

BCS Level 3 Award in Cloud Services Syllabus QAN 603/0218/5

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BCS Level 3 Award in Cloud Services

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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.

Version Number	Changes Made
Version 1.0 July 2016	Syllabus Created.
Version 1.1 December 2016	Compliance statement added.
Version 1.2 April 2017	Change to topic two title in weightings table.
Version 2.0 September 2017	Major amendments following full review and changed TQT.

Introduction

This award is the third module of the five knowledge modules required for the Level 3 Infrastructure Technician Apprenticeship. It covers the range of concepts, approaches and techniques that are applicable to cloud services, for which apprentices are required to demonstrate their knowledge and understanding.

Objectives

Apprentices should be able to demonstrate knowledge and understanding of business processes principles and techniques. Key areas are:

1. Understanding and working knowledge of the Cloud and cloud services.
2. Understanding the importance of disaster recovery and how a disaster recovery plan works, and their role within it.

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 award is relevant to anyone enrolled on the Level 3 Infrastructure Technician Apprenticeship programme.

Course Format and Duration

Candidates can study for this award by attending a training course provided by a BCS accredited training provider. The estimated total qualification time for this award is 82 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 Configuration and Management of Cloud Services (48%, K2)

In this topic, the apprentice will gain an understanding and working knowledge of the Cloud and cloud services. The successful apprentice should be able to:

- 1.1 Describe the key steps required for creating a virtual machine.
 - resource allocation;
 - memory;
 - static and dynamic;
 - storage;
 - compute (CPU);
 - network.
- 1.2 Explain and summarise the key purposes of hosted applications.
 - email;
 - servers;
 - storage;
 - desktops.
- 1.3 Summarise and explain how multi-tenant cloud platforms allow for separately provisioned tenants (i.e. multiple customers to operate on the same service, but not share or interfere with each other).
- 1.4 Understand factors required for secure password.
 - set a strong password policy;
 - use multifactor / two-factor authentication where available.
- 1.5 List the pros and cons of password management tools and services.
 - all passwords in one place;
 - access on multiple device;
 - password generation.
- 1.6 Identify the key steps required to manage users and / or identities, and groups within cloud tenants.
 - create users / identities;
 - create security groups of users with common security access requirements;
 - allocate users to security groups;
 - authorise access to resources using security groups.

- 1.7 Describe the importance of separating users into groups and managing what information / resources they have access to.
- 1.8 List and describe the key DNS resource record types and what they're used for in relation to cloud services.
- A Record;
 - AAAA Record;
 - CNAME;
 - MX.
- 1.9 Describe how a client could be connected into a cloud service.
- client configured to enable network access;
 - user account / identity created;
 - user authorised to access resources.

2 Disaster Recovery (52%, K2)

In this topic area, the apprentice will understand the importance of disaster recovery, how a disaster recovery plan works and their role within it. The successful apprentice should be able to:

- 2.1 Describe backup and recovery options and their benefits.
- data and / or system;
 - data and system;
 - take longer to backup;
 - take up more media space;
 - simplify restores - no need to install and configure OS;
 - data;
 - quicker to backup;
 - OS must be installed and configured when complete system is lost;
 - full;
 - backs up all data;
 - easy to restore and manage;
 - incremental;
 - backs up changes since last backup;
 - quicker to back up;
 - harder to restore - may require many restore sets;
 - differential;
 - backs up changes since last full backup;
 - quicker to back up the full image;
 - easier to restore than incremental - may require less restore sets.
- 2.2 Describe the importance of testing backups and performing test restores.
- backup may have failed;
 - restore method may fail.

- 2.3 Describe the purpose of a disaster recovery plan.
- to document the steps that will be implemented in the event of business disruption.
- 2.4 Identify where a disaster recovery plan can be found.
- paper copies available to key personnel;
 - available on a company Intranet;
 - available from Information Systems Manager or IT Director.
- 2.5 Describe an infrastructure technician's role within a disaster recovery plan.
- understand role as stated in the disaster recovery plan;
 - undertake steps as defined in disaster recovery plan.
- 2.6 List the typical items that should be contained within a disaster recovery plan.
- risk assessment;
 - Business Impact Analysis (BIA);
 - business continuity and recovery strategy;
 - business process priorities;
 - roles and responsibilities;
 - test plan.
- 2.7 Explain when disaster recovery plan can be tested.
- tested / practiced when stated in test plan;
 - maximum amount time that can elapse before testing.
- 2.8 Explain how disaster recovery plan can be tested.
- simulation;
 - disaster recovery failover.
- 2.9 Explain how to implement recovery following the steps outlined in the disaster recovery plan.
- system recovery - data and system restore from backup;
 - switch to redundant systems;
 - switch to hot / cold standby sites.
- 2.10 Explain the purpose of a three-two-one backup policy.
- three different backups;
 - two different types of media;
 - one backup off site.
- 2.11 Explain the difference between a data and system restore.

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. 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. Configuration and Management of Cloud Services	19
2. Disaster Recovery	21
Total	40 Questions

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)	82 Hours, 54 GLH recommended.
Delivery	Online.

Trainer Criteria

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

Trainer to Apprentice ratio	1:16
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