Certified Tester

Expert Level

Rules and Recommendations

Version 1.1, 23rd August 2013

International Software Testing Qualifications Board

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Revision History

Version	Date	Remarks
0.1	November 16th 2010	• New document based on content taken from previously released ISTQB documents: ○ ISTQB Expert Level Overview, V1.2 (May 19th 2009) ○ ISTQB Expert Level Syllabus "Improving the Test Process", Version 1.0.2, April 16th 2010
0.2	December 19th 2010	• Review comments incorporated
0.3	January 5th 2011	• Final inputs received for specific comments. • Edits by technical writer. • Approvals from review team for changes to text taken over from input documents (see above) • Submission to GA for approval
1.0	March 11th 2011	• Approved by Prague GA
1.1	August 23rd 2013	• Delete rules CS1 and CS2 relating to module parts. Approved at the Helsinki GA

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Acknowledgements

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This document was formally released by the General Assembly of ISTQB® on August 23rd 2013.

1. Introduction

The Expert Level is the highest level of certification in the ISTQB Certified Tester scheme and is made up of several individual modules covering specific testing subjects. Each module has its own syllabus and certification (please refer to [EL-Modules] for an overview of the individual Expert Level modules). Within the overall ISTQB Expert Level Working Group, a Working Sub-Group (WSG) is responsible for the content of each module (e.g., the WSG for the Expert Test Management module).

This document describes the rules and recommendations which are common to all the ISTQB Expert Level modules. These are organized according to the following principal stakeholders:

- Exam participants
- Certified experts
- Training providers
- ISTQB Expert Level Working Sub-Groups
- Lecturers

A number of individual documents make up the document set for Expert Level and provide additional details, particularly on the subject of exams and exam questions. Please refer to section 3.1 “Overview of relevant documents”.

2. Rules and Recommendations

2.1 Exam Participants

The following general rules apply:

EP1 It shall be possible to become an ISTQB certified testing expert by achieving the certification in just one module; it is not necessary to complete all modules to achieve the certification.

2.1.1 Entry Requirements

These criteria are set to ensure good and consistent quality of the Expert Level certification. The quality of the Expert Level certification will be controlled by applying the following entry criteria:

Rules:

ER1 A participant of the Expert Level examination must have an ISTQB Advanced Level certificate (or equivalent, e.g., ISEB Practitioner, Version 1.1 – 4th September 2001). Whether Full Advanced is needed, or having passed "just" one module is sufficient will be determined per Expert Level module and defined in the specific Expert Level module syllabus.

ER2 Examinees who wish to take a non-public exam, scheduled at the end of an accredited training course, must first produce evidence to the Examination Body that they have attended all days of that course.

Recommendations:

ER3 It is recommended for participants to have at least seven years of practical testing experience.

ER4 Training is expected at the Expert Level, although, as at the other ISTQB levels, this is not formally required to take a (public) exam.

2.1.2 Exit Requirements

People who formally comply with the following defined exit criteria will receive the formal ISTQB Expert Level certificate for the specific module.

EX1 The exam shall be passed.

EX2 Proof is provided of practical working experience in the testing field in general and specifically in the area covered by the Expert Level module as follows:

- At least five years of general testing experience in industry (CV needs to be submitted including two verifiable references)
- In addition, at least two years of industry experience in the area covered by the Expert Level module topic (CV needs to be submitted including two verifiable references)

2.1.3. Guidance for those Taking Exams

The ISTQB web site includes a list of helpful tips for those taking the Expert Level exam. This list will be placed on the ISTQB web site [ISTQB-Web] as soon as this document is released. The list will contain generic points about sitting exams and may be added to if new tips are considered helpful. The list will not contain any information which requires ISTQB release.

2.2 Certified Experts

2.2.1. Renewing Certification

Continuous education has been adopted as an important principle of the Expert Level certification. A register of experts and an organizational entity following up on the continuous education of those experts will be established.

An Expert certificate in a particular module is valid for a period of five years. Renewal of an Expert certificate in a particular module requires a minimum number of credits to be achieved, as defined within the ISTQB Certification Extension Process [ISTQB-CEP]. Credits can be gained by, for instance, attending special interest group meetings, taking courses, writing papers, public speaking and working experience.

2.3 Training Providers

2.3.1. Approval of Training Providers

The National Board grants the Training Provider a right to provide ISTQB Expert Level courses on a specific Expert Level module based on the following criteria:

TP1 The Training Provider must be certified to provide the Foundation Level and the pre-requisite Advanced Level ISTQB module(s) which is stated in the respective syllabus (e.g., Advanced Test Manager for the Expert Level module “Improving the Test Process”).

TP2 Exceptions to the TP1 rule are allowed if the reason is well-formulated and approved by the National Board. If the applicant is not already a Training Provider, all the general checks for ISTQB Training Providers must be verified by the National Board (e.g., administrative capabilities, change management of course materials, etc).

TP3 The Training Provider must have at least two Expert Level lecturers approved by the National Board for that Expert Level module. A Training Provider having only one lecturer can be approved at the discretion of the National Board (see Section 2.5 for further details relating to lecturers).

2.3.2. Approval of Courses

Accredited courses must comply with the following rules:

Coverage:

TC1 The course material must cover the entire syllabus, but it does not have to follow the same order as the syllabus.

TC2 The course material must cover all the terms defined in the ISTQB glossary that are pertinent to the specific Expert Level module.

TC3 The training must include a case study of significant complexity to exercise the practical skills required at the Expert Level.

Timing:

TX1 The time spent on exercises during the course and for work-based assignments shall not be less than the timings given in the syllabus.

Class size:

SZ1 Class size shall not exceed 10 participants (to enable personal focus from the lecturer).

Structure:

CS3 No accredited course may include sub-courses which are accredited, in part or in whole, as part of any other ISTQB Foundation, Advanced, or Expert module.

CS4 "Common courses" that count toward the training requirements for two or more Expert Level modules are not permitted.

E-Learning:

EL1 Sections of a syllabus which have been identified in the syllabus as not suitable for e-learning shall not be accepted as an e-learning component of the course.

Obtaining approval:

AP1 A Training Provider must submit an application form to a National Board to have the course material approved for an Expert Level module. Training providers should obtain accreditation guidelines from the board or body that performs the accreditation.

2.3.3. Permitted Types of Exercise

To acquire the necessary skills at the Expert Level, traditional classroom lecturing is supplemented with exercises which may take two different forms:

- Exercises conducted in a classroom environment
- Exercises conducted in the workplace

Exercises in the classroom

Exercises in a classroom environment are conducted in the same way as for the Foundation and Advanced levels. They consist of prepared exercises which are reviewed as part of the accreditation process.

The following rules apply to classroom exercises:

TPL1 For live classes, all exercises must be solved by the students in class (i.e., not as optional or required homework) and a solution reviewed in class by the instructor.

TPL2 For e-learning or correspondence classes, an exercise solution must be provided in the course material.

Exercises in the workplace

Workplace exercises are intended to give course participants an opportunity to apply their knowledge in their own environment and over a longer duration than is practically possible in a classroom exercise.

The following rules apply to workplace exercises:

TPW1 Exercises which may be performed in the workplace must be identified in the syllabus as suitable for this purpose.

TPW2 Training providers must inform potential participants of any requirements for practical exercises in the workplace before the course commences.

TPW3 Exercises in the workplace must achieve a specific learning objective.

TPW4 The Training Provider must ensure that the relevant teaching has been provided before the participant performs the practical exercise.

TPW5 The Training Provider must approve a proposal submitted by the participant before the practical exercise takes place.

TPW6 Communication between the Training Provider and the participant must be made available for answering questions and checking on progress.

TPW7 The Training Provider must verify that the results of exercises performed in the workplace have obtained an acceptable level of accomplishment.

The following recommendations apply to exercises in the workplace:

TPW8 The exercises should, where possible, be based on real-life projects.

TPW9 The results should be presented or at least made available to other course participants.

2.4 ISTQB – Working Sub-Groups

The following rules apply to the ISTQB Expert Level Working Sub-Groups who create Expert Level syllabi. Exceptions to these rules are possible, but require an explicit approval from the ISTQB Executive Committee.

2.4.1. Rules for Starting New Modules

RM1 The proposal for a new module must be submitted in writing to the Expert Level Working Group Chair.

RM2 The proposal must be supported by at least three National Boards that have sufficient experience in the ISTQB Advanced Level certification, as determined by the Expert Level Working Group.

RM3 The proposal must show that the module is economically feasible from the aspects of creating, managing and maintaining the module.

RM4 The modules can be derived from the chapters as identified in the ISTQB Advanced Level syllabus, but are not limited to this. Modules may be proposed which cover new topics which have not been considered at the Advanced Level.

RM5 Work on developing an accepted expert module may not be started until the following criteria have been achieved:

- A Working Sub-Group has been formed which includes at least three authors and at least five reviewers. Members of the group must meet specific criteria for participation which are based on experience and overall commitment. The module-specific criteria are defined by the WSG Chair and the WG Chair.
- All members of the Working-Sub Group have returned signed NDAs.
- A plan has been issued by the Expert Level Working Group Chair, which includes the starting date and a planned release date.

2.4.2. Rules for Constructing Modules

Content:

CM1 The modules shall be linked to the various testing roles, e.g., test leader, test consultant, test automation engineer, test analyst, etc.

CM2 Each module shall state the expectations of being an Expert in the subject covered by the module.

CM3 Each module shall state business outcomes, which must be included in the Expert Level Overview document [EL-Modules].

CM4 Modules must be clearly scoped with the Advanced Level and with other Expert Level modules, with no overlap. This applies in particular for Expert Level modules which build on the Advanced Level.

Timing:

TI1 The content in an Expert Level module shall be sufficient to require at least five days of class training (including exercises).

TI2 There must be sufficient Learning Objectives defined at higher "K-Levels" (K3 and above) to ensure that approximately 50% of the course time will be spent on practical exercise and discussions.

TI3 Each chapter in the syllabus shall be assigned an allocated time in minutes. The purpose of this is to provide guidance on the relative proportion of time to be allocated to each section of an accredited course, and to give an approximate minimum time for the teaching of each section. The following timing guidelines shall be used in the calculation of the times for each syllabus:

Learning Objective K-Level	Minutes (average)
K2	15
K3	60
K4	75
K5	90
K6	90

2.5 Lecturers

2.5.1. Lecturer Entry Criteria

A lecturer must be able to convey his/her expertise to the participants effectively and enable them to learn. At the Expert Level there will be a formal accreditation of the lecturers.

The following rule must be applied:

RL1 The lecturer must be certified by the ISTQB in the subjects defined in the specific Expert Level module syllabus as entry requirements or the equivalent (e.g., ISEB Practitioner Version 1.1 – 4th September 2001).

The following recommendations also apply:

RR1 It is highly recommended that the lecturer has obtained full ISTQB Advanced certification.

RR2 It is highly recommended that the lecturer have a university degree, teaching experience, is recognized as an expert and has industry experience in the area covered by the module. As reaching all of these may not be practical, potential lecturers may compensate for this by meeting at least two of the criteria below:

1. The lecturer has substantial teaching experience (five years with at least three classes totaling five days per year taught) and teaching experience in the subject matter (three or more classes taught per year on the subject covered in the Expert Level module).
2. The lecturer is a recognized testing industry leader, conference speaker, author or equivalent.
3. The lecturer has an advanced university degree related to testing (e.g., B.Sc, M.Sc. or Ph.D.).
4. The lecturer has at least six years of real world experience in testing and two years in the area covered by the module.

2.5.2. Obtaining Lecturer Status

The following rules apply:

RL2 A lecturer must submit an application form to the appropriate National Board which shows that the applicable entry rules have been achieved and indicates which of the recommendations also covered.

RL3 The National Board must evaluate the submission and provide one of the following answers:

- Fully accepted
- Partially accepted: In this case the National Board can appoint the lecturer to be a trainee lecturer in Expert Level courses, provided the trainee is certified to full ISTQB Advanced Level and fulfills at least one criterion from the recommendations list. After three co-deliveries with an Expert Level lecturer, the trainee lecturer can resend his/her application and gain the full lecturer status at the discretion of the National Board.
- Rejected: A reason must be stated for the rejection. The applicant can resubmit their application only when the reasons for rejection are resolved.

The result of the evaluation must be honored by all National Boards.

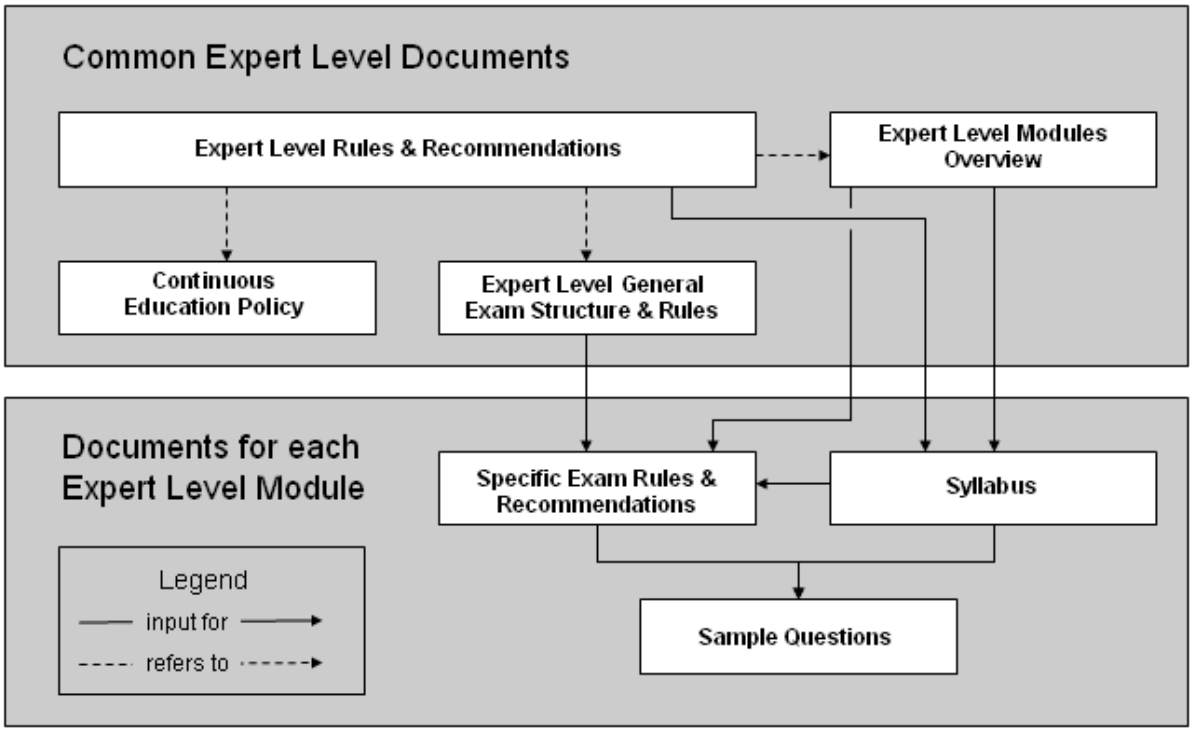
3. Documents Overview and References

3.1 Overview of Relevant Expert Level Documents

Relevant documents for Expert Level are broadly divided into two categories:

1. Documents which are general in nature and apply to all Expert Level modules
2. Documents which are specific to an Expert Level module

The following diagram shows the documents in overview. After the diagram, each document is described briefly.



Document Name	Brief description of contents	Owner
Expert Level Rules and Recommendations	• This document	Expert Level WG

Expert Level Modules Overview	• General overview of Expert Level certificate
	• For each Expert Level module:
	  • Summary of the syllabus content
	  • Business outcomes
		Expert Level WG

Continuous Education Policy	• Scheme for renewing Expert Level certifications • Credit system	Expert Level WG
Expert Level General Exam Structure and Rules	• Structure of the EL Exam (split between multiple-choice / essay, number of questions, duration, pass mark, etc.) • Marking process • Rules for examiners • Question writing and review recommendations	Exam WG

Document Name	Brief description of contents	Owner
	•	
Specific exam rules and recommendations	• Distribution of exam questions for the specific module • Coverage mapping of the module's Business Outcomes by the Learning Objectives	Exam WG
Syllabus	• Learning Objectives and content for the specific module (e.g., Test Management).	Expert Level WG
Sample questions	• Sample questions for the Learning Objectives of the module	Exam WG

3.2 References

Identifier	Reference
[ISTQB-EL-CEP]	ISTQB Certified Tester Expert Level, Certification Extension Process, Version 1.0, June 17th 2008. Available from [ISTQB-Web]
[ISTQB-EL-GEN-EXAM]	ISTQB - Expert Level Exam Structure and Rules, Version 2.1, April 12th 2013
[ISTQB-Web]	Web site of the International Software Testing Qualifications Board. www.istqb.org.
[EL-Modules]	Expert Level Modules Overview, Version 1.2, August 23rd 2013

3.3 Books

Identifier	Reference
[ANDERSON 01]	A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives, Anderson, L. W., & Krathwohl, D. R. (Eds.), 2001, Addison Wesley Longman

4. Abbreviations

Abbreviation	Meaning
ISEB	Information Systems Examining Board
ISTQB	International Software Testing Qualifications Board
NDA	Non-Disclosure Agreement
WG	Working Group
WSG	Working Sub-Group

5. Appendix: Learning Objectives/Levels of Knowledge (K)

The following learning objective definitions apply to all Expert Level syllabi. Each topic in the syllabus will be examined according to the learning objective assigned to it.

Note that K1 is implicit at Expert Level. Please refer to the Expert Level General Exam Structure and Rules for further details regarding examinable Learning Objectives.

Level 1: Remember (K1)

The candidate will recognize, remember and recall a term or concept.

Keywords: Remember, recall, recognize, know
Example
Can recognize the definition of "failure" as:

- "non-delivery of service to an end user or any other stakeholder" or
- "actual deviation of the component or system from its expected delivery, service or result"

Level 2: Understand (K2)

The candidate can select the reasons or explanations for statements related to the topic, and can summarize, differentiate, classify and give examples for facts (e.g., compare terms), testing concepts and test procedures (explaining the sequence of tasks).

Keywords: Summarize, classify, compare, map, contrast, exemplify, interpret, translate, represent, infer, conclude, categorize

Examples
Explain the reason why tests should be designed as early as possible:

- To find defects when they are cheaper to remove
- To find the most important defects first

Explain the similarities and differences between integration and system testing:

- Similarities: testing more than one component, and can test non-functional aspects
- Differences: integration testing concentrates on interfaces and interactions whereas system testing concentrates on whole-system aspects, such as end to end processing

Level 3: Apply (K3)

The candidate can select the correct application of a concept or technique and apply it to a given context. K3 is normally applicable to procedural knowledge. There is no creative act involved such as evaluating a software application or creating a model for a given software. When we have a given model and cover the procedural steps to create test cases from the model in the syllabus, then it is K3.

Keywords: Implement, execute, use, follow a procedure, apply a procedure
Example

- Can identify boundary values for valid and invalid partitions
- Use the generic procedure for test case creation to derive the test cases from a given state transition diagram in order to cover all transitions

Level 4: Analyze (K4)

The candidate can separate information related to a procedure or technique into its constituent parts for better understanding, and can distinguish between facts and inferences. Typical application is to analyze a document, software or a project situation and propose appropriate actions to solve a problem or accomplish a task.

Keywords: Analyze, differentiate, select, structure, focus, attribute, deconstruct, evaluate, judge, monitor, coordinate, create, synthesize, generate, hypothesize, plan, design, construct, produce
Example

- Analyze product risks and propose preventive and corrective mitigation activities
- Describe which portions of an incident report are factual and which are inferred from results

Level 5: Evaluate (K5)

The candidate may make judgments based on criteria and standards. He detects inconsistencies or fallacies within a process or product, determines whether a process or product has internal consistency and detects the effectiveness of a procedure as it is being implemented (e.g., determine if a scientist's conclusions follow from observed data).

Keywords: Evaluate, coordinate, detect, monitor, judge, critique
Example

- Judge whether a specific review process has been effectively and efficiently applied in a given situation
- Evaluate the test results and problem reports and propose a recommendation to the stakeholder whether further testing is required
- Evaluate whether a given set of test cases has achieved a coverage level
- Monitor the risk mitigation activities, propose improvements (includes summarizing results)

Level 6: Create (K6)

The candidate puts elements together to form a coherent or functional whole. Typical application is to reorganize elements into a new pattern or structure, devise a procedure for accomplishing some task, or invent a product (e.g., build habitats for a specific purpose).

Keywords: Generate, hypothesize, plan, design, construct, produce
Example

- Generate an appropriate risk management process that includes both rigorous and informal elements
- Create the test approach for a project that considers the context of the company's policy, project / product, test objectives, risks and timeline to form a dynamic strategy to balance an analytical strategy
- Construct a review process from the elements of different review types to form an effective process for the organization

Refer to [Anderson 01] for details about the cognitive levels of learning objectives.