BCS Level 3 Award in Principles of Coding Syllabus
QAN 603/0762/6

Version 2.1
October 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 3 Award in Principles of Coding

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 September 2017	Syllabus created
Version 1.1 November 2016	Topics 5 and 6 weighting corrections
Version 1.2 December 2016	Front page updated
Version 2.0 September 2017	Syllabus re-developed
Version 2.1 October 2017	Amendments to topic area weightings and examination duration

Introduction

This Award is the first module of the three knowledge modules required for the Level 3 Digital Marketer Apprenticeship. It covers the range of concepts, approaches and techniques that are applicable to Principles of Coding for which Apprentices are required to demonstrate their knowledge and understanding.

Objectives

Apprentices should be able to demonstrate knowledge and understands the principles of coding. Key minimum requirements are:

- Understands and has an appreciation of logic
- Understands, has an awareness of and recognises software languages
- Understands the compatibility of code on different platforms
- Understands the components involved to make the Web work

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 Digital Marketer 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 50 hours.

Eligibility for the Examination

There are no specific pre-requisites for entry to the examination; however, candidates should possess the appropriate level of knowledge to fulfil the objective shown above.

Format and Duration of the Examination

The format for the examination is a 30-minute multiple-choice examination consisting of 20 questions. The examination is closed book (no materials can be taken into the examination room). The pass mark is 13/20 (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. Appreciation of Logic (10%, K2)

In this topic, learners will understand and develop an appreciation of logic. The successful Apprentice should be able to:

1.1 Understand the basics of logic in computation and of logic gates.
- And
- Or
- Not

2. Programming Languages (10%, K1)

In this topic, learners will become aware of programming languages and how they apply in building digital products. The successful Apprentice should be able to:

2.1 Identify the key characteristics and applications of the following programming languages:
- Hypertext Markup Language (HTML)
- JavaScript (JS)
- Java

3. Interaction and Compatibility of Code on Different Platforms (25%, K2)

In this topic, learners will gain an understanding of code compatibility on different platforms. The successful Apprentice should be able to:

3.1 Memorise the LAMP (Linux, Apache, MySQL, and PHP) and XAMPP stack. Describe the associated code compatibility with using alternative proprietary web stacks.

3.2 Discuss how the following file formats that can be shared across multiple digital platforms and issues that arise around compatibility:
- PDF
- HTML
- Image (GIF, JPG, PNG)
- Video; Mpeg
- Audio; MP3

3.3 Describe each stage required to generate or commission code. What considerations will be required to ensure code capability across multiple devices and the associated infrastructure limitations.
- Social media platforms feeds (called widgets) used on a new digital solution.
- Creating and protecting feeds (using API keys) for use by other organisations.

4. Web components (55%, K2)

In this topic, learners will understand the components involved to make the Web work. The successful Apprentice should be able to:

4.1 Define the terminology for the following key internet protocols that enable the web to work:
- Hypertext Transfer Protocol (HTTP)
- Hypertext Transfer Protocol Secure (HTTPS)
- Transport Layer Security and Secure Sockets Layer (TLS / SSL)

4.2 Discuss the purpose of the following:
- Web and application server
- Hosting and serving
- Relational database management systems
- Content management systems

4.3 Describe the purpose of a web client; browsers and applications.

4.4 Describe how Search Engines operate in regard to the following:
- How mark-up languages render hyperlinks.
- How the web crawler work.
- Displaying of search results.
- Factors that affect search engine optimization (SEO).

4.5 Explain the differences between a static and dynamic website.
- Written in code
- Written scripting language

4.6 Describe how local (cookies) or session data storage is utilised to share information for standard digital features.
- forms
- checkout
- registration

4.7 Identify the key roles of the following Web technologies governance groups.

- World Wide Web Consortium (W3C);
- Internet Engineering Task Force (IETF).

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. Appreciation of logic	2
2. Programming Languages	2
3. Interaction and Compatibility of Code on Different Platforms	5
4. Web Components	11
Total	**20 Questions**

Format of Examination

Type	20 Question Multiple Choice
Duration	30-minute. An additional 25% 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	13/20 (65%)
Calculators	Calculators cannot be used during this examination
Total Qualification Time (TQT)	50 Hours
Delivery	Online

Trainer Criteria

Criteria	▪ Have 10 days training experience or have a train the trainer qualification ▪ Have a minimum of 3 years' practical experience in the subject area

Classroom Size

Trainer to Apprentice ratio	1:16

Recommended Reading List

Title:	https://www.amazon.co.uk/Understanding-Marketing-Technology-Without-Losing/dp/0615762611
Author:	*Dave Tedlock*
Publisher:	*San Marcos Press*
Publication Date:	*Published April 2013*
ISBN:	***ISBN-13:*** *978-0615762616*

Title:	Digital Marketing: Strategy, Implementation and Practice
Author:	Dave Chaffey
Publisher:	Pearson
Publication Date:	July 2012
ISBN:	13: 978-0273746102

Title:	The Google Checklist: Marketing Edition 2016: SEO, Web Design, Paid Advertising, Social Media, PR
Author:	Amen Sharma
Publisher:	CreateSpace Independent Publishing Platform
Publication Date:	March 2016
ISBN:	13: 978-1530607518

Title:	SEO 2016 & Beyond: Search engine optimization will never be the same again! Volume 1 (Webmaster)
Author:	Dr Andy Williams
Publisher:	CreateSpace Independent Publishing Platform
Publication Date:	September 2015
ISBN:	13: 978-1517201401

Useful Websites

https://www.w3.org/
https://www.ietf.org/rfc.html
https://www.google.co.uk/insidesearch/howsearchworks/crawling-indexing.html
http://www.adobe.com/devnet/pdf/pdf_reference.html