

# **ISTQB® Certified Tester**

## **Advanced Level**

### **Overview of Syllabi**

#### **Test Analyst Technical Test Analyst**

Version 2019

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International Software Testing Qualifications Board

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1 This document was formally released by the General Assembly of the ISTQB® on October 18, 2019

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## Revision History

| Version   | Date              | Remarks   |
|-----------|-------------------|---|
| 2019 Beta | July 22, 2019     | Beta 2019 review version  |
| 2019 V1.0 | October 18, 2019  | GA release for 2019 version   |
| 2019 V1.1 | December 19, 2019 | Launch version.<br>Minor typographical corrections<br>Remove reference to release notes<br>Course durations stated in hours (section 0.7) |

## Acknowledgements

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## 0. Introduction to the Advanced Level

This overview document is intended for anyone with an interest in the ISTQB® Advanced Level who wants a high-level introduction to its leading principles and an overview of the following Advanced Level Syllabi:

1. Test Analyst (TA)
2. Technical Test Analyst (TTA)

An overview of the current Advanced Level Test Manager module may be obtained in the 2012 version of the Advanced Level overview document.

In this document the TA and TTA modules are described in summary form and the business outcomes are stated. These provide a specific statement of what can be expected from a person who achieves one or more of the above-mentioned Advanced Level Certifications, and will particularly benefit companies that are considering the development of specific skills at this level.

### 0.1 The Advanced Level 2019 Version

In general, the changes introduced in the 2019 Advanced Level Test Analyst and Technical Test Analyst syllabi result from the following factors:

- Changes to software development practices, in particular the use of iterative software development lifecycles such as Agile.
- Introduction of different standards, in particular ISO/IEC 25010
- Feedback obtained from an extensive survey of ISTQB® stakeholders conducted in 2018.
- Release of the 2018 version of the Foundation Level Core certification syllabus which required scoping with the Advanced Level
- Release of ISTQB® Specialist Level modules (e.g., performance testing, usability testing) which required scoping with the Advanced Level Test Analyst and Technical Test Analyst modules.

For stakeholders who are already familiar with or use the 2012 version of the Advanced Level TA and TTA Syllabi, a summary of the main changes is provided.

A separate release note provides a comparison between the learning objectives in the 2012 version the 2019 version and shows which business outcomes and learning objectives have been added, updated, or removed.

### 0.2 Career Paths for Testers

The ISTQB® scheme provides support for the definition of career paths in testing by offering a 3-tiered certification scheme starting with the Foundation Level and continuing with the Advanced Level and Expert Level. These are supported by a collection of Specialist Level and Agile modules which enable additional specialist skills to be developed in certain subjects (e.g. performance testing).

The Advanced Level builds on the Foundation Level and establishes a platform from which further skills and knowledge may be acquired at other levels (e.g., Expert or Specialist).

Please visit [www.istqb.org](http://www.istqb.org) for the latest overview of ISTQB®'s career paths.

### 0.3 Intended Audience

The Advanced Level Test Analyst and Technical Test Analyst qualifications are suitable for anyone who is involved in testing as well as anyone interested in further developing their software testing knowledge. This includes people performing activities such as test analysis, test consulting and software development.

The syllabi provide testing knowledge for anyone working with Agile or sequential software development lifecycles. Although the syllabi are presented for distinct roles, the knowledge may also be applied in a context where these roles are not distinctly identified.

### 0.4 Learning Objectives

The knowledge levels of the specific learning objectives at K2, K3 and K4 levels are shown at the beginning of each chapter and are classified as follows:

- K2: Understand
- K3: Apply
- K4: Analyze

The definitions of all terms listed as keywords just below the chapter headings shall be remembered (K1), even if not explicitly mentioned in the learning objectives.

### 0.5 Entry Requirements

The entry criterion for taking the ISTQB® Certified Tester Advanced Level Test Analyst and Technical Test Analyst exams is that candidates have acquired the ISTQB® Certified Tester Foundation Level certification.

### 0.6 Exam Structure

The Advanced Level Core certification exam is defined in the document “Certified Tester Advanced Level Syllabus Exam Structure and Rules Test Analyst Technical Test Analyst which can be found on [www.istqb.org](http://www.istqb.org)

The TA and TTA Advanced Level modules have the following attributes:

- The format of the exam is multiple choice.
- Exam duration is 120 minutes. If the candidate’s native language is not the examination language, the candidate is allowed an additional 25%.
- To pass the exam, at least 65% of the total sum of points must be answered correctly.

For TA

- There are 40 questions.
- The total number of points for the TA exam should be set at 80 points. Therefore, a minimum of 52 points is required to achieve a passing score.

For TTA

- There are 45 questions.
- The total number of points for this exam should be set at 76 points. Therefore, a minimum of 49 points is required to achieve a passing score.

Exams may be taken as part of an accredited training course or taken independently (e.g., at an exam center or in a public exam). Completion of an accredited training course is not a pre-requisite for the exam.



1 **0.7 Course Duration**

2 For accredited training courses, a minimum amount of instruction time is required:

- 3 • Test Analyst: 20 hours and 30 minutes
- 4 • Technical Test Analyst: 21 hours and 15 minutes

5  
6 Individual training times for the chapters of each course are provided in the module-specific chapters  
7 which follow.

8 **0.8 Handling of Standards**

9 There are standards referenced in the Advanced Level Core syllabi (e.g., (IEEE, ISO, etc.)). The  
10 purpose of these references is to provide a framework (as in the references to ISO 25010 regarding  
11 quality characteristics) or to provide a source of additional information if desired by the reader. Please  
12 note that the syllabi are using the standard documents as a reference. The standards documents are  
13 not intended for examination.

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## 1. The Advanced Level Test Analyst Syllabus

### 1.1 Structure and Course Duration

The Advanced Level Test Analyst syllabus contains six chapters covering the knowledge necessary to be a test analyst. The top-level heading for each chapter specifies the minimum time for the chapter; timing is not provided below chapter level. For accredited training courses, the syllabus requires a minimum of 20 hours and 30 minutes of instruction, distributed across the six chapters as follows:

- Chapter 1: The Test Analyst's Tasks in the Test Process (150 minutes)
- Chapter 2: The Test Analyst's Tasks in Risk-Based Testing (60 minutes)
- Chapter 3: Test Techniques (630 minutes)
- Chapter 4: Testing Software Quality Characteristics (180 minutes)
- Chapter 5: Reviews (120 minutes)
- Chapter 6: Test Tools & Automation (90 minutes)

### 1.2 Business Outcomes

This section lists the Business Outcomes expected of a candidate who has achieved the Advanced Level Test Analyst certification.

An Advanced Level Test Analyst can:

|     |  |
|-----|--|
| TA1 | Perform the appropriate testing activities based on the software development lifecycle being used  |
| TA2 | Determine the proper prioritization of the testing activities based on the information provided by the risk analysis                           |
| TA3 | Select and apply appropriate test techniques to ensure that tests provide an adequate level of confidence, based on defined coverage criteria. |
| TA4 | Provide the appropriate level of documentation relevant to their testing activities  |
| TA5 | Determine the appropriate types of functional testing to be performed  |
| TA6 | Work effectively in a usability testing team   |
| TA7 | Effectively participate in requirements / user story reviews with stakeholders, applying knowledge of typical mistakes made in work products   |
| TA8 | Improve the efficiency of the test process with the use of tools   |

### 1.3 Content

Chapter 1: The Test Analyst's tasks in the Test Process

- Testing in the software development lifecycle
- Test analysis
- Test design
- Test implementation
- Test execution

Chapter 2: The Test Analyst's tasks in Risk-Based Testing

- Risk identification

- 1 • Risk assessment
- 2 • Risk mitigation
- 3
- 4 Chapter 3: Test Techniques
- 5 • Black-box test techniques
- 6 • Experience-based test techniques
- 7 • Applying the most appropriate technique
- 8
- 9 Chapter 4: Testing Software Quality Characteristics
- 10 • Quality characteristics for business domain testing:
- 11 • Aspects of functionality testing
- 12 • Interoperability testing
- 13 • Usability testing
- 14 • Portability testing
- 15
- 16 Chapter 5: Reviews
- 17 • Using checklists in reviews
- 18 • Requirements reviews
- 19 • User story reviews
- 20
- 21 Chapter 6: Test tools & Automation
- 22 • Keyword-driven automation
- 23 • Types of test tools
- 24

## 25 1.4 Further Development Opportunities

26 The knowledge acquired from the Test Analyst module may be further developed by the following  
27 ISTQB<sup>®</sup> modules:

28  
29 ISTQB<sup>®</sup> Specialist Level:

- 30 • Usability Testing (Foundation Level) [CTFL\_UT]
- 31 • Mobile Application Tester (Foundation Level) [CTFL\_MAT]
- 32 • Acceptance Testing (Foundation Level) [CTFL-AcT]
- 33 • Test Automation Engineering (Advanced Level) [CTAL\_TAE]
- 34

35 ISTQB<sup>®</sup> Foundation Level

- 36 • Certified Tester Foundation Agile Software Testing [ISTQB\_AGILE\_SYL]
- 37

38 The ISTQB<sup>®</sup> Certified Tester Foundation Level Certificate is required before taking the exams for  
39 these modules. Please visit [www.istqb.org](http://www.istqb.org) for the latest overview of ISTQB<sup>®</sup>'s modules.  
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## 41 1.5 Business Outcomes Traceability Matrix with Learning Objectives

42 The following tables show information about Learning Objectives and their coverage of the Business  
43 objectives. The tables contain the following information>

- 44 • Section of syllabus (number and title)
- 45 • LO number
- 46 • K-Level
- 47 • Description of LO
- 48 • Mapping of LO to Business Objectives.

|  |  |   |  | Minutes | Mapping to TA Business Objectives |     |     |     |     |     |     |     |
|--|--|---|--|---------|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|
|  |  |   |  |         | TA1                               | TA2 | TA3 | TA4 | TA5 | TA6 | TA7 | TA8 |
| <b>1. The Test Analyst's Tasks in the Test Process</b>   |  |   |  | 150     |                                   |     |     |     |     |     |     |     |
| <b>1.2 Testing in the Software Development Lifecycle</b> |  |   |  |         |                                   |     |     |     |     |     |     |     |
| TA-1.2.1   |  | 2 | Explain how and why the timing and level of involvement for the Test Analyst varies when working with different software development lifecycle models                | 15      | 1                                 |     |     |     |     |     |     |     |
| <b>1.3 Test Analysis</b>                                 |  |   |  |         |                                   |     |     |     |     |     |     |     |
| TA-1.3.1   |  | 2 | Summarize the appropriate tasks for the Test Analyst when conducting analysis and design activities.   | 15      | 1                                 |     |     |     |     |     |     |     |
| <b>1.4 Test Design</b>                                   |  |   |  |         |                                   |     |     |     |     |     |     |     |
| TA-1.4.1   |  | 2 | Explain why test conditions should be understood by the stakeholders   | 15      | 1                                 |     |     |     |     |     |     |     |
| TA-1.4.2   |  | 4 | For a given project scenario, select the appropriate design level for test cases (high-level or low-level)   | 60      | 1                                 |     |     |     | 1   |     |     |     |
| TA-1.4.3   |  | 2 | Explain the issues to be considered in test case design  | 15      |                                   |     |     |     |     |     |     |     |
| <b>1.5 Test Implementation</b>                           |  |   |  |         |                                   |     |     |     |     |     |     |     |
| TA-1.5.1   |  | 2 | Summarize the appropriate tasks for the Test Analyst when conducting test implementation activities.   | 15      |                                   |     | 1   | 1   |     |     |     |     |
| <b>1.6 Test Execution</b>                                |  |   |  |         |                                   |     |     |     |     |     |     |     |
| TA-1.6.1   |  | 2 | Summarize the appropriate tasks for the Test Analyst when conducting test execution activities.  | 15      |                                   |     | 1   | 1   |     |     |     |     |
| <b>2. The Test Analyst's Tasks in Risk-Based Testing</b> |  |   |  | 60      |                                   |     |     |     |     |     |     |     |
| TA-2.1.1   |  | 3 | For a given situation, participate in risk identification, perform risk assessment and propose appropriate risk mitigation   | 60      |                                   | 1   |     |     |     |     |     |     |
| <b>3. Test Techniques</b>                                |  |   |  | 630     |                                   |     |     |     |     |     |     |     |
| <b>3.2 Black-box Test Techniques</b>                     |  |   |  |         |                                   |     |     |     |     |     |     |     |
| TA-3.2.1   |  | 4 | Analyze a given specification item(s) and design test cases by applying equivalence partitioning.  | 60      |                                   |     | 1   | 1   |     |     |     |     |
| TA-3.2.2   |  | 4 | Analyze a given specification item(s) and design test cases by applying boundary value analysis.   | 60      |                                   |     | 1   | 1   |     |     |     |     |
| TA-3.2.3   |  | 4 | Analyze a given specification item(s) and design test cases by applying decision table testing.  | 60      |                                   |     | 1   | 1   |     |     |     |     |
| TA-3.2.4   |  | 4 | Analyze a given specification item(s) and design test cases by applying state transition testing.  | 60      |                                   |     | 1   | 1   |     |     |     |     |
| TA-3.2.5   |  | 2 | Explain how classification tree diagrams support test techniques   | 15      |                                   |     | 1   | 1   |     |     |     |     |
| TA-3.2.6   |  | 4 | Analyze a given specification item(s) and design test cases by applying pairwise testing.  | 90      |                                   |     | 1   | 1   |     |     |     |     |
| TA-3.2.7   |  | 4 | Analyze a given specification item(s) and design test cases by applying use case testing.  | 60      |                                   |     | 1   | 1   |     |     |     |     |
| TA-3.2.8   |  | 4 | Analyze a system, or its requirement specification, in order to determine likely types of defects to be found and select the appropriate black-box test technique(s) | 60      |                                   |     | 1   |     |     |     |     |     |
| <b>3.3 Experience-Based Test Techniques</b>              |  |   |  |         |                                   |     |     |     |     |     |     |     |
| TA-3.3.1   |  | 2 | Explain the principles of experience-based test techniques, and the benefits and drawbacks compared to black-box and defect-based test techniques                    | 15      |                                   |     | 1   |     |     |     |     |     |
| TA-3.3.2   |  | 3 | Determine exploratory tests from a given scenario.   | 60      |                                   |     | 1   |     |     |     |     |     |
| TA-3.3.3   |  | 2 | Describe the application of defect-based test techniques and differentiate their use from black-box test techniques  | 15      |                                   |     | 1   |     |     |     |     |     |
| <b>3.4 Applying the Most Appropriate Technique</b>       |  |   |  |         |                                   |     |     |     |     |     |     |     |
| TA-3.4.1   |  | 4 | For a given project situation, determine which black-box or experience-based test techniques should be applied to achieve specific goals                             | 75      |                                   |     | 1   |     |     |     |     |     |

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(continued)

|  |  |   |  | Minutes    | Mapping to TA Business Objectives |     |     |     |     |     |     |     |
|--|--|---|--|------------|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|
|  |  |   |  |            | TA1                               | TA2 | TA3 | TA4 | TA5 | TA6 | TA7 | TA8 |
| <b>4. Testing Software Quality Characteristics</b>             |  |   |  | <b>180</b> |                                   |     |     |     |     |     |     |     |
| <b>4.2 Quality Characteristics for Business Domain Testing</b> |  |   |  |            |                                   |     |     |     |     |     |     |     |
| TA-4.2.1   |  | 2 | Explain what test techniques are appropriate to test functional completeness, correctness and appropriateness.   | 15         |                                   |     |     |     | 1   |     |     |     |
| TA-4.2.2   |  | 2 | Define the typical defects to be targeted for the functional completeness, correctness and appropriateness characteristics .   | 15         |                                   |     |     |     | 1   |     |     |     |
| TA-4.2.3   |  | 2 | Define when the functional completeness, correctness and appropriateness characteristics should be tested in the software development lifecycle.                                     | 15         |                                   |     |     |     | 1   |     |     |     |
| TA-4.2.4   |  | 2 | Explain the approaches that would be suitable to verify and validate both the implementation of the usability requirements and the fulfillment of the user's expectations            | 30         |                                   |     |     |     | 1   | 1   |     |     |
| TA-4.2.5   |  | 2 | Explain the role of the test analyst in interoperability testing including identification of the defects to be targeted.   | 15         |                                   |     |     |     | 1   |     |     |     |
| TA-4.2.6   |  | 2 | Explain the role of the test analyst in portability testing including identification of the defects to be targeted.  | 15         |                                   |     |     |     | 1   |     |     |     |
| TA-4.2.7   |  | 4 | For a given set of requirements, determine the test conditions required to verify the functional and/or non-functional quality characteristics within the scope of the Test Analyst. | 75         |                                   |     |     |     | 1   | 1   |     |     |
| <b>5. Reviews</b>  |  |   |  | <b>120</b> |                                   |     |     |     |     |     |     |     |
| <b>5.2 Using Checklists in Reviews</b>                         |  |   |  |            |                                   |     |     |     |     |     |     |     |
| TA-5.2.1   |  | 3 | Identify problems in a requirements specification according to checklist information provided in the syllabus  | 60         |                                   |     |     |     |     |     | 1   |     |
| TA-5.2.2   |  | 3 | Identify problems in a user story according to checklist information provided in the syllabus  | 60         |                                   |     |     |     |     |     | 1   |     |
| <b>6. Test tools and Automation</b>                            |  |   |  | <b>90</b>  |                                   |     |     |     |     |     |     |     |
| <b>6.2 Keyword-Driven Automation</b>                           |  |   |  |            |                                   |     |     |     |     |     |     |     |
| TA-6.2.1   |  | 3 | For a given scenario, determine the appropriate activities for a Test Analyst in a keyword-driven automation project   | 60         |                                   |     |     |     |     |     |     | 1   |
| <b>6.3 Types of test tools</b>                                 |  |   |  |            |                                   |     |     |     |     |     |     |     |
| TA-6.3.1   |  | 2 | Explain the usage and types of test tools applied in test design, test data preparation and test execution   | 30         |                                   |     |     |     |     |     |     | 1   |

## 1.6 Main Changes in the 2019 Syllabus

The following principal changes have been made to the Test Analyst 2012 syllabus:

| Subject/Chapter  | Description of Change  |
|--|--|
| Course duration  | The overall course duration is reduced from 4 days to 3 days as a result of the changes listed below.  |
| The Test Analyst's tasks in the Test Process Chapter 1 | Scoping and consistency with the Foundation Core syllabus (Version 2018) [CTFL]. Some sections removed and others modified.                  |
| Test management activities                             | Scoping and consistency with the Foundation Core syllabus (Version 2018) [CTFL] and Advanced Level Core Test Manager. Some sections removed. |
| Test techniques Chapter 3                              | Some techniques removed as a result of feedback from the stakeholder survey.   |
| Testing Software Quality characteristics Chapter 4     | Adoption of ISO 25010 as the principal standard referred to. Scoping and consistency with specialist module on usability testing [CTFL_UT]   |
| Test Tools & Automation Chapter 6                      | Scoping and consistency with the ISTQB® Test Automation Engineer Advanced Level module   |
| Defect Management                                      | This chapter is deleted. It is covered in adequate detail in the Foundation Core syllabus (Version 2018) [CTFL].                             |

## 2. The Advanced Level Technical Test Analyst Syllabus

### 2.1 Structure and Course Duration

The Advanced Level Technical Test Analyst syllabus contains six chapters covering the knowledge necessary to be a technical test analyst.

The top-level heading for each chapter specifies the minimum time for the chapter; timing is not provided below chapter level. For accredited training courses, the syllabus requires a minimum of 21 hours and 15 minutes of instruction, distributed across the six chapters as follows:

- Chapter 1: The Technical Test Analyst's Tasks in Risk-Based Testing (30 minutes)
- Chapter 2: White-Box Test Techniques (345 minutes)
- Chapter 3: Analytical Techniques (210 minutes)
- Chapter 4: Quality characteristics for Technical Testing (345 minutes)
- Chapter 5: Reviews (165 minutes)
- Chapter 6: Test Tools & Automation (180 minutes)

### 2.2 Business Outcomes

This section lists the Business Outcomes expected of a candidate who has achieved the Advanced Level Technical Test Analyst certification.

An Advanced Level Technical Test Analyst can:

|      |   |
|------|---|
| TTA1 | Recognize and classify the typical risks associated with the performance, security, reliability, portability and maintainability of software systems.               |
| TTA2 | Provide technical elements to the planning, design and execution of tests for mitigating performance, security, reliability, portability and maintainability risks. |
| TTA3 | Select and apply appropriate white-box test techniques to ensure that tests provide an adequate level of confidence, based on design coverage.                      |
| TTA4 | Effectively participate in reviews with developers and software architects applying knowledge of typical defects in the code and architecture.                      |
| TTA5 | Improve the quality characteristics of code and architecture by making use of different analysis techniques   |
| TTA6 | Outline the costs and benefits to be expected from introducing particular types of test automation.   |
| TTA7 | Select appropriate tools to automate technical testing tasks.   |
| TTA8 | Understand the technical issues and concepts in applying test automation.   |

## 2.3 Content

### Chapter 1: The Technical Test Analyst's Tasks in Risk-Based Testing

- Risk identification
- Risk assessment
- Risk mitigation

### Chapter 2: White-Box Test Techniques

- White-Box test techniques
- Selecting a white-box test technique

### Chapter 3: Analytical Techniques

- Static analysis
- Dynamic analysis

### Chapter 4: Quality Characteristics for Technical Testing

- General planning issues
- Security testing
- Reliability testing
- Performance efficiency testing
- Maintainability testing
- Portability testing
- Compatibility testing

### Chapter 5: Reviews

- Using checklists in reviews
- Architectural reviews
- Code Reviews

### Chapter 6: Test Tools & Automation

- Defining the test automation project
- Specific test tools

## 2.4 Further Development Opportunities

The knowledge acquired from the Technical Test Analyst may be further developed by the following ISTQB<sup>®</sup> Specialist Level modules:

#### ISTQB<sup>®</sup> Specialist Level:

- Performance Testing (Foundation Level) [CTFL\_PT]
- Security Testing (Advanced Level) [CTAL\_SEC]
- Mobile Application Testing (Foundation Level) [CTFL\_MAT]
- Test Automation Engineering (Advanced Level) [CTAL\_TAE]
- Model-based Tester (Foundation Level) [CTFL\_MBT]

#### ISTQB<sup>®</sup> Foundation Level

- Certified Tester Foundation Agile Software Testing [ISTQB\_AGILE\_SYL]

The ISTQB<sup>®</sup> Certified Tester Foundation Level Certificate is required before taking the exams for these modules. Please visit [www.istqb.org](http://www.istqb.org) for the latest overview of ISTQB<sup>®</sup>'s modules.

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**2.5 Business Outcomes Traceability Matrix with Learning Objectives**

The following tables show information about Learning Objectives and their coverage of the Business objectives. The tables contain the following information>

- Section of syllabus (number and title)
- LO number
- K-Level
- Description of LO
- Mapping of LO to Business Objectives.

|  |    |   | Mapping to TTA Business Objectives |      |      |      |      |      |      |      |  |
|--|----|---|------------------------------------|------|------|------|------|------|------|------|--|
|  |    |   | TTA1                               | TTA2 | TTA3 | TTA4 | TTA5 | TTA6 | TTA7 | TTA8 |  |
| <b>1. The Technical Test Analyst's Tasks in Risk-Based Testing</b> |    |   | Mins                               | 30   |      |      |      |      |      |      |  |
| <b>1.3 Risk Assessment</b>   |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA-1.2.1  | K2 | Summarize the generic risk factors that the Technical Test Analyst typically needs to consider  | 15                                 | 1    |      |      |      |      |      |      |  |
| TTA-1.2.2  | K2 | Summarize the activities of the Technical Test Analyst within a risk-based approach for testing activities  | 15                                 | 1    |      |      |      |      |      |      |  |
| <b>2. White-box Test Techniques</b>                                |    |   | Mins                               | 345  |      |      |      |      |      |      |  |
| <b>2.2 Statement Testing</b>                                       |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA 2.2.1  | K3 | Write test cases from a given specification item by applying the Statement testing test technique to achieve a defined level of coverage.         | 30                                 |      |      | 1    |      |      |      |      |  |
| <b>2.3 Decision Testing</b>  |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA 2.3.1  | K3 | Write test cases from a given specification item by applying the Decision testing test technique to achieve a defined level of coverage.          | 45                                 |      |      | 1    |      |      |      |      |  |
| <b>2.4 Modified Condition/Decision Coverage (MC/DC) Testing</b>    |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA 2.4.1  | K3 | Write test cases from a given specification item by applying the Modified Condition/Decision Coverage (MC/DC) test technique to achieve coverage  | 60                                 |      |      | 1    |      |      |      |      |  |
| <b>2.5 Multiple Condition Testing</b>                              |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA 2.5.1  | K3 | Write test cases from a given specification item by applying the Multiple Condition testing test technique to achieve a defined level of coverage | 60                                 |      |      | 1    |      |      |      |      |  |
| <b>2.6 Basis Path Testing</b>                                      |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA 2.6.1  | K3 | Write test cases from a given specification item by applying McCabe's Simplified Baseline Method  | 60                                 |      |      | 1    |      |      |      |      |  |
| <b>2.7 API Testing</b>   |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA 2.7.1  | K2 | Understand the applicability of API testing and the kinds of defects it finds   | 15                                 |      |      | 1    |      |      |      |      |  |
| <b>2.8 Selecting a White-Box Test Technique</b>                    |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA 2.8.1  | K4 | Select an appropriate white-box test technique according to a given project situation.  | 75                                 |      |      | 1    |      |      |      |      |  |
| <b>3. Analytical Techniques</b>                                    |    |   | Mins                               | 210  |      |      |      |      |      |      |  |
| <b>3.2 Static Analysis</b>   |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA-3.2.1  | K3 | Use control flow analysis to detect if code has any control flow anomalies  | 60                                 |      |      |      |      | 1    |      |      |  |
| TTA-3.2.2  | K2 | Explain how data flow analysis is used to detect if code has any data flow anomalies  | 15                                 |      |      |      |      | 1    |      |      |  |
| TTA-3.2.3  | K3 | Propose ways to improve the maintainability of code by applying static analysis   | 60                                 |      |      |      |      | 1    |      |      |  |
| TTA-3.2.4  | K2 | Explain the use of call graphs for establishing integration testing strategies  | 15                                 |      |      |      |      |      |      |      |  |
| <b>3.3 Dynamic Analysis</b>  |    |   |                                    |      |      |      |      |      |      |      |  |
| TTA-3.3.1  | K3 | Apply dynamic analysis to achieve a specified goal  | 60                                 |      |      |      |      | 1    |      |      |  |

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(continued)



|  |    |  | Mapping to TTA Business Objectives |      |      |      |      |      |      |      |  |
|--|----|--|------------------------------------|------|------|------|------|------|------|------|--|
|  |    |  | TTA1                               | TTA2 | TTA3 | TTA4 | TTA5 | TTA6 | TTA7 | TTA8 |  |
| <b>4 Quality Characteristics for Technical Testing</b> |    |  | Mins                               | 345  |      |      |      |      |      |      |  |
| <b>4.2 General Planning Issues</b>                     |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-4.2.1  | K4 | For a particular project and system under test, analyze the non-functional requirements and write the respective sections of the test plan | 75                                 | 1    |      |      |      |      |      |      |  |
| TTA-4.2.2  | K3 | Given a particular product risk, define the particular non-functional test type(s) which are most appropriate                              | 60                                 | 1    |      |      |      |      |      |      |  |
| TTA-4.2.3  | K2 | Understand and explain the stages in an application's lifecycle where non-functional tests should be applied                               | 15                                 | 1    | 1    |      |      |      |      |      |  |
| TTA-4.2.4  | K3 | For a given scenario, define the types of defects you would expect to find by using non-functional testing types                           | 60                                 | 1    | 1    |      |      |      |      |      |  |
| <b>4.3 Security Testing</b>                            |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-4.3.1  | K2 | Explain the reasons for including security testing in a test strategy and/or test approach   | 15                                 |      | 1    |      |      |      |      |      |  |
| TTA-4.3.2  | K2 | Explain the principal aspects to be considered in planning and specifying security tests   | 15                                 |      | 1    |      |      |      |      |      |  |
| <b>4.4 Reliability Testing</b>                         |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-4.4.1  | K2 | Explain the reasons for including reliability testing in a test strategy and/or test approach  | 15                                 |      | 1    |      |      |      |      |      |  |
| TTA-4.4.2  | K2 | Explain the principal aspects to be considered in planning and specifying reliability tests  | 15                                 |      | 1    |      |      |      |      |      |  |
| <b>4.5 Performance Efficiency Testing</b>              |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-4.5.1  | K2 | Explain the reasons for including performance testing in a test strategy and/or test approach  | 15                                 |      | 1    |      |      |      |      |      |  |
| TTA-4.5.2  | K2 | Explain the principal aspects to be considered in planning and specifying performance efficiency tests                                     | 15                                 |      | 1    |      |      |      |      |      |  |
| <b>4.6 Maintainability Testing</b>                     |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-4.6.1  | K2 | Explain the reasons for including maintainability testing in a testing strategy and/or test approach                                       | 15                                 |      | 1    |      |      |      |      |      |  |
| <b>4.7 Portability Testing</b>                         |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-4.7.1  | K2 | Explain the reasons for including portability tests in a testing strategy and/or test approach   | 15                                 |      | 1    |      |      |      |      |      |  |
| <b>4.8 Compatability Testing</b>                       |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-4.8.1  | K2 | Explain the reasons for compatibility testing in a testing strategy and/or test approach   | 15                                 |      | 1    |      |      |      |      |      |  |
| <b>5. Reviews</b>                                      |    |  | Mins                               | 165  |      |      |      |      |      |      |  |
| <b>5.1 Introduction</b>                                |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-5.1.1  | K2 | Explain why review preparation is important for the Technical Test Analyst   | 15                                 |      |      |      | 1    |      |      |      |  |
| <b>5.2 Using Checklists in Reviews</b>                 |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-5.2.1  | K4 | Analyze an architectural design and identify problems according to a checklist provided in the syllabus                                    | 75                                 |      |      |      | 1    |      |      |      |  |
| TTA-5.2.2  | K4 | Analyze a section of code or pseudo-code and identify problems according to a checklist provided in the syllabus                           | 75                                 |      |      |      | 1    |      |      |      |  |
| <b>6. Test Tools &amp; Automation</b>                  |    |  | Mins                               | 180  |      |      |      |      |      |      |  |
| <b>6.1 Defining the Test Automation Project</b>        |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-6.1.1  | K2 | Summarize the activities that the Technical Test Analyst performs when setting up a test automation project                                | 15                                 |      |      |      |      |      |      | 1    |  |
| TTA-6.1.2  | K2 | Summarize the differences between data-driven and keyword-driven automation  | 15                                 |      |      |      |      | 1    |      | 1    |  |
| TTA-6.1.3  | K2 | Summarize common technical issues that cause automation projects to fail to achieve the planned return on investment                       | 15                                 |      |      |      |      |      |      | 1    |  |
| TTA-6.1.4  | K3 | Construct keywords based on a given business process   | 60                                 |      |      |      |      |      |      | 1    |  |
| <b>6.2 Specific Test Tools</b>                         |    |  |                                    |      |      |      |      |      |      |      |  |
| TTA-6.2.1  | K2 | Summarize the purpose of tools for fault seeding and fault injection   | 15                                 |      |      |      |      | 1    |      |      |  |
| TTA-6.2.2  | K2 | Summarize the main characteristics and implementation issues for performance testing tools   | 15                                 |      |      |      |      | 1    |      | 1    |  |
| TTA-6.2.3  | K2 | Explain the general purpose of tools used for web-based testing  | 15                                 |      |      |      |      | 1    | 1    |      |  |
| TTA-6.2.4  | K2 | Explain how tools support the practice of model-based testing  | 15                                 |      |      |      |      | 1    | 1    |      |  |
| TTA-6.2.5  | K2 | Outline the purpose of tools used to support component testing and the build process   | 15                                 |      |      |      |      | 1    | 1    |      |  |
| TTA-6.2.6  | K2 | Outline the purpose of tools used to support mobile application testing  | 15                                 |      |      |      |      | 1    | 1    |      |  |

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1 **2.6 Main Changes in the 2019 Syllabus**

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3 The following principal changes have been made to the 2012 Technical Test Analyst syllabus:  
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| <b>Subject/Chapter</b>                 | <b>Description of Change</b>   |
|--|--|
| White-box Test Techniques<br>Chapter 2 | Techniques covered are: Statement testing, Decision testing, MC/DC testing, Multiple condition testing, Basis Path testing, API testing  |
| Quality characteristics<br>Chapter 4   | Adoption of ISO 25010 as the principal standard referred to.<br>Scoping and consistency with specialist modules on performance testing [CTFL_PT] and security testing [CTAL_SEC] |
| Test automation<br>Chapter 6           | Scoping and consistency with the ISTQB® Test Automation Engineer Advanced Level module   |

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1 **3. References**

2 **3.1 ISTQB® Documents**

| ID                | Document name  |
|-------------------|--|
| [CTFL]            | Certified Tester Foundation Level Syllabus, Version 2018   |
| [ISTQB_AGILE_SYL] | Certified Tester Foundation Agile Software Testing, Version 2014   |
| [CTFL-Act]        | Foundation Level Specialist Syllabus Acceptance Testing, Version 2019  |
| [CTFL_MAT]        | Foundation Level Specialist Syllabus Mobile Application Testing, Version 2019  |
| [CTFL_MBT]        | Foundation Level Specialist Syllabus Model-Based Tester, Version 2015  |
| [CTFL_PT]         | Foundation Level Specialist Syllabus Performance Testing, Version 2018   |
| [CTFL_UT]         | Foundation Level Specialist Syllabus Usability Testing, Version 2018   |
| [CTAL_SEC]        | Advanced Level Specialist Syllabus Security Tester, Version 2016   |
| [CTAL_TAE]        | Advanced Level Specialist Syllabus Test Automation Engineer, Version 2016  |
| [CTEL_TM]         | Certified Tester Expert Level Syllabus Test Management, Version 2011   |
| [CTEL_ITP]        | Certified Tester Expert Level Syllabus Improving the Testing Process (Implementing Improvement and Change), Version 2011 |

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