ISTQB® Certified Tester Foundation Level

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ISTQB® Certified Tester Foundation Level

A Self-Study Guide Syllabus v4.0

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Preface

Purpose of This Book

This book is aimed at those preparing for the ISTQB® Certified Tester—Foundation Level exam based on the Foundation Level syllabus (version 4.0) published in 2023. Our goal was to provide candidates with reliable knowledge based on this document. We know from experience that one can find a lot of information about ISTQB® syllabi and exams on the Internet, but much of it is unfortunately of poor quality. It even happens that materials found on the Web contain serious errors. In addition, due to the significant changes that have taken place in the syllabus compared to the previous version (3.1.1) published in 2018, the amount of material available to candidates based on the new syllabus is still small.

This book expands and details many issues that are described in the syllabus itself in a perfunctory or general way. According to the ISTQB® guidelines for syllabus-based training, an exercise must be provided for each learning objective at the K3 level and a practical example must be provided for each objective at the K2 or K3 level.[1] In order to satisfy these requirements, we have prepared exercises and examples for all learning objectives at these levels. In addition, for each learning objective, we present one or more sample exam questions similar to those that the candidate will see on the exam. This makes the book an excellent aid for studying, preparing for the exam, and verifying acquired knowledge.

Book Structure

The book consists of four main parts.

[1] More about the learning objectives and K levels is given below.

Part I: Certificate, Syllabus, and Foundation Level Exam

Part I provides **official information on the content and structure of the syllabus and the** ISTQB® Certified Tester—Foundation Level exam. It also discusses the ISTQB® **certification structure**. This section also explains the basic technical concepts on which the syllabus and exam structure are based. We explain what the learning objectives and K levels are and what are the **rules for building and administering the actual exam**. It is worth familiarizing yourself with these issues, as understanding them will help you prepare much better for the exam.

Part II: Discussion of the Content of the Syllabus

Part II is the main part of the textbook. Here, we discuss in detail all the content and learning objectives of the Foundation Level syllabus. This part consists of six chapters, corresponding to the six chapters of the syllabus. Each learning objective at K2 or K3 level is illustrated with a practical example, and each learning objective at K3 level is illustrated with a practical exercise.

At the beginning of each chapter, definitions of **keywords** applicable to the chapter are given. Each keyword, at the place of its first relevant use in the text, is marked in bold and with a book icon. 🕮

At the end of each chapter, the reader will find sample exam questions covering all the learning objectives included in this chapter. The book contains **70 original sample exam questions** covering all the learning objectives, as well as **14 practical exercises** corresponding to the K3 level learning objectives. These questions and exercises are not part of the official ISTQB® materials but are constructed by the authors using the principles and rules that apply to their creation for the actual exams. Thus, they are additional material for the readers, allowing them to verify their knowledge after reading each chapter and better understand the material presented.

Optional Material
The text in the box denotes optional material. It relates to the content of the syllabus but goes beyond it and is not subject to examination. It is "for those, who are curious."

Sections with titles marked with an asterisk (*) are optional. They cover the material that was mandatory for the exam according to the old version of the syllabus. We decided to leave these chapters in the book because of their importance and practical application. The reader who uses the textbook only to study for the exam can skip these chapters while reading. These optional sections are:

Section 3.2.6—Review Techniques
Section 4.2.5—Use Case Testing

Part III: Answers to Questions and Exercises

In Part III, we provide solutions to all sample exam questions and exercises appearing in Part II of the book. The solutions are not limited to just giving the correct answers but also include their justifications. They will help the reader to better understand how the real exam questions are created and to better prepare for solving them during the real exam.

Part IV: Official Sample Exam and Additional Questions

The last part, Part IV of the textbook, contains the official sample ISTQB® exam for the Foundation Level certification, additional questions covering learning objectives not covered in the exam, and information about the correct answers and justifications for those answers.

The book is therefore structured in such a way that all important and useful information is in one place:

- Exam structure and rules
- The content discussed in the syllabus with its comprehensive discussion and examples
- Definitions of terms, the knowledge of which is mandatory for the exam
- Original sample test questions and exercises, with correct answers and their justification
- Sample ISTQB® exam with correct answers and their justification

We hope that the material presented in this publication will help all those interested in obtaining the ISTQB® Certified Tester—Foundation Level certification.

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Part II The Syllabus Content

About the Authors[2]

Lucjan Stapp, PhD, is a retired researcher and teacher of the Warsaw University of Technology, where for many years he gave lectures and seminars on software testing and quality assurance. He is the author of more than 40 publications, including 12 on various problems related to testing and quality assurance. As a tester, on his career path, he moved from junior tester to test team leader in more than a dozen projects. He has played the role of co-organizer and speaker at many testing conferences (including TestWarez—the biggest testing conference in Poland). Stapp is the founding member of the Information Systems Quality Association (www.sjsi.org), currently its vice president. He is also a certified tester (including ISTQB® CTAL-TM, CTAL-TA, Agile Tester, Acceptance Tester).

Adam Roman, PhD, DSc, is a professor of computer science and research and teaching fellow at the Institute of Computer Science and Computer Mathematics at Jagiellonian University, where he has been giving lectures and seminars on software testing and quality assurance for many years. He heads the Software Engineering Department and is the co-founder of the "Software Testing" postgraduate program at Jagiellonian University. His research interests include research on software measurement, defect prediction models, and effective test design techniques. As part of the Polish Committee for Standardization, he collaborated on the international ISO/IEEE 29119 Software Testing Standard. Roman is the author of monographs *Testing and Software Quality: Models, Techniques, Tools, Thinking-Driven Testing*, and *A Study Guide to the ISTQB® Foundation Level 2018 Syllabus: Test Techniques and Sample Mock Exams* as well as many scientific and popular publications in the field of software testing. He has played the role of speaker at many Polish and

[2] All three authors are experts in software testing. They are co-authors of the Foundation Level syllabus version 4.0, as well as other ISTQB® syllabi. They also have practical experience in writing exam questions.

international testing conferences (including EuroSTAR, TestWell, TestingCup, and TestWarez). He holds several certifications, including ASQ Certified Software Quality Engineer, ISTQB® Full Advanced Level, and ISTQB® Expert Level—Improving the Test Process. Roman is a member of the Information Systems Quality Association (www.sjsi.org).

Michaël Pilaeten. Breaking the system, helping to rebuild it, and providing advice and guidance on how to avoid problems. That's Michaël in a nutshell. With almost 20 years of experience in test consultancy in a variety of environments, he has seen the best (and worst) in software development. In his current role as Learning and Development Manager, he is responsible for guiding his consultants, partners, and customers on their personal and professional path toward quality and excellence. He is the chair of the ISTQB Agile workgroup and Product Owner of the ISTQB® CTFL 4.0 syllabus. Furthermore, he is a member of the BNTQB (Belgium and Netherlands Testing Qualifications Board), an accredited training for most ISTQB® and IREB trainings, and an international keynote speaker and workshop facilitator.

List of Abbreviations

AC	Acceptance criteria
API	Application Programming Interface
ASQF	Der Arbeitskreis für Software-Qualität und Fortbildung
ATDD	Acceptance test-driven development
BDD	Behavior-driven development
BPMN	Business Process Model and Notation
BVA	Boundary value analysis
CC	Cyclomatic complexity
CD	Continuous delivery
CFG	Control flow graph
CI	Continuous integration
CMMI	Capability Maturity Model Integration
COTS	Commercial off-the-shelf
CPU	Central processing unit
CRM	Customer relationship management
DDD	Domain-driven design
DDoS	Distributed Denial-of-Service
DevOps	Development and operations
DoD	Definition of Done
DoR	Definition of Ready
DTAP	Development, testing, acceptance, and production
EP	Equivalence partitioning
FDD	Feature-driven development
FMEA	Failure mode and effect analysis
GUI	Graphical user interface
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IaC	Infrastructure as Code
INVEST	Independent, Negotiable, Valuable, Estimable, Small, and Testable
IoT	Internet of Things

IREB	International Requirements Engineering Board
ISEB	Information Systems Examination Board
ISO	International Organization for Standardization
ISTQB	International Software Testing Qualifications Board
KPI	Key performance indicator
LO	Learning objective
LOC	Lines of code
MBT	Model-based testing
MC/DC	Modified condition/decision coverage
MCR	Modern Code Review
MTTF	Mean time to failure
MTTR	Mean time to repair
N/A	Not applicable
PERT	Program Evaluation and Review Technique
OAT	Operational acceptance testing
QA	Quality assurance
QC	Quality control
QM	Quality management
Req	Requirement
SDLC	Software development lifecycle
SMART	Specific, Measurable, Attainable, Realistic, and Time-Bound
SQL	Structured query language
TC	Test case
TDD	Test-driven development
TMap	Test Management Approach
UAT	User acceptance testing
UI	User interface
UML	Unified Modeling Language
UP	Unified Process
US	User story
WBS	Work breakdown structure
WIP	Work in process (or work in progress)
XP	eXtreme Programming
XSS	Cross-site scripting