

# BCS LEVEL 4 MODULE IN DIGITAL CORE

## SYLLABUS

October 2021 v1.1

Unit Code: K/618/8039

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

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# Introduction

As digital technologies continue to evolve, they become an ever more intrinsic part of our daily lives and our society. This is significantly transforming the way in which businesses operate and the requirements for today's workforce. As such there is an ever-increasing need for individuals equipped with the skills and knowledge to support the development and implementation of digital solutions within a business that deliver efficiencies and greater productivity; that enable insight through data; that provide greater security; that deliver enhanced customer experiences; and that ensure successful operations can be carried out.

This need goes beyond the basic understanding of a specific role; these individuals must also understand the business environment and the needs of their stakeholders, whilst being able to communicate and collaborate with others in diverse and cross-functional environments, to achieve a common goal.

Developing a working knowledge of the key concepts in Cyber Security, Networks, Systems and Applications, Data, and Programming will help learners to succeed in a modern, collaborative environment.

# Qualification Suitability and Overview

There are no mandatory requirements for learners to be able to undertake this certificate qualification, although learners will need a good standard of written English and Maths.

This qualification is suitable for learners who are looking to progress in their digital careers, as well as those looking to move into a particular specialism. It can be taken as a standalone qualification, or in combination with other units and modules as part of a wider programme, such as an Apprenticeship.

This is an occupationally focused qualification which will:

- test a learner's applied knowledge, skills and behaviours to a range of scenarios.
- enable a learner to demonstrate an understanding of the key concepts across each of topic areas for digital core, understanding their impact on an organisation.
- enable a learner to progress in their career.

Learners can study for this certificate by attending a training course provided by a BCS accredited Training Provider or through self-study.

<b>Total Qualification Time</b>	<b>Guided Learning Hours</b>	<b>Independent Learning</b>	<b>Assesement Time</b>
87 hours	50 hours	35 hours	1.5 hours

## Trainer Criteria

It is recommended that to effectively deliver this certification, trainers should possess:

- 10 days training experience or have a train the trainer qualification
- A minimum of 3 years practical experience in an IT or digitally focussed role.

# SFIA Levels

This module provides candidates with the level of knowledge highlighted within the table, enabling candidates to develop the skills to operate successfully at the levels of responsibility indicated.

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	<b>Analyse</b>	<b>Enable</b>
K3	<b>Apply</b>	<b>Apply</b>
K2	<b>Understand</b>	<b>Assist</b>
K1	<b>Remember</b>	<b>Follow</b>

## Learning Outcomes

Upon completion of the module learners will be able to demonstrate an understanding of key concepts within the following topics, as well as their implications and uses within an organisation.

- Cyber Security
- Networks
- Systems and applications
- Data
- Programming

# Syllabus

## 1. Understand the business and its context to enable effective working. (15%) (K4)

### Learners will be able to:

**1.1** Identify an organisation's structure, evaluating how this influences the way in which it operates.

#### Indicative content

- a. Hierarchical, Flat, Functional, Matrix.
- b. For/Not for profit organisations.
- c. Public organisations.
- d. Private/Public Limited companies.
- e. Sole traders
- f. Charities.

#### Guidance

The structure of an organisation impacts the way it operates and its' legal obligations. Learners will be able to identify a given organisational structure and recall their key features and uses within an organisation, for example – reporting lines and shareholding. They will also be able to explain how different structures enable particular ways of working, for example, a Matrix structure and how this enables collaboration in an Agile project working environment.

**1.2** Analyse and interpret an organisation's mission and vision statement.

#### Indicative content

- a. Purpose and direction.
- b. Shared values.
- c. Behaviour – inspiration, belonging.
- d. Planning.

#### Guidance

The organisation's vision exists to provide clarity on their purpose and reason for existing, whereas the mission provides guidance on how the organisation should run and can assist with current and future planning. Both should be used to provide direction and inspire employees. Learners will be able to explain why an organisation would choose to develop and share a formal mission and vision statement.

**1.3** Explain the purpose of organisational and personal objectives.

#### Indicative content

- a. KPIs.
- b. Alignment with vision.
- c. Reporting.
- d. Performance management.
- e. Personal development.
- f. Competitors.

#### Guidance

Objectives are created as a means to drive performance towards goals (vision, mission), in a measurable way. Key performance indicators (KPIs) can help an organisation to identify any areas of underperformance or growth and respond accordingly, through regular monitoring and reporting, often comparing results to previous years or expected outcomes and to competitor organisations where information is available. Providing individuals with their own objectives may increase motivation and can be a helpful tool in measuring that individuals' performance and can help individuals work towards a personal or professional goal.



**1.4** Interpret and apply organisational policies and procedures.

### Indicative content

- a. IT Acceptable Use.
- b. Health and Safety.
- c. Equality, Diversity and Inclusion.
- d. Confidentiality.
- e. Risk Management.
- f. Data Protection.

### Guidance

Organisations provide policies and procedures to ensure the safe, consistent and legal running of their business. These will naturally vary across organisations but will generally include a combination of, or take on, the topics listed. Learners will have a practical understanding of the typical policies and procedures that exist in a business, their purpose, contents, and application.

**1.5** Analyse the use of new and emerging technologies in an organisational context.

### Indicative content

- a. The 4th Industrial Revolution.
- b. Digital Transformation.
- c. Digital Ecosystems.
- d. The benefits and use of:
  - Cloud technology.
  - Mobile technology.
  - Artificial intelligence.
  - Robotics.

### Guidance

Digital Transformation describes the process through which an organisation adapts and enhances its ways of operating through the adoption of digital technologies. Learners should have understanding of the uses of different technologies and the benefits and challenges associated with them. They should consider the influence of the technologies on how and organisation operates and the impact on its customers.



## 2. Understand business culture to encourage and enable effective working. (10%) (K4)

### Learners will be able to:

**2.1** Analyse an organisation's culture and how it influences working practices.

#### Indicative content

- a. Ethics.
- b. Equality and diversity.
- c. Top-down and bottom-up.
- d. Change and risk approaches.
- e. Digital mindset.

#### Guidance

It is commonly acknowledged that culture is a combination of personal experience and perceptions, and therefore it cannot be entirely managed by the organisation. The culture of an organisation can be seen in its values and principles and is impacted by factors, such as the diversity of the workforce, the sector in which it operates and the behaviour of its employees.

Learners should be able to discuss the impact of culture on business activity, decision making and the organisational approach to change and risk taking. They should also consider the need for an organisation to have a digital mindset, in order to leverage the digital innovations, which deliver efficiencies and help to gain a competitive edge in the market.

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**2.2** Analyse the business context for software applications, their usage and development.

#### Indicative content

- a. SWOT, PESTLE
- b. The market environment.
- c. Suitability of solutions.
- d. Sustainability.
- e. Scalability and future proofing.

#### Guidance

Learners should consider the potential use of software for an organisation and assess the suitability of the software to meet the business needs in current and future landscapes. For example, will the software be fit for purpose if the business experiences rapid growth or if legal requirements change? Learners should be encouraged to undertake an analysis of their own business environment through the use of SWOT or PESTLE analysis in order to identify opportunities for using different software.

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### 3. Understand the importance of cyber security. (20%) (K2)

#### Learners will be able to:

**3.1** Explain how information and cyber security can affect society.

#### Indicative content

- a. Information sharing.
- b. Theft and fraud.
- c. Data protection.
- d. Privacy.
- e. Human rights.

#### Guidance

Information and cyber security have a significant impact on the way society live and work, including how our data and information is used and shared, and how our activity is monitored. Learners should be able to explain a range of ways in which society is affected.

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**3.2** Explain why cyber security is important to organisations.

#### Indicative content

- a. Protect data and intellectual property.
- b. Legal and organisational compliance.

#### Guidance

Robust cyber security ensures that organisations can fulfil their legal obligations around processing and storing data, as well as protecting other intellectual property. Cyber security also protects the organisation's devices and networks from potential attacks or threats.

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**3.3** Explain the importance of following organisational policies and procedures relating to information security.

#### Indicative content

- a. Creating vulnerabilities.
- b. Reputational impact.
- c. Interrupted operations.
- d. Financial loss.

#### Guidance

Non-compliance with policies and procedures inevitably creates vulnerabilities in the organisation's systems, increasing the likelihood of threats or attacks. Such risks could impact the organisation's ability to provide a service to their customers, cause financial loss and have a negative impact on their reputation. Learner should be able to understand and consider the risks associated with non-compliance and the value of ensuring all policies and procedures are understood and adhered to.

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**3.4** Explain the factors that contribute to a negative or positive cyber security environment.

### Indicative content

- a. Compliance.
- b. Training.
- c. Maintenance.

### Guidance

Learners should be able to understand a range of factors which can contribute to the positive or negative impact/use of cyber security. Consideration should be given to compliance with organisational procedures, the training of users and the ongoing maintenance and testing of the systems.

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**3.5** Identify security threats.

### Indicative content

- a. Type of threat.
- b. Potential impact.
- c. Common themes.

### Guidance

Learners should be able to identify and understand different types of security threat, including but not limited to phishing, social engineering, malware, denial of service/distributed denial of service. Learners must recognise how these threats are presented and how/when they may occur.

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**3.6** Describe security procedures.

### Indicative content

- a. Intrinsic and extrinsic assurance.
- b. Design and implementation standards.
- c. Operational policy and process standards.
- d. Penetration testing.

### Guidance

Within an organisation, security can take many different forms. Learners should understand the need for specific design, service and working standards, and how these contribute to security. Learners should be able to differentiate between intrinsic assurance (exploring how the system was built) and extrinsic assurance (outside factors and testing) and explain how and why testing is used as part of security procedures.

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**3.7** Explain the importance of maintaining data and program integrity by backing up the data securely and regularly.

### Indicative content

- a. Avoid data loss.
- b. Record keeping.
- c. Disaster recovery.

### Guidance

Regular backup of data provides a range of benefits to an organisation and individual. As well as ensuring that data can be recovered after loss or theft, backing up data helps to ensure any changes or updates are saved and can help with reporting and audit trails if required. Learners should explain how and why this backup activity should be completed and the impact of doing/not doing so on the integrity of data and the organisation.

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## 4. Understand the purpose and use of networks, systems and applications. (15%) (K2)

### Learners will be able to:

**4.1** Describe how different operating systems interact with different platforms.

#### Indicative content

- a. Desktop.
- b. Portable computing e.g. laptops, tablets.
- c. Smartphones.
- d. Dedicated devices e.g. satnavs, fitness trackers, smart home interfaces.

#### Guidance

Learners should be aware of different platforms and operating systems available, and the impact these have on build, testing and development. Operating systems may include Android, iOS, Mac OS, Windows or simpler, bespoke OS for niche or specialist devices. Learners should be aware that all "Internet of Things" devices use an operating system.

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**4.2** Describe the in-built facilities found in different types of Operating Systems, on different platforms.

#### Indicative content

- a. Security features.
- b. Communication and networking features.
- c. Methods of input and output.
- d. Performance.
- e. Versatility and customisation.

#### Guidance

Operating Systems (OS) each have native applications, developed specifically to be used with that OS, to create the best possible user experience. Learners should have an understanding of the fact that some devices are devoted to single functionality whereas others can have customisable use. Learners should also understand the challenges associated with native applications, such as the readability, portability and compatibility of file types, potential security risks and differences in performance.

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**4.3** Describe the function of different types of server.

#### Indicative content

- a. Intended use.
- b. Fit for purpose.

#### Guidance

Many different types of server may be used, depending on the purpose and requirements. Learners should be able to describe the type of server and its use, including but not limited to; file servers, application servers, web servers and proxy servers.

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**4.4** Describe the components and equipment of a network.

### Indicative content

- a. Hubs
- b. Switches
- c. Bridges
- d. WAPs
- e. Routers
- f. Firewalls
- g. Proxy servers

### Guidance

Building and running a network involves a variety of hardware and software components. Learners should be familiar with the components and equipment listed and understand their purpose, role and dependencies within the network.

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**4.5** Explain the positives and negatives of a range of platforms.

### Indicative content

- a. Functionality.
- b. Cost.
- c. Ownership.
- d. Maintenance.
- e. Usability.

### Guidance

When selecting or reviewing a platform, consideration must be given to a range of factors, as listed. For example, how the functionality of the platform aligns with the requirements of the user, the upfront and ongoing costs versus budget, or the flexibility of open source versus the perceived security of proprietary etc. Learners should be able to explain the potential positive and negative sides of a platform, drawing comparisons and confirming suitability.

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**4.6** Explain the purpose of Operating Systems, databases and applications.

### Indicative content

- a. Perform specific activity or function.
- b. Data lifecycle.
- c. Sharing data.
- d. Manage processes.

### Guidance

The use of specific databases and applications will vary across organisations, projects and teams. Learners should be able to explain the purpose and role of the items listed to complete specific tasks or processes.

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**4.7** Explain the use of common types of desktop applications.

### Indicative content

- a. Web browser.
- b. Productivity tools – calendars, email.
- c. Office tools – word processor, spreadsheet, presentations.
- d. Social and media – social networking, audio and video streaming.

### Guidance

Learners should be able to describe a range of desktop applications, such as those listed and be able to explain the purposes and common uses within an organisation or for a particular project or role. For example, a web browser may be used to explore the internet, to find and retrieve information.

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**4.8** Explain the key function of business application software.

### Indicative content

- a. Customer relationship management. (CRM)
- b. Finance and payroll.
- c. Stock and asset control.
- d. People.
- e. Security.

### Guidance

Learners should be aware of common types of business application software and how they are used to support different business functions and activities.

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**4.9** Explain the process for installing a software operating system.

### Indicative content

- a. System requirements.
- b. BIOS.
- c. Install, run.

### Guidance

Learners should understand and describe activities undertaken to install an operating system including how the order to be completed and the purpose of each stage.

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## 5. Understand the use of data. (15%) (K2)

### Learners will be able to:

**5.1** Explain types of data and their sources in an organisational context.

#### Indicative content

- a. Structured/unstructured.
- b. Quantitative.
- c. Qualitative.

#### Guidance

Learners should be able to recognise and classify data as either structured or unstructured, understanding the source and use of the data. The type of data will depend on how it was created, managed and its' purpose.

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**5.2** Explain the data lifecycle.

#### Indicative content

- a. Create
- b. Store
- c. Use
- d. Archive
- e. Delete.

#### Guidance

All data – regardless of its subject or use - will move through the stages of the data lifecycle. This lifecycle begins as soon as data is created and covers how and where it is stored, its use(s), the point and location of archival and eventual deletion.

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**5.3** Explain the use of big data in an organisational context.

#### Indicative content

- a. Decision making.
- b. Business intelligence.
- c. Analytics.

#### Guidance

Within an organisation, big data can provide detailed insight into customers, products and their uses. Once processed, big data may be analysed to assist with future planning, decision making, identifying and predicting trends and detailed reporting. Using big data in this manner – to inform strategic decision making and planning – is known as business intelligence (BI).

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**5.4** Explain the key components of the data protection legislation.

#### Indicative content

- a. UK GDPR
- b. Data Protection Act 2018
- c. Six data protection principles.
- d. Role of the controller.

#### Guidance

The Data Protection Act 2018, alongside UKGDPR provides organisations and individuals with their legal rights and obligations regarding the processing, storage and transfer of data. The role of Controller is one who decides which data should be collected and processed, and is responsible for ensuring that these activities align with the six principles of the Data Protection Act.<sup>1</sup>

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## 6. Understand basic programming (12.5%) (K2)

### Learners will be able to:

**6.1** Describe the common programming languages.

#### Indicative content

- a. Functional.
- b. Object-oriented.
- c. Procedural.

#### Guidance

Examples of common languages include, but are not limited to, Python, Java, Php, C++. Each language is used within different applications. Learners should be able to describe each language and its use.

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**6.2** Explain good practice when working with coding languages.

#### Indicative content

- a. Naming conventions.
- b. Portability.
- c. Comments.
- d. Scalability.
- e. Simplicity.

#### Guidance

The process of writing, maintaining and building on code can be improved by implementing consistent standards and ways of working. For example, ensuring that comments are added when code is being written, ensures that another developer will be able to understand the code, and improve its reusability in future. Learners should be able to recognise and implement best practise in these areas.

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**6.3** Explain the need to understand the appropriate use of code with different platforms.

#### Indicative content

- a. Compatibility.
- b. Infrastructure.
- c. Project suitability.

#### Guidance

The choice of programming language can depend on a range of factors, including those listed. Learners should be able to explain the need to use a programming language which is suitable to the platform, intended use and the overall impact of making a correct or incorrect choice.

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**6.4** Explain the primary elements of programming logic.

#### Indicative content

- a. Variables.
- b. Conditionals.
- c. Loops.
- d. Input/output.
- e. Functions.

#### Guidance

Learners must understand and be able to describe the elements listed, including how they would be used and their purpose.

## 7. Understand working practices in a digital environment that enable effective independent and team working. (12.5%) (K4)

### Learners will be able to:

**7.1** Analyse different stakeholders and their requirements.

#### Indicative content

- a. Stakeholder wheel.
- b. Customers, partners, suppliers, regulators, employees, managers, owners, competitors.
- c. Power Interest Matrix

#### Guidance

All stakeholders have a level of interest or influence in an organisation, which can impact their requirements and how they need to be managed – this can be recorded using a Power Interest Matrix. The Stakeholder Wheel is a tool which can also be applied to help to identify and categorise key stakeholders into one of eight groups. The role of a stakeholder may change over time, as a business changes or project develops.

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**7.2** Apply communication methods required for effective working.

#### Indicative content

- a. Verbal/non-verbal.
- b. Written.
- c. Visual.
- d. Active listening.

#### Guidance

Communication takes many forms, but all can be categorised as either verbal or non-verbal. Different forms of communication, for example – meetings, presentations, body language and gestures, and notetaking – are likely to be more suitable in some scenarios than others. Verbal communication may be open to interpretation in some situations, whereas written documents may provide more clarity. Each method of communication – including active listening – should be considered in its suitability for the intended audience, timescale, resources and content.

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**7.3** Explain methods used to influence without authority.

#### Indicative content

- a. Share information and expertise.
- b. Communication.
- c. Empathy.
- d. Collaboration.

#### Guidance

Learners should understand ways in which teams or individuals without authority are able to influence others in the workplace, including the application of expertise, purposeful collaboration and displaying empathy and understanding.

#### 7.4 Explain concepts of agile working practices.

##### Indicative content

- 12 agile principles.
- Agile mindset.
- Servant leadership.
- Iterative and incremental delivery.

##### Guidance

Agile working practises provide an alternative to linear or “waterfall” ways of working. The agile principles and mindset are focused on working to provide a usable solution at each increment, and developing it through further iterations. Learners will be able to apply these concepts to a range of scenarios.

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#### 7.5 Explain the use of the Systems Development Lifecycle.

##### Indicative content

- Feasibility.
- Analysis.
- Design.
- Development.
- Testing.
- Implementation.
- Maintenance.

##### Guidance

The Systems Development Lifecycle provides structure to the management of systems, from initial feasibility and requirements identification to ongoing maintenance. Learners will have a practical understanding of the application of the systems design lifecycle and the activities undertaken at each stage for a given project or system within an organisation.

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## Examination Format

This module is assessed through completion of an invigilated online exam which candidates will only be able to access at the date and time they are registered to attend.

<b>Type</b>	Digital exam which includes: <ul style="list-style-type: none"><li>a knowledge-based assessment consisting of 20 questions.</li><li>a set of scenario-driven situational judgement assessments consisting of 4 scenarios each with a set of 5 questions, 20 in total. .</li></ul>
<b>Duration</b>	90 minutes
<b>Supervised</b>	Yes
<b>Open Book</b>	No (no materials can be taken into the examination room)
<b>Passmark</b>	26/40 (65%)
<b>Delivery</b>	Digital format only

Adjustments and/or additional time can be requested in line with the [BCS reasonable adjustments policy](#) for candidates with a disability, or other special considerations including English as a second language.

# Question Weighting

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.

## Syllabus Area

- 1. Understand the business and its context to enable effective working.
- 2. Understand business culture to encourage and enable effective working.
- 3. Understand the importance of cyber security.
- 4. Understand the purpose and use of networks, systems and applications.
- 5. Understand the use of data.
- 6. Understand basic programming.
- 7. Understand working practices in a digital environment that enable effective independent and team working.

## Question type

Multiple choice and Scenario based multiple response

15%  
10%

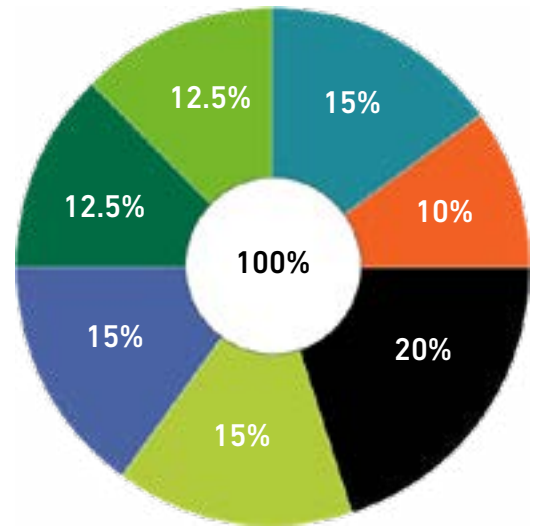
20%  
15%

15%  
12.5%

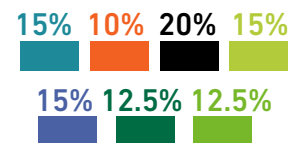
12.5%

**Total**

**100%**



## Syllabus Weighting





# Appendix

1 The six principles of the Data Protection Act include:

- the requirement that processing be lawful and fair
- the requirement that purposes of processing be specified, explicit and legitimate
- that personal data be adequate, relevant and not excessive
- the requirement that personal data be accurate and kept up to date
- the requirement that personal data be kept for no longer than is necessary
- the requirement that personal data be processed in a secure manner

# Document 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>
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<b>Version 1.0</b>	Document creation.
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