbook [Bath 14] (for Test Analyst and Technical Test Analyst)
- Advanced Software Testing—Vol. 1 – 3 [Black 08, 09, 11]

Syllabi for the Expert Level also exist: “Improving the Test Process”<sup>1</sup> and “Test Management.” The syllabi for “Test Automation” and “Security Testing” are currently being finished.

*The knowledge is much  
asked for in the IT world*

The broad acceptance of this training scheme is made apparent by the powerful and continuous growth in ISTQB membership. 47 Testing Boards represent more than 70 countries. Ten years ago, there were a handful of members. Now ISTQB is represented in all parts of the world. The Certified Tester has grown to be a renowned trademark in the IT industry worldwide, and has considerably contributed to improving testing in the software development process.

*Testing is taught at colleges  
and universities*

The number of colleges that have integrated the Certified Tester scheme into their teaching is impressive. Courses are taught at places like Aachen and Bremen (Germany), Oslo (Norway), Reykjavik (Iceland), and Wismar (Germany). National Testing Boards usually decide which colleges offer these courses. Their relevance is shown by many job advertisements as well as requests for tenders. For personnel in software development it is more or less required to have some basic knowledge about testing, best shown by a certificate.

*Thank you*

We want to thank the colleagues from the German Testing Board and the ISTQB. Without their interest and work, the Certified Tester training scheme would not have received the success and acceptance described above.

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1. [Bath 2013]

Why a new edition of this book? This edition contains corrections of faults and clarification of ambiguity, as far as we know them. A special thank you to the readers who have described faults and have asked us about the instances of ambiguity. Furthermore, the terminology has been made more consistent with the improved ISTQB-glossary. This edition of the book is consistent with the syllabus version 2011. The literature list was updated and new books and standards were included. The links to Internet pages were checked and updated. We wish all readers good luck when using the described testing approaches and techniques in practice and—when reading the book is part of the preparation for the Certified Tester examination—good luck with the exam.

*What has been changed*

Andreas Spillner and Tilo Linz  
Bremen, Möhrendorf, Germany  
August 2013

I want to especially thank Michael Barabas from dpunkt.verlag, the publisher of the German book, and Matthias Rossmanith from Rocky Nook for their support in preparing this book. There were a lot of late changes and delays, most of which can be attributed to me. My special thanks goes to Judy Flynn, copy editor at Rocky Nook. Without her help, this book would be much harder to read. She helped me to improve my English, without getting tired of my systematic errors. When translating the German book to English, I especially thought of readers who do not use English as their native language. Many of us use a different language in our life, but English for our business. I hope the book will be comprehensible to such readers.

I included some planned changes to the ISTQB syllabus. These are specially marked because they will not be included in exams before 2015. Most of them are obvious changes due to development in international standards. When taking the Certified Tester exam, please make sure you know which version of the syllabus is used in your exam!

Finally, the main goal for this book is that it should teach you how to test effectively and efficiently. You should learn that there is a lot more to learn in the area of testing. As a side effect, you should be prepared to pass the Certified Tester exam.

Hans Schaefer  
Valestrandsfossen, Norway  
February 2014





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