



**Making IT  
good for  
society**

# **BCS Level 4 Certificate in Network Security Syllabus QAN 603/0546/0**

**Version 2.1  
September 2017**

This is a United Kingdom government regulated qualification which is administered and approved by one or more of the following: Ofqual, Qualification in Wales, CCEA or SQA

# BCS Level 4 Certificate in Network Security

## Contents

- Introduction .....4
- Objectives .....4
- Course Format and Duration .....4
- Eligibility for the Examination.....4
- Format and Duration of the Examination .....4
- Additional Time for Apprentices Requiring Reasonable Adjustments Due to a Disability ....5
- Additional Time for Apprentices Whose Language is Not the Language of the Examination5
- Guidelines for Training Providers 5
- Syllabus .....6
- Levels of Knowledge / SFIA Levels .....8
- Question Weighting .....8
- Format of Examination .....9
- Trainer Criteria .....9
- Classroom Size .....9

## Change History

Any changes made to the syllabus shall be clearly documented with a change history log. This shall include the latest version number, date of the amendment and changes made. The purpose is to identify quickly what changes have been made.

<b>Version Number</b>	<b>Changes Made</b>
Version 1.0 February 2016	Syllabus Created.
Version 1.3 September 2016	Syllabus Updated.
Version 1.4 October 2016	Updated to include QAN in title.
Version 1.5 December 2016	Included regulation statement.
Version 2.0 August 2017	Major amendments following full review and changed TQT.
Version 2.1	Topic weightings added.

## Introduction

This certificate is the third of the three knowledge modules required for the Level 4 Network Engineer Apprenticeship. It covers the range of concepts, approaches and techniques that are applicable to network security, for which apprentices are required to demonstrate their knowledge and understanding.

## Objectives

Apprentices should be able to demonstrate knowledge and understanding of known security threats and how they can be mitigated.

Evidence of lessons learnt in these key areas should be collected and reflected upon when the apprentice is compiling the summative portfolio as the apprentice could identify how the task might be done better/differently with knowledge subsequently gained.

## Target Audience

The certificate is relevant to anyone enrolled on the Level 4 Network Engineer Apprenticeship programme.

## Course Format and Duration

Candidates can study for this certificate by attending a training course provided by a BCS accredited training provider. The estimated total qualification time for this certificate is 125 hours.

## Eligibility for the Examination

Individual employers will set the selection criteria, but this is likely to include 5 GCSEs (especially English, mathematics and a science or technology subject); other relevant qualifications and experience; or an aptitude test with a focus on IT skills.

Level 2 English and Maths will need to be achieved, if not already, prior to taking the endpoint assessment.

## Format and Duration of the Examination

The format for the examination is a 1-hour multiple-choice examination consisting of 40 questions. The examination is closed book (no materials can be taken into the examination room). The pass mark is 26/40 (65%).

## Additional Time for Apprentices Requiring Reasonable Adjustments Due to a Disability

Apprentices may request additional time if they require reasonable adjustments. Please refer to the [reasonable adjustments policy](#) for detailed information on how and when to apply.

## Additional Time for Apprentices Whose Language is Not the Language of the Examination

If the examination is taken in a language that is not the apprentice's native / official language, then they are entitled to 25% extra time.

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

Each major subject heading in this syllabus is assigned an allocated time. The purpose of this is two-fold: first, to give both guidance on the relative proportion of time to be allocated to each section of an accredited course and an approximate minimum time for the teaching of each section; second, to guide the proportion of questions in the exam. Training providers may spend more time than is indicated and apprentices may spend more time again in reading and research. Courses do not have to follow the same order as the syllabus. Courses may be run as a single module or broken down into two or three smaller modules.

This syllabus is structured into sections relating to major subject headings and numbered with a single digit section number. Each section is allocated a minimum contact time for presentation. Apprentices should be encouraged to consider their summative portfolio throughout the modules.

# Syllabus

For each top-level area of the syllabus a percentage and K level is identified. The percentage is the exam coverage of that area, and the K level identifies the maximum level of knowledge that may be examined for that area.

## 1 Types of security threat (35%, K2)

In this topic, the apprentice will understand the types of security threats. The successful apprentice should be able to:

### 1.1 Describe security threats.

- virus;
- malware;
- DDoS attacks;
- Trojan;
- worm;
- spyware;
- social engineering;
- phishing attacks;
- man-in-the-middle;
- DNS poisoning.

### 1.2 Describe vulnerabilities.

- ports;
- services;
- code.

## 2 Mitigating security threats (65%, K2)

In this topic area, the apprentice will learn how to mitigate known security threats. The successful apprentice should be able to:

### 2.1 Describe security procedures.

- security policy;
- securing the perimeter;
- physical security;
- securing the network;
- securing devices;
- securing applications;
- O/S updates.

2.2 Describe common ways to protect data.

- file and folder permissions;
- encryption;
- group policy.

2.3 Describe protection against malicious software.

- anti-virus;
- anti-malware.

2.4 Describe types of firewalls.

- packet filter;
- stateful;
- application level;
- intrusion detection systems;
- intrusion prevention systems.

## Levels of Knowledge / SFIA Levels

This syllabus will provide apprentices with the levels of difficulty / knowledge skill 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 explained on the website [www.bcs.org/levels](http://www.bcs.org/levels). The levels of knowledge above will enable apprentices to develop the following levels of skill to be able to operate at the following levels of responsibility (as defined within the SFIA framework) within their workplace:

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

## Question Weighting

Syllabus Area	Target number of questions
1. Types of Security Threat	14
2. Mitigating Security Threats	26
<b>Total</b>	<b>40 Questions</b>



## Format of Examination

Type	40 Question Multiple Choice.
Duration	1-hour. An additional 15 minutes will be allowed for apprentices sitting the examination in a language that is not their native / mother tongue.
Pre-requisites	Training from a BCS accredited training provider is strongly recommended but is not a pre-requisite.
Supervised	Yes.
Open Book	No.
Pass Mark	26/40 (65%).
Calculators	Calculators cannot be used during this examination.
Total Qualification Time (TQT)	125 hours, 22.5 GLH recommended.
Delivery	Online.

## Trainer Criteria

Criteria	<ul style="list-style-type: none"><li>▪ Have 10 days training experience or have a train the trainer qualification</li><li>▪ Have a minimum of 3 years practical experience in the subject area</li></ul>
----------	---

## Classroom Size

Trainer to Apprentice ratio	1:16
-----------------------------	------