



BCS EXIN Essentials Certificate in Blockchain

Version 1.0

April 2020

This professional certification is not regulated by the following United Kingdom Regulators – Ofqual, Qualification in Wales CCEA or SQA.

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Change History

This log provides a single point of reference, where a summary of any changes is recorded, to include the date of the amendment and a summary of the changes made.

Version Number	Changes Made
Version 1.0 April 2020	BCS Formatted syllabus created.

Introduction

The BCS EXIN Essentials Certificate in Blockchain validates a professional's knowledge about Blockchain as a ledger with potential as a worldwide, decentralised record for the registration, inventory, and transfer of assets: finance, property, products and intangible assets, such as votes, software, health data and ideas. The certification covers the basic concepts of Blockchain, the potential fields of application, the potential value for the organisation and the technology driving Blockchain.

BCS EXIN Essentials Certificate in Blockchain validates a professional's knowledge about:

- Blockchain Basics
- Blockchain Challenges
- Applications of a Blockchain
- Blockchain Innovations

Target Audience

BCS EXIN Essentials Certificate in Blockchain is tailored to professionals involved in business operations in any domain, who are interested in Blockchain as a cryptographic and smart contract solution.

Levels of Knowledge / SFIA Levels

This syllabus will provide candidates with the levels of difficulty / knowledge highlighted within the following table, enabling them to develop the skills to operate at the levels of responsibility indicated. 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)
K7		Set strategy, inspire and mobilise
K6	Evaluate	Initiate and influence
K5	Synthesise	Ensure and advise
K4	Analyse	Enable
K3	Apply	Apply
K2	Understand	Assist
K1	Remember	Follow

Learning Outcomes

Candidate will be able to demonstrate knowledge and understanding of the basic concepts of Blockchain in the following areas:

1. Blockchain Basics
2. Blockchain Challenges
3. Applications of a Blockchain
4. Blockchain Innovations

Study Format and Duration

BCS recommends that for full coverage of the syllabus to be achieved, training courses leading to the certificate should normally run for a minimum 7 hours. This number includes group assignments, exam preparation, and short breaks. Not included are homework, logistics for exam preparation and lunch breaks.

Candidates should spend about 30 hours on self-study, depending on existing knowledge.

Eligibility for the Examination

There are no specific pre-requisites for entry to the examination although accredited training is strongly recommended.

Examination Format and Duration

Type	20 Multiple Choice questions
Duration	30 minutes
Supervised	Yes
Open Book	No (no materials can be taken into the examination room)
Passmark	13/20 (65%)
Delivery	Digital or paper based.

Additional Time

For Candidates Requiring Reasonable Adjustments Due to a Disability.

Please refer to the [reasonable adjustments policy](#) for detailed information on how and when to apply.

For Candidates Whose Language is Not the Language of the Examination

If the examination is taken in a language that is not the candidate's native/official language, then they are entitled to:

- 25% extra time.
- Use their own paper language dictionary (whose purpose is translation between the examination language and another national language) during the examination. Electronic versions of dictionaries will not be allowed into the examination room.

Guidelines for Accredited Training Organisations

Each major subject heading in this syllabus is assigned a percentage weighting. The purpose of this is:

- 1) Guidance on the proportion of content allocated to each topic area of an accredited course.
- 2) Guidance on the proportion of questions in the exam.

Courses do not have to follow the same order as the syllabus and additional exercises may be included, if they add value to the training course.

Question Weighting

Learning Objectives	Weight
1. Blockchain Basics	30%
1.1 Blockchain Technology	20%
1.2 Additional Blockchain Elements	10%
2. Blockchain Challenges	20%
2.1 Challenges for a Blockchain	15%
2.2 Blockchain Risk Mitigation	5%
3. Applications of a Blockchain	35%
3.1 Blockchain Use Case	5%
3.2 Blockchain Technology Supporting Businesses	5%
3.3 Blockchain Technology Supporting People	10%
3.4 Expanding Blockchain Applications	10%
3.5 Blockchain and the World Economy	5%
4. Blockchain Innovations	15%
4.1 Innovations in Blockchain Technology	15%
Total	100%

Trainer Criteria

Criteria	<ul style="list-style-type: none">• Hold the BCS EXIN Essentials Certificate in Blockchain• Have a minimum of 2 years' training experience or 1 year with a recognised qualification• Have a minimum of 3 years' practical experience in the relevant subject area
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Classroom Size

Maximum recommended trainer to candidate ratio	1:16
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Excerpts from BCS Books

Accredited Training Organisations may include excerpts from BCS books in the course materials. If you wish to use excerpts from the books you will need a license from BCS to do this. If you are interested in taking out a licence to use BCS published material, you should contact the Head of Publishing at BCS outlining the material you wish to copy and the use to which it will be put.

Syllabus

Learning Objectives

1. Blockchain Basics (30%)

1.1 Blockchain Technology

Candidate will be able to:

- 1.1.1 Explain how a Blockchain works.
- 1.1.2 Explain what a node is.
- 1.1.3 Explain what tokens are.
- 1.1.4 Differentiate between public, private and hybrid Blockchains.

1.2 Additional Blockchain Elements

Candidate will be able to:

- 1.2.1 Explain the purpose ledgers have in a Blockchain.
- 1.2.2 Explain the role mining has in a Blockchain.

2. Blockchain Challenges (20%)

2.1 Challenges for a Blockchain

Candidate will be able to:

- 2.1.1 Identify Blockchain vulnerabilities.
- 2.1.2 Identify the risks community fractures and feuds pose to a Blockchain.
- 2.1.3 Identify the risks fraud and scams pose to a Blockchain.

2.2 Blockchain Risk Mitigation

Candidate will be able to:

- 2.2.1 Explain the role of the public witness in a Blockchain.

3. Applications of a Blockchain (35%)

3.1 Blockchain Use Case

Candidate will be able to:

- 3.1.1 Explain in which scenarios a Blockchain is useful.

3.2 Blockchain Technology Supporting Businesses

Candidate will be able to:

- 3.2.1 Explain how cryptocurrencies are used.

3.3 Blockchain Technology Supporting People

Candidate will be able to:

- 3.3.1 Explain the use of smart contracts.
- 3.3.2 Explain the use of Decentralised Applications (DApps).
- 3.3.3 Explain the role of Decentralised Autonomous Organisations (DAO) and Sophisticated smart contracts.

3.4 Expanding Blockchain Applications

Candidate will be able to:

- 3.4.1 Describe possible applications for a Blockchain with regard to identity.
- 3.4.2 Identify the possibilities of combining a Blockchain with Internet of Things (IoT) or Artificial Intelligence (AI).

3.4.3 Identify the use of decentralised marketplaces and exchanges facilitated by Blockchain technology.

3.5 Blockchain and the World Economy

Candidate will be able to:

3.5.1 Describe the role a Blockchain can play in the supply chain.

3.5.2 Describe the role a Blockchain can play in cross-border money transfers.

4. Blockchain Innovations (15%)

4.1 Innovations in Blockchain Technology

Candidate will be able to:

4.1.1 Explain what digital fiat currency and disruption in banking and currency are.

4.1.2 Explain how Blockchain technology can change insurance.

4.1.3 Explain the use of Blockchain technology for the protection of intellectual property rights (IP) and providence.

4.1.4 Explain how Blockchain technology may change governments.

Basic Concepts

Please note that knowledge of these terms alone does not suffice for the exam; the candidate must understand the concepts and be able to provide examples.

Artificial Intelligence (AI)	Ledger
<ul style="list-style-type: none"> • Strong AI / General AI • Weak AI / Narrow AI 	Mining
Block Header	Near-Field Communication (NFC)
Blockchain	Node
<ul style="list-style-type: none"> • Hybrid Blockchain • Private Blockchain • Public Blockchain 	<ul style="list-style-type: none"> • Full Node • Lightweight Node / Client
Connected Device	Nonce
Cryptocurrency	Opcode
Decentralised Application (DApp)	Peer-to-Peer Network (P2P)
Decentralised Autonomous Organisation (DAO)	Public Witness
Decentralised Exchange	Radio Frequency Identification (RFID)
Decentralised Identity	Second Generation Tokens
Decentralised Marketplace	Segregated Witness (SegWit)
Digital Fiat Currency / Central Bank Digital Currency (CBDC)	Self-Sovereign Identity
Distributed Ledger Technology (DLT)	Smart Contract
E-mail Spam	Spoofting
Externally Owned Account (EOA)	Stable Coin
Hacking	Supply Chain
Intellectual Property Rights (IP)	Token
Internet of Things (IoT)	Trusted Execution Environment (TEE)
Lean Governments	Virtual Machine (VM)
	Vulnerabilities

Recommended Reading

Title: Introduction to Blockchain Technology – The many faces of Blockchain Technology in the 21st century

Author: Tiana Laurence

Publisher: Van Haren Publishing

Publication Date: November 2019

ISBN: 978 94 018 0499 8 (hardcopy)

ISBN: 978 94 018 0501 8 (eBook)

ISBN: 978 94 018 0504 9 (ePub)

Literature Matrix

Learning Objectives		Reference
1. Blockchain Basics		
	1.1 Blockchain Technology	Chapter 1, Chapter 2
	1.2 Additional Blockchain Elements	Chapter 1, Chapter 2
2. Blockchain Challenges		
	2.1 Challenges for a Blockchain	Chapter 2, Chapter 4, Chapter 10
	2.2 Blockchain Risk Mitigation	Chapter 2, Chapter 4, Chapter 10
3. Applications of a Blockchain		
	3.1 Blockchain Use Case	Chapter 4, Chapter 5, Chapter 6
	3.2 Blockchain Technology Supporting Businesses	Chapter 1, Chapter 4, Chapter 8
	3.3 Blockchain Technology Supporting People	Chapter 5, Chapter 9
	3.4 Expanding Blockchain Applications	Chapter 6
	3.5 Blockchain and the World Economy	Chapter 7
4. Blockchain Innovations		
	4.1 Innovations in Blockchain Technology	Chapter 8, Chapter 9