ISTQB® Advanced Level (CTAL)

2012 Syllabus - Overview

Mike Smith – Chairman, Advanced Level Working Group (ALWG)

February 2013
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ISTQB® – Levels and Syllabi

Expert Level (CTEL)
- Improving Test Process
- Test Management
- Test Automation
- Security Testing

Advanced Level (CTAL)
- Test Manager
- Test Analyst
- Technical Test Analyst

Foundation Level (CTFL)
- Foundation
Consistency and clear scoping between the three Advanced Level modules has been substantially improved.

A principal objective of the new Advanced Level syllabus is to ensure that there is no overlap between any current ISTQB® syllabus.

The Advanced Level syllabus adds to the Foundation Level and fits neatly with the topics managed at Expert Level (Test Management, Improving the Test Process, Test Automation).
Clear organization of the syllabus

- The Advanced Level syllabus has been created as three stand-alone syllabi (one document for each module syllabus), with an overview document.

- This structure makes it clearer for everybody (students, training provider and exam creation teams) what is expected and what is to be covered. This is also consistent with the modular structure of the Expert Level.

- An added benefit is that individual Advanced modules may evolve separately if needed.
Stakeholder feedback has been carefully considered in setting the **minimum** course duration.

As a result of careful scoping and a policy of “no overlaps” the duration of the Test Analyst module has been reduced from 5 to 4 days and the duration of the Technical Test Analyst has been reduced from 5 to 3 days.

No overlaps means no common course materials!
Business Outcomes

- Business Outcomes now form the basis for the Advanced syllabi.
- Each Business Outcome provides a statement of what can be expected from a person who achieves the Advanced Level in the particular subject area, (e.g. an advanced test manager).
- Business Outcomes are specifically directed to the business needs of industry and will particularly benefit businesses who are considering the development of specific skills at Advanced level.
- Approximately 10 Business Outcomes are defined for each Advanced syllabus and are described in the new Advanced Level Overview document.
- The learning objectives of each Advanced syllabus implement (and are traceable to) the business outcomes.
Learning Objectives

- Learning Objectives have been improved by removing potential misinterpretations and by splitting certain “compound” learning objectives into individual parts.

- Learning Objectives are now uniquely numbered and placed at the start of each syllabus chapter, in line with Foundations and Expert Level syllabi.

- Learning Objectives were reviewed by the Exam Working Group (EWG) in conjunction with ALWG

- Sample exam questions created for EVERY Learning Objective by EWG – released with Syllabus
2012 Advanced Level Syllabus 2 years in the making

ALWG Piloted the new ISTQB® Release Process, delivering a Release Plan.

Review process dealt with over 4,000 comments in 4 review cycles
- Internal WG Review
- Initial Member Board Review
- Alpha Release to Member Boards
- Beta Release to public

Full accreditation required for existing 2007 Training Providers

Looking ahead:
- “Keeping it current”
- Retrospective to be conducted in 2013
- Change Request Process
ISTQB® - Levels and Syllabi

- **Foundation Level (CTFL)**
  - Foundation

- **Advanced Level (CTAL)**
  - **Test Manager**
  - **Test Analyst**
  - **Technical Test Analyst**

- **Expert Level (CTEL)**
  - **Improving Test Process**
  - **Test Management**
  - **Test Automation**
  - **Security Testing**

ISTQB® Glossary
TBOK (Test Body of Knowledge)
An Advanced Test Manager can…

- **TM1** - Manage a testing project by implementing the mission, goals and testing processes established for the testing organization.

- **TM2** - Organize and lead risk identification and risk analysis sessions and use the results of such sessions for test estimation, planning, monitoring and control.

- **TM3** - Create and implement test plans consistent with organizational policies and test strategies.

- **TM4** - Continuously monitor and control the test activities to achieve project objectives.

- **TM5** - Assess and report relevant and timely test status to project stakeholders.
An Advanced Test Manager can…

- TM6 - Identify skills and resource gaps in their test team and participate in sourcing adequate resources.
- TM7 - Identify and plan necessary skills development within their test team.
- TM8 - Propose a business case for test activities which outlines the costs and benefits expected.
- TM9 - Ensure proper communication within the test team and with other project stakeholders.
- TM10 - Participate in and lead test process improvement initiatives.
<table>
<thead>
<tr>
<th>Testing Process</th>
<th>Test Management</th>
<th>Reviews</th>
<th>Defect Management</th>
<th>Improving the testing process</th>
<th>People Skills - Team Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing in the Software Development Lifecycle</td>
<td>Risk Based Testing</td>
<td>Management Reviews and Audits</td>
<td>Defect Lifecycle</td>
<td>Test Improvement Process</td>
<td>Individual Skills</td>
</tr>
<tr>
<td>Test Planning, Monitoring and Control</td>
<td>Test Documentation</td>
<td>Managing Reviews</td>
<td>Defect Report Information</td>
<td>Improving the testing process with CMMI, TPI, CTP and STEP</td>
<td>Test Team Dynamics</td>
</tr>
<tr>
<td>Test Analysis, Design and Implementation</td>
<td>Test Estimation &amp; Test Metrics</td>
<td>Metrics for reviews</td>
<td></td>
<td></td>
<td>Fitting testing within an organization</td>
</tr>
<tr>
<td>Evaluation Exit Criteria and Reporting</td>
<td>Business Value of Testing</td>
<td>Managing Formal Reviews</td>
<td></td>
<td></td>
<td>Tool Selection</td>
</tr>
<tr>
<td>Test Closure Activities</td>
<td>Distributed, Outsourced and Insourced Testing</td>
<td>Managing the application of Industry Standards</td>
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<td>Motivation</td>
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<td>Tool Lifecycle</td>
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<td>Communication</td>
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<td>Tool Metrics</td>
</tr>
</tbody>
</table>
The principal Test Manager subjects covered remain the same. However, the content has been improved.

- Redundancies with FL have been removed (e.g. reviews).
- The Expert Level syllabi “Test Management“ and “Improving the Test Process“ are now available. Scoping and alignment with these syllabi has taken place.
- The defect management chapter is no longer based on IEEE-1044 and focuses more on setting up a defect management lifecycle and using defect data for process improvement.
ISTQB® - Levels and Syllabi

- Expert Level (CTEL)
  - Improving Test Process
  - Test Management
  - Test Automation
  - Security Testing

- Advanced Level (CTAA)
  - Test Manager
  - Test Analyst
  - Technical Test Analyst

- Foundation Level (CTFL)
  - Foundation
An Advanced 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 testing 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 the testing activities.
- **TA5** - Determine the appropriate types of functional testing to be performed.
An Advanced Test Analyst can…

- **TA6** - Assume responsibility for the usability testing for a given project.
- **TA7** - Effectively participate in formal and informal reviews with stakeholders, applying knowledge of typical mistakes made in work products.
- **TA8** - Design and implement a defect classification scheme.
- **TA9** - Apply tools to support an efficient testing process.
# ISTQB® - Advanced Level
## Test Analyst (CTAL - TA 2012)

<table>
<thead>
<tr>
<th>Testing Process</th>
<th>Test Management</th>
<th>Test Techniques</th>
<th>Testing Software Quality Characteristics</th>
<th>Reviews</th>
<th>Test Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Planning, Monitoring and Control</td>
<td>Distributed, Outsourced and Insourced Testing</td>
<td>Defect-Based techniques</td>
<td>Suitability Testing</td>
<td>Defect Management</td>
<td>Test Data Preparation Tools</td>
</tr>
<tr>
<td>Test Analysis, Design and Implementation</td>
<td>Risk Based Testing</td>
<td>Experience-Based Techniques</td>
<td>Interoperability Testing</td>
<td>Defect Report Fields</td>
<td>Automated Test Execution Tools</td>
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<tr>
<td>Evaluation Exit Criteria and Reporting</td>
<td></td>
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<td>Usability Testing</td>
<td></td>
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<tr>
<td>Test Closure Activities</td>
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**ISTQB® - February 2013**
The major concentration of this syllabus remains on the testing techniques and test process.

- Domain analysis and user stories are new to the specification-based techniques section.
- Content has been significantly revised to align the scope with Foundation, other Advanced Level syllabi and Expert Level Test Automation.
- The Test Management and Tools chapters are relatively short and cover only the specific issues relating to the Test Analyst.
- The defect management chapter is no longer based on IEEE-1044 and focuses more on defect categorization and performing initial root cause analysis of defects.
ISTQB® - Levels and Syllabi

**Foundation Level (CTFL)**

- Foundation

**Advanced Level (CTAL)**

- Test Manager
- Test Analyst
- Technical Test Analyst

**Expert Level (CTEL)**

- Improving Test Process
- Test Management
- Test Automation
- Security Testing
An Advanced Technical Test Analyst can…

TTA1 - Recognize and classify the typical risks associated with the performance, security, reliability, portability and maintainability of software systems.

TTA2 - Create test plans which detail the planning, design and execution of tests for mitigating performance, security, reliability, portability and maintainability risks.

TTA3 - Select and apply appropriate structural design techniques to ensure that tests provide an adequate level of confidence, based on code coverage and design coverage.

TTA4 - Effectively participate in technical reviews with developers and software architects applying knowledge of typical mistakes made in code and architecture.
An Advanced Technical Test Analyst can…

TTA5 - Recognize risks in code and software architecture and create test plan elements to mitigate those risks through dynamic analysis.

TTA6 - Propose improvements to the security, maintainability and testability of code by applying static analysis.

TTA7 - Outline the costs and benefits to be expected from introducing particular types of test automation.

TTA8 - Select appropriate tools to automate technical testing tasks.

TTA9 - Understand the technical issues and concepts in applying test automation.
# ISTQB® - Advanced Level
## Technical Test Analyst (CTAL - TTA 2012)

<table>
<thead>
<tr>
<th>Risk Based Testing</th>
<th>Structure-Based Testing</th>
<th>Analytical Techniques</th>
<th>Quality Characteristics for Technical testing</th>
<th>Reviews</th>
<th>Test Tools and Automation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Identification</td>
<td>Condition Testing</td>
<td>Static Analysis</td>
<td>General Planning Issues</td>
<td>Using Checklist in Reviews</td>
<td>Integration and Information Interchange</td>
</tr>
<tr>
<td>Risk Mitigation</td>
<td>Path Testing</td>
<td></td>
<td>Performance Testing</td>
<td></td>
<td>Specific Test Tools</td>
</tr>
<tr>
<td></td>
<td>API Testing</td>
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<td>Resource Utilization</td>
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<td>Maintainability Testing</td>
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<td></td>
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<td>Portability Testing</td>
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<td></td>
</tr>
</tbody>
</table>

- Risk Identification
- Condition Testing
- Static Analysis
- General Planning Issues
- Using Checklist in Reviews
- Integration and Information Interchange
- Modified Condition Testing
- Modified Decision Coverage (MC/DC) Testing
- Dynamic Analysis
- Security & Reliability Testing
- Performance Testing
- Resource Utilization
- Maintainability Testing
- Portability Testing

ISTQB® - February 2013
A significant refocus on the technical aspects of testing has been completed. As a result it is now expected that candidates must be able to read and understand pseudo-code.

- The basic aspects of testing and the testing process are now covered in other syllabi.

- The test management chapter is relatively short and covers only the specific issues relating to the Technical Test Analyst.
Major Changes from 2007 Version – Part 2

- Testing techniques remains a significant part of the syllabus and accounts for approximately one third of the training time. Six techniques are covered, including basis path testing and API coverage. The LCSAJ technique has been removed from the syllabus.

- Content has been significantly reduced due to scoping with the other syllabi (in particular Test Analyst). Content has been significantly reduced due to scoping with the other syllabi (in particular Test Analyst).
The exam is still multiple-choice questions, but number of questions and length of exams have changed from 2007 Version.

<table>
<thead>
<tr>
<th>Module</th>
<th>Number of questions</th>
<th>Exam Length (in minutes)</th>
<th>Exam Length + 25% (in minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Test Manager</td>
<td>65</td>
<td>180</td>
<td>225</td>
</tr>
<tr>
<td>Advanced Test Analyst</td>
<td>60</td>
<td>180</td>
<td>225</td>
</tr>
<tr>
<td>Advanced Technical Test Analyst</td>
<td>45</td>
<td>120</td>
<td>150</td>
</tr>
</tbody>
</table>

Pass Mark is 65% for ALL exams, regardless of number of questions.
Questions are selected according to defined set of rules:

– LO distribution, LO K Level, relative LO importance and points total

– The Advanced Level examinations shall be based on the Advanced Level syllabus. Answers to examination questions may require the use of material from more than one section of this syllabus. The exam questions may require the knowledge of Foundation examination level

– All learning objectives (on cognitive levels K1 to K4) in the syllabus are examinable.

A public version of the Exam Structure & Rules is due to be published shortly
Standards (IEEE, ISO, etc.) are referenced in the syllabi.

The purpose of these references is to provide a framework (as in the references to ISO 9126/ISO 25000 regarding quality characteristics) or to provide a source of additional information if desired by the reader.

Please note that only the items from these standards that are referenced specifically in the syllabi are eligible for examination.

The standards documents themselves are not intended for examination and are included only for reference.
To be able to obtain an Advanced Level certification, candidates must:

1. Hold the Foundation Certificate

2. Satisfy the board which examines them that they have sufficient practical experience to be considered Advanced Level qualified. Refer to the relevant Exam Board and/or National Board to check the specific criteria used to evaluate practical experience.
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Grandfathering – Part 1

- ISTQB® Advanced Test Manager certificates earned by passing exams against all earlier versions of Advanced Syllabi are treated as equivalent to the Advanced Test Manager certificates earned by passing exams against CTAL2012-TM.

- ISTQB® Advanced Functional Tester and Advanced Test Analyst certificates earned by passing exams against all earlier versions of Advanced Syllabi are treated as equivalent to the Advanced Test Analyst certificates earned by passing exams against CTAL2012-TA.

- ISTQB® Advanced Technical Tester and Advanced Technical Test Analyst certificates earned by passing exams against all earlier versions of Advanced Syllabi are treated as equivalent to the Advanced Technical Test Analyst certificates earned by passing exams against CTAL2012-TTA.
ISEB Practitioner certificates earned by passing an exam taken no later than March 31, 2008 [i.e., under the original Practitioner program] are treated as equivalent to the Advanced Test Manager, Advanced Test Analyst, and Advanced Technical Test Analyst certificates earned by passing exams against CTAL2012.

ISEB Test Management Practitioner certificates earned by passing exams against the new ISEB Practitioner Syllabus (since April 1st, 2008) are treated as equivalent to the Advanced Test Manager certificates earned by passing exams against CTAL2012-TM.

ISEB Test Analysis Practitioner certificates earned by passing exams against the new ISEB Practitioner Syllabus (since April 1st, 2008) are treated as equivalent to the Advanced Test Analyst certificates earned by passing exams against CTAL2012-TA.
ISTQB®, the National Boards, and the Exam Boards shall not take any action, impose any pre-requisites, or pass any rule or by-law, including at the Expert level, which would favor one equivalent certificate over another. For example, suppose that Advanced Test Analyst certification is a pre-requisite to take a given Expert exam. Advanced Functional Tester or ISEB Test Analysis Practitioner certificate holders may also take the same Expert exam, and no additional burden shall be placed on them to do so.

Equivalence does not mean substitution. ISTQB®, the National Boards, and the Exam Boards shall only issue certificates showing certification against the CTAL2012 for candidates who have passed an exam run against CTAL2012.

Treatment as equivalent does not mean that they are in fact identical in coverage.

ISTQB®, the National Boards, and the Exam Boards shall post on their Web sites the six statements of equivalent treatment listed above.
Key Dates

- **Earliest date for 2012 exams**
  - 1\(^{st}\) December 2012 (Check with your local board)

- **Sunset dates for courses - no further 2007 courses allowed to start**:
  - April 19\(^{th}\) 2013 (English), July 19\(^{th}\) 2013 (non-English)

- **Sunset date for exams - no further 2007 exams allowed**:
  - July 19\(^{th}\) 2013 (English), October 19\(^{th}\) 2013 (non-English)
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Advanced Level Working Group: Review Team
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Rex Black
Graham Bath
Mike Smith
Paul Jorgensen (Not in Picture)
Judy McKay