



Preparation Guide

Edition 201901

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1. Overview

EXIN BCS Requirements Engineering (RQE.EN)

Scope

After successfully completing the EXIN BCS Requirements Engineering, candidates should be able to demonstrate knowledge and understanding and application of Requirements Engineering principles and techniques in the following areas:

- The Requirements Engineering framework; the issues and rationale in a business context; the application of the framework.
- The hierarchy of requirements.
- Roles and responsibilities of key stakeholders in the Requirements Engineering framework.
- Requirements elicitation.
- Requirements modelling.
- Requirements documentation.
- Requirements analysis.
- Requirements validation.
- Requirements management.

Summary

This exam covers the range of concepts, approaches and techniques that are applicable to the Practitioner Certificate in Requirements Engineering. It is relevant to anyone working within a business or information systems domain, who requires an understanding of the nature, definition and use of good quality requirements.

Context

The EXIN BCS Requirements Engineering exam is part of the EXIN BCS Business Analysis qualification program.



Target group

- For people who want to elicit, analyze, validate, document and manage requirements.
- For business analysts, business managers and members of their team, business change managers and project managers.

Requirements for certification

- Successful completion of the EXIN BCS Requirements Engineering exam.

Examination details

Examination type:	Multiple-choice questions
Number of questions:	40
Pass mark:	62.5%
Open book/notes:	No
Electronic equipment/aides permitted:	No
Time allotted for examination:	60 minutes

The Rules and Regulations for EXIN's examinations apply to this exam.

Bloom level

The EXIN BCS Requirements Gathering certification tests candidates at Bloom Level 3 and Level 4 according to Bloom's Revised Taxonomy:

- Bloom Level 3: Remembering – relies on recall of information. Candidates will need to absorb, remember, recognize and recall. This is the building block of learning before candidates can move on to higher levels.
- Bloom Level 4: Understanding – a step beyond remembering. Understanding shows that candidates comprehend what is presented and can evaluate how the learning material may be applied in their own environment. This type of questions aims to demonstrate that the candidate is able to organize, compare, interpret and choose the correct description of facts and ideas.

Training

Candidates can choose to study for this exam from one of two ways: by either attending a training course provided by an EXIN accredited training organization, or by self-study. Accredited training is strongly recommended.

Contact hours

The recommended number of contact hours for this training course is 18. This includes practical assignments, exam preparation and short breaks. This number of hours does not include homework, logistics for exam preparation and lunch breaks.

Indication study effort

120 hours, depending on existing knowledge.

Training organization

You can find a list of our accredited training organizations at www.exin.com.

2. Exam requirements

The exam requirements are specified in the exam specifications. The following table lists the topics of the module (exam requirements) and the subtopics (exam specifications).

Exam requirement	Exam specification	Weight
1. Introduction to Requirements Engineering		5%
	1.1 Define the term 'requirements' and the characteristics of a requirement.	
	1.2 Explain the rationale for Requirements Engineering and the application of the Requirements Engineering framework.	
	1.3 Explain the rationale of requirements planning and estimating.	
	1.4 Describe the elements that should be considered as the contents of a project initiation document, terms of reference or project charter.	
2. Hierarchy of Requirements		10%
	2.1 Show understanding of the rationale for the requirements hierarchy and describe how it is applied in Requirements Engineering.	
	2.2 Explain the categories within the hierarchy.	
3. Stakeholders in the Requirements		5%
	3.1 Define the term stakeholder.	
	3.2 Explain the key roles of the following project stakeholders during Requirements Engineering.	
	3.3 Explain the key roles of the following business stakeholders during Requirements Engineering.	
	3.4 Interpret a given scenario, identify stakeholders and describe their contribution to Requirements Engineering.	
4. Requirements Elicitation		20%
	4.1 Explain different knowledge types:	
	4.2 Interpret a given scenario to identify different knowledge types.	
	4.3 Interpret a given scenario to identify relevant elicitation techniques.	
	4.4 Describe the principles and application of the elicitation techniques (listed in 4.3.1-4.3.11).	
	4.5 List the advantages and disadvantages of the elicitation techniques (listed in 4.3.1-4.3.11).	
	4.6 Discuss the suitability of the elicitation techniques (listed in 4.3.1-4.3.11) for Agile and linear development approaches.	

5. Use of Models in Requirements Engineering		10%
	5.1 Explain the rationale for modelling the functional requirements (processing and data) of an information system and describe how models help the analyst.	
	5.2 Interpret a given scenario to develop a context diagram.	
	5.3 Interpret a given scenario to identify the different types of event that can initiate processing (external, time based, internal).	
	5.4 Understand how to construct a UML case diagram for a given scenario to represent the functional requirements for an information system, including given notational elements ¹ .	
	5.5 Interpret a UML Class diagram (comprising of classes, attributes, associations and multiplicities) that represents the data requirements for a given scenario, and describe the business rules that are represented ² .	
	5.6 Explain the benefits to be derived from cross-referencing models and illustrate how this can be achieved by using a CRUD matrix (of function or event against data).	
6. Requirements Documentation		15%
	6.1 Explain the rationale for creating a requirements document and for documenting requirements at different levels of definition, relating to the nature of the solution, the level of priority and the delivery of approach.	
	6.2 Understand how to construct requirements documentation for a given scenario, using specified styles.	
	6.3 Describe a requirement in terms of its characteristics or attributes and explain why given elements may be needed.	
	6.4 Describe the structure and contents of the requirements document.	
7. Requirements Analysis		20%
	7.1 Explain the rationale for prioritizing requirements, using the MoSCoW prioritization technique.	
	7.2 Interpret a given scenario and apply the MoSCoW prioritization technique.	
	7.3 Examine individual requirements; apply filters and quality criteria to assess that they are well defined.	
	7.4 Use requirements for a given scenario to check for technical, business and financial feasibility.	
	7.5 Assign a requirement type to an individual requirement.	
	7.6 Organize the requirements for a given scenario by requirement type and functional area.	
	7.7 Analyze a requirement set.	
	7.8 Explain the use of prototyping to elaborate requirements.	

¹ It should be noted that there is no requirement to understand include and extend constructs.

² It should be noted that there is no requirement to understand operations, association classes, generalisation (and associated concepts of inheritance and polymorphism), aggregation and composition.

8. Requirements Validation		5%
	8.1 Describe the rationale for given approaches to requirements validation	
	8.2 Explain the steps to be followed in the validation process for requirements artefacts.	
9. Requirements Management		10%
	9.1 Explain the rationale for requirements management.	
	9.2 Define the elements of requirements management and the links between them.	
	9.3 Explain the structure and elements of a change control process.	
	9.4 Explain the structure and elements of version control.	
	9.5 Define two forms of traceability and how projects benefit from each of them	
	9.6 Explain the rationale and the approach to achieving requirements traceability.	
Total		100%

Exam specifications

1 Introduction to Requirements Engineering (5%)

The candidate can ...

- 1.1 Define the term 'requirements' and the characteristics of a requirement.
- 1.2 Explain the rationale for Requirements Engineering and the application of the Requirements Engineering framework.
- 1.3 Explain the rationale of requirements planning and estimating.
- 1.4 Describe the elements that should be considered as the contents of a project initiation document, terms of reference or project charter:
 - 1.4.1 Business objectives.
 - 1.4.2 Project objectives.
 - 1.4.3 Scope.
 - 1.4.4 Constraints (budget, timescale, standards).
 - 1.4.5 Authority or sponsor.
 - 1.4.6 Resources.
 - 1.4.7 Assumptions.

2 Hierarchy of Requirements (10%)

The candidate can...

- 2.1 Show understanding of the rationale for the requirements hierarchy and describe how it is applied in Requirements Engineering.
- 2.2 Explain the categories within the hierarchy:
 - 2.2.1 Business policy (general) requirements.
 - 2.2.2 Technical policy requirements.
 - 2.2.3 Functional requirements.
 - 2.2.4 Non-functional requirements.

3 Stakeholders in the Requirements Process (5%)

The candidate can...

- 3.1 Define the term stakeholder.
- 3.2 Explain the key roles of the following project stakeholders during Requirements Engineering:
 - 3.2.1 Project Manager.
 - 3.2.2 Developer.
 - 3.2.3 Tester.
 - 3.2.4 Solution Architect.
- 3.3 Explain the key roles of the following business stakeholders during Requirements Engineering:
 - 3.3.1 Project Sponsor.
 - 3.3.2 Subject Matter Expert.
 - 3.3.3 End User.
 - 3.3.4 Business Manager.
- 3.4 Interpret a given scenario, identify stakeholders and describe their contribution to Requirements Engineering.

4 Requirements Elicitation (20%)

The candidate can...

- 4.1 Explain different knowledge types:
 - 4.1.1 Tacit/Non-tacit (explicit).
 - 4.1.2 Individual/Corporate.
- 4.2 Interpret a given scenario to identify different knowledge types.
- 4.3 Interpret a given scenario to identify relevant elicitation techniques from the following list:
 - 4.3.1 Interviews.
 - 4.3.2 Workshops.
 - 4.3.3 Observation.
 - 4.3.4 Focus groups.
 - 4.3.5 Prototyping.
 - 4.3.6 Scenario analysis.
 - 4.3.7 Document analysis.
 - 4.3.8 Surveys.
 - 4.3.9 Record searching.
 - 4.3.10 Special purpose records.
 - 4.3.11 Activity sampling.
- 4.4 Describe the principles and application of the elicitation techniques (listed in 4.3).
- 4.5 List the advantages and disadvantages of the elicitation techniques (listed in 4.3).
- 4.6 Discuss the suitability of the elicitation techniques (listed in 4.3) for Agile and linear development approaches.

5 Use of Models in Requirements Engineering (10%)

The candidate can...

- 5.1 Explain the rationale for modelling the functional requirements (processing and data) of an information system and describe how models help the analyst to:
 - 5.1.1 Generate questions in order to clarify a requirement and remove ambiguity.
 - 5.1.2 Define business rules.
 - 5.1.3 Cross-check requirements for consistency and completeness.
- 5.2 Interpret a given scenario to develop a context diagram.
- 5.3 Interpret a given scenario to identify the different types of event that can initiate processing (external, time based, internal)
- 5.4 Understand how to construct a UML case diagram for a given scenario to represent the functional requirements for an information system, including the following notational elements:
 - 5.4.1 System boundary.
 - 5.4.2 Actors (user role, another system and time).
 - 5.4.3 Use cases.
 - 5.4.4 Communication relationships (associations) between actors and use cases.
- 5.5 Interpret a UML Class diagram (comprising of classes, attributes, associations and multiplicities) that represents the data requirements for a given scenario, and describe the business rules that are represented.
- 5.6 Explain the benefits to be derived from cross-referencing models and illustrate how this can be achieved by using a CRUD matrix (of function or event against data).

6 Requirements Documentation (15%)

The candidate can...

- 6.1 Explain the rationale for creating a requirements document and for documenting requirements at different levels of definition, relating to:
 - 6.1.1 The nature of the solution.
 - 6.1.2 The level of priority.
 - 6.1.3 The delivery approach.
- 6.2 Understand how to construct requirements documentation for a given scenario, using the following specified styles:
 - 6.2.1 User story.
 - 6.2.2 Use case.
 - 6.2.3 Requirements list.
 - 6.2.4 Requirements catalogue.
- 6.3 Describe a requirement in terms of its characteristics or attributes and explain why each of the following may be needed:
 - 6.3.1 Identifier.
 - 6.3.2 Name.
 - 6.3.3 Description.
 - 6.3.4 Source.
 - 6.3.5 Owner.
 - 6.3.6 Author.
 - 6.3.7 Type (general, technical, functional, non-functional).
 - 6.3.8 Priority.
 - 6.3.9 Business area.
 - 6.3.10 Stakeholders.
 - 6.3.11 Associated non-functional requirements.
 - 6.3.12 Acceptance criteria.
 - 6.3.13 Related requirements.
 - 6.3.14 Related documents.
 - 6.3.15 Comments.
 - 6.3.16 Rationale.
 - 6.3.17 Resolution.
 - 6.3.18 Version history.
- 6.4 Describe the structure and contents of the requirements document
 - 6.4.1 Introduction and background.
 - 6.4.2 Business process models.
 - 6.4.3 Function model (use case diagram) of defined requirements.
 - 6.4.4 Data model (class model) of defined requirements.
 - 6.4.5 Requirements (defined using the selected documentation style).
 - 6.4.6 Glossary.

7 Requirements Analysis (20%)

The candidate can...

- 7.1 Explain the rationale for prioritizing requirements, using the MoSCoW prioritization technique.
- 7.2 Interpret a given scenario and apply the MoSCoW prioritization technique.
- 7.3 Examine individual requirements; apply filters and quality criteria to assess that they are well defined.
- 7.4 Use requirements for a given scenario to check for technical, business and financial feasibility.
- 7.5 Assign a requirement type to an individual requirement.
- 7.6 Organize the requirements for a given scenario by requirement type and functional area.
- 7.7 Within a given requirement set:
 - 7.7.1 Identify and resolve duplicate requirements.
 - 7.7.2 Identify and reconcile overlapping requirements.
 - 7.7.3 Identify conflicting requirements and explain how requirements negotiation could be applied to resolve these conflicts.
 - 7.7.4 Identify ambiguous requirements and aspects to be defined to remove ambiguity.
- 7.8 Explain the use of prototyping to elaborate requirements.

8 Requirements Validation (5%)

The candidate can...

- 8.1 Describe the rationale for the following approaches to requirements validation:
 - 8.1.1 Structured walkthrough.
 - 8.1.2 Prototype reviews.
- 8.2 Explain the steps to be followed in the validation process for requirements artefacts:
 - 8.2.1 Plan review.
 - 8.2.2 Conduct review of artefacts.
 - 8.2.3 Collect comments.
 - 8.2.4 Undertake actions.
 - 8.2.5 Revise artefacts.
 - 8.2.6 Obtain approval.

9 Requirements Management (10%)

- 9.1 Explain the rationale for requirements management.
- 9.2 Define the elements of requirements management and the links between them.
- 9.3 Explain the structure and elements of a change control process.
- 9.4 Explain the structure and elements of version control.
- 9.5 Define two forms of traceability and how projects benefit from each of them:
 - 9.5.1 Horizontal (forwards from origin to delivery and backwards from delivery to origin).
 - 9.5.2 Vertical (to business objectives).
- 9.6 Explain the rationale and the approach to achieving requirements traceability.

3. Levels of Knowledge / SFIA Levels

This syllabus will provide candidates with the levels of difficulty highlighted within the following table, enabling them to develop the skills to operate at the highlighted level of responsibility (as defined within the SFIA framework) within their workplace. The levels of knowledge and SFIA levels are further explained on the website www.bcs.org/levels.

Level	Levels of Knowledge	Levels of Skill and Responsibility (SFIA)
7		Set strategy, inspire and mobilize
6	Evaluate	Initiate and influence
5	Synthesize	Ensure and advise
4	Analyze	Enable
3	Apply	Apply
2	Understand	Assist
1	Remember	Follow

4. e-CF Mapping

The mapping of this exam against the [e-Competence Framework](#).

competence is covered
 partial coverage
 superficial coverage

e-Competence Level		1	2	3	4	5
A.6.	Application Design					
B.3.	Testing					
B.5.	Documentation Production					
B.6.	Systems Engineering					
C.2.	Change Support					
D.10.	Information and Knowledge Management					
D.11.	Needs Identification					

5. Literature

Exam literature

The knowledge required for the EXIN BCS Requirements Engineering exam is covered in the following literature:

- A. Debra Paul, Donald Yeates and James Cadle
Business Analysis
BCS (3rd edition, september 2014)
ISBN: 978-1-78017-278-1

Additional literature

- B. James Cadle, Debra Paul and Paul Turner
Business Analysis Techniques: 99 Essential Tools for Success
BCS (september 2014)
ISBN: 978-1-78017-273-6

- C. Lynda Girvan, Debra Paul
Agile and Business Analysis
BCS (february 2017)
ISBN: 978-1-78017-322-1

Comment

Additional literature is for reference and depth of knowledge only.

Contact EXIN

www.exin.com

