

## 0 Scope

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This document governs the certification examinations for *Certified Professional for Requirements Engineering – Expert Level*.

## 1 Preface

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The *Certified Professional for Requirements Engineering – Expert Level* certificate is aimed to certify that the applicant has thorough theoretical and practical knowledge and experience in the field of requirements engineering.

A requirements engineering expert is a person that has superior knowledge and skills in requirements engineering. In addition to theoretical knowledge, competence in its application, i.e. practical application knowledge, is also a characteristic of a requirements engineering expert.

## 2 Examination prerequisites

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To apply for the *Certified Professional for Requirements Engineering – Expert Level* certificate, the applicant has to fulfil the following prerequisites:

- A) He or she has successfully passed at least three *Certified Professional for Requirements Engineering – Advanced Level* exams.<sup>1</sup>

Up to two CPRE Advanced Level certificates can be substituted by other forms:

A.1) One *Certified Professional for Requirements Engineering – Advanced Level* certificate can be substituted by another professional requirements engineering qualification that has been passed with a qualified exam.

Typical examples of such professional requirements engineering qualifications are university lecture courses with at least four ECTS points or an equivalent number of hours<sup>2</sup>. The subject of the lecture course must be clearly related to requirements engineering. An ordinary Software Engineering lecture is not sufficient.

Seminars or training courses might be a valid substitute, if they lasted at least three days and have been successfully completed with a qualified exam. A certificate of attendance only is not sufficient.

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<sup>1</sup> The REQB Advanced Level Certificate is treated as an IREB Advanced Level Certificate.

<sup>2</sup> An ECTS point equals approximately 25 to 30 working hours.

Amongst others, accepted training courses include the UXQB Advanced Level “User Requirements Engineering (CPUX-UR)”, the BCS “International Diploma in Business Analysis”, or an IIBA Certified Business Analysis Professional Certificate level 3 or 4.

A.2) One *Certified Professional for Requirements Engineering – Advanced Level* certificate can be substituted by a **substantial publication** in the requirements engineering area. Substantial publications are:

- ▶ Papers in renowned peer-reviewed conferences (like RE, REFSQ, ICSE) or journals (like the Requirements Engineering Journal)
- ▶ Textbooks or book chapters (with ISBN, published by a renowned publisher)
- ▶ Final works to achieve a master’s degree or Ph.D.

If a paper, textbook, or textbook chapter is authored by more than one person, the applicant has to explain his or her contribution to the publication which should be substantial.

- B) He or she has thorough practical experience in requirements engineering and has been active as a requirements engineer in various roles in several projects for a period equivalent to at least three years of full-time employment.
- C) He or she has been active in training or coaching others in the requirements engineering field. Training or coaching might have been performed giving (in-house) training, being active as an (in-house) consultant, giving lectures at universities, advising final works in a master’s degree, or similar activities.

### 3 Examination regulations

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The examination consists of three parts

- ▶ Part 1: Written application (see Section 5)
- ▶ Part 2: Written assignment (see Section 6)
- ▶ Part 3: Oral examination (see Section 7)

### 4 Conditions for passing the examination

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The examination is considered passed when all three parts of the examination are passed, i.e. each part of the examination must be passed, independently of the other.

Passing part 1 is a prerequisite for participation in part 2; passing part 2 is a prerequisite for participation in part 3.

## 5 Written application

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An applicant who wants to apply for the *Certified Professional for Requirements Engineering – Expert Level* has to hand in a written application demonstrating that he or she fulfils the necessary prerequisites according to Section 2. The application consists of three parts:

### A) Theoretical Knowledge

Proof of thorough knowledge in requirements engineering: Here, three *Certified Professional for Requirements Engineering – Advanced Level* certificates have to be included. According to Section 2, paragraph A, up to two advanced level certificates can be substituted. In the case of substitution, proper proofs have to be incorporated:

- Lectures, seminars, trainings: Confirmed exam and a confirmed summary of the lectures', seminars', or training courses' content and amount (e.g. ECTS points).
- Papers in journals or conference proceedings: Fully qualified reference<sup>3</sup> and a copy of the publication.
- Textbooks or book chapters: Fully qualified reference<sup>3</sup> and a copy of the publication.
- Final works to achieve a master's degree or Ph.D.: A copy of the final work along with a confirmed evaluation of the work.

In case of doubt, the applicant may ask IREB by mail to [info@ireb.org](mailto:info@ireb.org) for a provisional assessment whether a lecture, seminar or publication is a proper substitute for one of the requested *Certified Professional for Requirements Engineering – Advanced Level* certificates before submitting the written application. This provisional assessment by IREB is not binding, but might help the applicant to identify insufficient substitutes.

### B) Practical Experience

Proof of practical experience in requirements engineering: Here, the applicant has to provide a detailed overview of his or her practical work in the requirements engineering field by commenting on projects where he or she participated. The summary should clearly state:

- Which role had the applicant in the projects?
- How much requirements engineering related effort had been spent in the projects?

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<sup>3</sup> If the publication is authored by more than one person, the applicant has also to provide a written explanation on his or her contribution to the publication.

- Which requirements engineering related activities did the applicant perform in the projects?

The overview shall be accompanied by suitable proofs, like an employer's confirmation. The length of the overview shall be between two and four pages. If the applicant has participated in many projects, he or she shall elaborate on four projects in detail and provide a short overview only of the others.

#### C) Training or Coaching Experience

Proof of training or coaching experience in requirements engineering: Here, the applicant has to provide a detailed overview of his or her training and coaching activities. The overview should clearly state:

- Who has been trained by the applicant?
- With which requirements engineering related subject was the training or coaching concerned?
- Which form of training or coaching had been used?
- How many hours did the training or coaching involve?

The description shall not exceed one page.

For B) and C), IREB cannot provide a provisional assessment prior to the submitted written application.

The written application has to be handed in, along with all proofs, as a single PDF file to the certification body.

The written application has to be provided in the English language.

During the evaluation of the written application the applicant has to be prepared to answer inquiries by the certification body and to provide additional material or proofs if required.

After evaluation of the written application, the applicant receives a written evaluation of his or her application.

If the applicant does not fulfil the prerequisites sufficiently, the applicant may appeal against the evaluation within one month of notification of the evaluation result: he or she must justify this in writing within the aforementioned deadline. This will result in a re-evaluation of the original written application. Additional proofs or material that is passed together with the written appeal will not be considered. The result of the re-evaluation is binding and cannot be challenged further.

## 6 Written assignment

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The aim of the written assignment is to demonstrate that the applicant has in-depth know-how in the requirements engineering field, is able to provide an appropriate and suitable argumentation on a requirements engineering related statement, and is able to relate the statement to his or her practical observations and experience.

Along with the evaluation of the written application, the applicant will receive the detailed instructions on the written assignment and the statement the applicant has to work on in the written assignment.

The scope of the work is about 10 to 15, maximum 20, A4 pages (font: 11pt, margin: 2.5 cm, single spaced).

The written assignment has to be provided in English language<sup>4</sup> and adhere to common standards in scientific writing.

In the written assignment, the applicant has to discuss the given statement and provide arguments for his or her opinion on the statement. The arguments shall be backed-up with observations and experience gained in his or her projects<sup>5</sup>. Additionally, the opinion shall explicitly be backed up with literature references. It shall become clear that the applicant is able to reflect on the implications of his or her opinion on real-world requirements engineering activities, that the applicant has some intuition about the scope and limitations of his or her opinion, and that the applicant is aware of the state of the art reflected by up-to-date literature.

The written assignment must be original work performed by the examination candidate (i.e. without help from others), using only the literature and tools stated by the examination candidate according to generally accepted scientific criteria. In case of serious violations against this, particularly plagiarism, the written assignment will be scored with 0 points and the candidate failed. In addition, the candidate is excluded for a period of 3 years from all CPRE-examinations. In addition to the written assignment, a declaration of the independent creation of the written assignment, using only the literature and tools stated, has to be submitted. The declaration must be signed by hand, scanned and submitted as a PDF document. An electronic signature or the insertion of a scanned signature is not allowed.

The written assignment has to be handed in to the certification body, along with the declaration of the independent creation, as a PDF file, within a maximum of six months after receiving the instructions for the written assignment. If the written assignment is not handed in within this period, this part of the exam is failed. For an extension of the submission period see Section 8.1.

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<sup>4</sup> See also Section 8.4

<sup>5</sup> Statements like “according to my experience” are not sufficient. It is necessary to provide some background to the projects and the observed situation.

After evaluation of the written assignment by at least two IREB experts, the applicant receives a written evaluation of his or her assignment.

IREB is entitled to ask the applicant for a statement of permission to use the written assignment for IREB purposes (e.g. on the IREB website).

The assignment can be passed or failed or the applicant is requested to rework the assignment within a three-month period. If the written assignment is not handed in within this period, this part of the exam is failed. For an extension of the submission period see Section 8.1. When submitting a revised assignment, the applicant has to enclose a response to reviewers where he or she describes how the issues raised by the reviewers have been addressed in the revision.

Any applicant who fails an assignment may apply to the certification body for access to the assessment materials relating to the assignment.

Applicants who fail an assignment have a right to submit a written objection to an assignment grade within one month of notification of the grade awarded for the assignment. Objections must be justified in writing within two months of notification of the assignment grade. Only factual objections (such as violations of examination regulations or factual errors in the assessment) will be considered. Objections based on opinions (such as “The reviewers should have considered the argument I gave on page 3 to a larger extent.”) will be desk-rejected. The certification body will assess compliance with the formal requirements for submitting and justifying an objection to an assignment grade and may reject the objection as non-admissible in the event of any breach of the deadline for submitting and/or justifying an objection. If all requirements have been met, the certification body will forward the grounds on which the objection has been raised to the experts who reviewed the assignment. They will assess the grounds and submit a written opinion in that respect. The opinion will confirm the assessment or provide a new assessment, which shall be final and binding and cannot be challenged further.

## 7 Oral examination

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The oral examination takes 90 minutes and comprises three parts:

- ▶ Part 1: Case
- ▶ Part 2: Questions on requirements engineering in the context of the applicant’s projects
- ▶ Part 3: General questions on requirements engineering

All three parts of the oral exam last for approx. 30 minutes each.

If the applicant does not show up at the fixed examination date the oral examination is failed. In case of a serious illness proven by medical certificate, the oral examination can be re-scheduled. The request must be made in writing and justified accordingly. IREB has the right to check the medical certificate and information provided. If the medical certificate or information is verifiably false, the applicant will be excluded from the examination.

### 7.1 Oral examination, Part 1: Case

In the first part of the oral examination, the applicant has to present his or her suggestions to a given case. The case description is given to the applicant two hours prior to the oral exam (preparation time). The case will describe a specific project situation. Here, the applicant has to show that he or she is able to analyse a complex, requirements engineering related situation and is able to identify relevant issues and is able to make meaningful suggestions to handle and improve the situation at hand.

It is expected that the applicant first gives a 10-15 min presentation to the given case followed by a 15-20 min discussion with the examiners. The presentation can be completely oral or accompanied by a presentation, if needed. The presentation has to be created during the two-hour preparation.

### 7.2 Oral examination, Part 2: Questions on requirements engineering in the context of the applicant's projects

In the second part of the oral exam, the applicant has to answer questions in the context of the projects he or she has described in the application. The aim of this part of the oral exam is to verify his or her deep understanding of requirements engineering in practice.

### 7.3 Oral examination, Part 3: General questions on requirements engineering

In the third part of the oral exam, the applicant has to answer general questions on requirements engineering. The aim of this part of the oral exam is to verify the depth of the applicant's knowledge in requirements engineering.

### 7.4 Oral examination procedure

The examiners in an oral exam will be at least two IREB experts. The oral exam will be held in the English language<sup>6</sup>. During all parts of the oral examination, the applicant is not allowed to communicate with any person other than the staff of the certification body and the IREB examiners. The applicant may use any material including searching and browsing documents on the internet during the preparation time. The two-hour preparation time is strict and starts at the time mentioned on the invitation for the oral examination. Late arrivals are at the applicant's own cost.

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<sup>6</sup> See also Section 8.4

Oral examinations are held either in a face-to-face meeting or in a video conference at a dedicated place that is determined by IREB.<sup>7</sup> The oral exam has to be conducted within 12 months of receiving notification of passing the written exam. After that period, the previous achievements (passed application, passed written assignment) are invalid and the applicant has to start again.

Upon completion of the oral examination, the examiners shall have an internal consultation regarding the result. Thereafter, the applicant gets immediate feedback whether he or she has passed the oral examination or not. In case of a negative result, the applicant is entitled to submit a written objection within one week of notification of the result; objections are restricted to faults of the formal examination procedure and must be justified in writing within this deadline.

## 8 General rules

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### 8.1 Extensions of deadlines

Due to special circumstances, in justified individual cases, the fixed time limits set for certain deliveries can be extended one time upon request. The request must be made, within the prescribed completion time, in writing and justified accordingly. IREB has the right to check the information. If the information is verifiably false, the applicant will be excluded from the examination.

Special circumstances in the sense of the previous paragraph are strictly restricted to important reasons in the personal environment of the participant, such as serious illness or care dependency or death of a close relative. Operational issues, such as deadline pressure in important projects or high workload are not special circumstances; this corresponds to everyday work and has to be considered by the applicant.

The above provisions do not apply in case of deadlines for objections and justifications for objections.

### 8.2 Re-application after non-passing

When not passing one of the three steps of the expert level examination, i.e. written application, written assignment, and oral exam, the complete exam may be repeated. A re-application is not possible within one year after the notification of failing a certain step in the examination procedure.

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<sup>7</sup> Usually, video conferences are located at an office of an IREB certification body who takes care for the proper video conference infrastructure.

### 8.3 Anonymity and confidentiality of the contents of the written assignment

Since the application calls for a summary of projects with which the applicant has been involved, this could lead to a conflict with confidentiality obligations. To avoid this, the contents of the project summary are to be made as anonymous as necessary, so that no confidential information is part of the written application.

All persons and institutions involved in the examination are obliged to treat the contents of the written application as confidential and not disclose these to third parties. The ultimate responsibility for the contents of the written assignment and their dissemination lies solely with the applicant. He or she must ensure already when writing the assignment, not to violate any confidentiality obligations their employer, principals, or customers.

On the part of the IREB e.V., as well as other people and institutions involved in the examination, no liability will be accepted for any damages or claims arising from a breach of an obligation of confidentiality. When applicants are uncertain whether they violate their particular confidentiality obligations through the contents of their written application, they should contact their employers, principals, or customers prior to the submission of their written application.

### 8.4 Other exam languages, other requests

The default language for all three exam parts (written application, written assignment, oral examination) is English. The applicant may ask for a different exam language for the written assignment and/or the oral examination. In this case, IREB will check if there is the possibility to offer another language. However, this depends on the availability of highly-skilled IREB examiners, so there is no right for examination in another language.

The written application has always to be provided in the English language.

If there are other special requests (e.g. local restrictions on the place for the oral exam), the applicant shall either mention them upfront, i.e. before handing in the written application, or along with the written application. A justification shall be passed along with the special request. IREB will check the special requests and try to take them into consideration. However, there is no right that special requests can be satisfied.