BCS LEVEL 4 CERTIFICATE IN IT

INFORMATION SYSTEMS

SYLLABUS

THIS QUALIFICATION WILL BE RETIRING IN 2026

September 2023 v4.1

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.

CONTENTS

Qualification Suitability and Overview

There are no specific entrance requirements for the Certificate in IT. Candidates can study for this certificate by attending a training course provided by a BCS accredited Training Provider or through self-study, although it is strongly recommended that all candidates register with an approved centre. Studying with an approved centre will deliver significant benefits.

Candidates are required to become a member of BCS, The Chartered Institute for IT, to sit and be awarded the qualifications. Candidates may apply for a four-year student membership that will support them throughout their studies.

The Level 4 Certificate is suitable for candidates new to the profession who are keen to develop industry-relevant skills and knowledge, as well as professionals wishing to gain a formal IT qualification. Candidates taking this module may be interested in career opportunities such as network administration, systems analysis, computer programming, or consultancy.

Total Qualification Time (Certificate)	Guided Learning Hours (Module)	Assessment Time (Exam)
734 hours	200 hours	Two hours

Introduction

Encompassing 3 core modules, the Level 4 Certificate in IT explores the fundamentals of computer and network technology, processor architecture, operating and information systems, software development, and networks.

Candidates will gain a solid foundation upon which they will be able to build a career pathway into information technology. Career opportunities include entry-level positions in the rapidly growing fields of computer science and software development.

Upon successful completion of this qualification, candidates will be equipped with the knowledge and understanding to enable them to progress on to a broad range of further development areas such as Big Data management, software engineering and web application development. Candidates will be prepared to progress onto the BCS Level 5 Diploma in IT, with the ability to customise their learning pathways based on their areas of special interest.

Information Systems Core Module

The Information Systems module is one of three core modules that forms part of the Level 4 Certificate in IT – the first stage within the BCS three-stage Higher Education Qualification programme.

Candidates will develop fundamental knowledge and understanding relating to data management, systems analysis and design, explore information flow within organisations, and consider the impact of emerging trends in information technology.

SFIA Levels

This award 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	Analyse	Enable
K3	Apply	Apply
K2	Understand	Assist
K1	Remember	Follow

SFIA Plus

This syllabus has been linked to the SFIA knowledge skills and behaviours required at Level 4.

BUAN3:

Investigates operational needs and problems, and opportunities, contributing to the recommendation of improvements in automated and non-automated components of new or changed processes and organisation. Assists in defining acceptance tests

for these recommendations.

BSMO2:

Understands the purpose and benefits of modelling. Uses established techniques as directed to model simple subject areas with clearly-defined boundaries. May assist in more complex modelling activities. Develops models with input from subject matter experts and communicates the results back to them for review and confirmation..

DBAD2:

Assists in database support activities.

DTAN2:

Applies data analysis, design, and modelling techniques to establish, modify or maintain a data structure and its associated components (entity descriptions, relationship descriptions, attribute definitions).

Further detail around the SFIA Levels can be found at www.bcs.org/levels.

REQM2:

Assists in the definition and management of requirements. Uses standard techniques to elicit, specify, and document requirements for simple subject areas with clearly-defined boundaries. Assists in the creation of a requirements baseline and in investigating and applying authorised requests for changes to base-lined requirements,

in line with change management policy.

DESN4:

Designs components using appropriate modelling techniques following agreed architectures, design standards, patterns and methodology. Identifies and evaluates alternative design options and trade-offs. Creates multiple design views to address the concerns of the different stakeholders of the architecture and to handle both functional and non-functional requirements. Models, simulates or prototypes the behaviour of proposed systems components to enable approval by stakeholders. Produces detailed design specification to form the basis for construction of systems. Reviews, verifies and improves own designs against specifications.

HCEV3:

Applies tools and methods to design and develop users' digital and off-line tasks, interactions and interfaces to meet agreed usability and accessibility requirements for selected system, product or service components. Creates workable prototypes. Assists, as part of a team, on overall user experience design. Assists in the evaluation of design options and trade-offs. Consistently applies visual design and branding guidelines.

Learning Outcomes

Upon completion of this module, candidates will be able to:

- Understand the management and support of computer systems in an organisation
- Show an understanding of the flow of information within organisations
- Understand the differing types and processing of information
- Propose practical solutions to given analytical problems
- Demonstrate the effective use of a chosen methodology through requirements analysis and fact-finding techniques
- Display an awareness of systems development tools and techniques
- Become conversant with system design issues
- Develop awareness of the basic ideas behind using a computer to store and manipulate data
- Display knowledge of data analysis and modelling techniques
- Discuss various database management architectures
- Demonstrate an awareness of Human Computer Interaction and the use of multimedia and hypermedia
- Suggest suitable testing strategies and implementation techniques
- Understand the need for quality assurance/security in computer systems development and operation
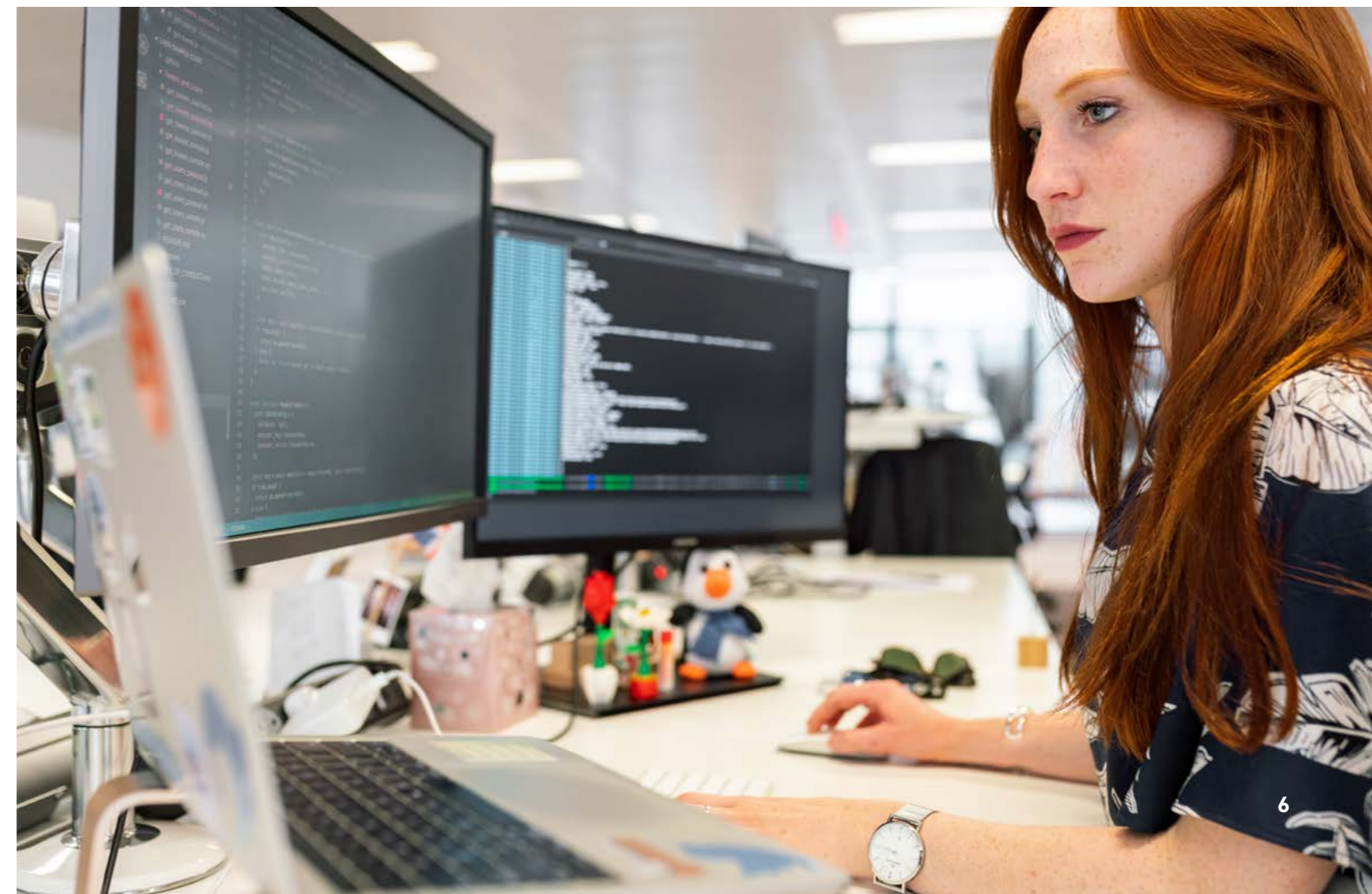
Syllabus

1. Data management

Learners will be able to:

1.1 Explain the nature of information.

Indicative content	Guidance
a. Acquisition, presentation, storage and management b. Characteristics of data c. Data capture and collection d. Data processing and data modelling	Candidates will be expected to produce data models, as well as explain the range of information needed in an organisation.

1.2 Describe simple statistical measures.

Indicative content	Guidance
a. Mean, mode, median b. Standard deviation c. Tabular representation of data d. Histograms e. Interpolation	Candidates will be expected to know the meaning of these terms and to give examples of them.

1.3 Explain requirements analysis.

Indicative content	Guidance
a. Prototyping b. Fact finding methods c. Security, integrity and control	Candidates will be expected to be able to explain the different ways of analysing user needs. At this level, candidates are only expected to show an understanding of these methods, not to demonstrate them themselves.

1.4 Describe database design issues.

Indicative content	Guidance
a. Entity modelling, normalisation, logical/physical mapping b. Database architectures and types of database management systems c. Functions of database management systems and database administration	Candidates will be expected to produce entity models from case studies and perform normalisation. They will also need to understand database management functions and the role of a database administrator.

1.5 Demonstrate understanding of multimedia and hypermedia.

Indicative content	Guidance
a. HCI b. Any form of media c. Speech recognition	Candidates should be able to understand various alternative forms of input and output.

2. Systems analysis and design

Learners will be able to:

2.1 Explain the systems development life-cycle.

Indicative content	Guidance
a. Implications for software design b. Coding c. Testing d. Implementation e. Security and support	Candidates should be able to explain all aspects of the software development life cycle. At this level, candidates will not be expected to code, test, or practically apply this knowledge.

2.2 Describe prototyping and system development tools.

Indicative content

a. Rapid application development and prototyping techniques

Guidance

Candidates will need to demonstrate knowledge of prototyping and the various tools to help the process.

2.3 Explain structured systems analysis and design.

Indicative content

a. Hard and soft system methodologies
b. Object-oriented modelling

Guidance

Candidates should be able to demonstrate knowledge of different methodologies.

2.4 Analyse human computer interaction design.

Indicative content

a. Making systems fit for purpose
b. Accessibility

Guidance

Candidates may be asked to apply their knowledge of HCI practically and/or to analyse alternatives.

3. Introduction to operating systems and system software

Learners will be able to:

3.1 Explain the flow of information in an organisation.

Indicative content

a. Basic idea of management functions and structure of business and other organisations
b. General theory - triangle of strategic information

Guidance

Candidates should be able to demonstrate knowledge of the three levels (strategic, tactical and operational information).

3.2 Describe personnel and social considerations.

Indicative content

a. Considering new systems
b. Management of computer systems
c. Staffing
d. Maintenance
e. Project management and scheduling

Guidance

Candidates should be able to describe and demonstrate personnel and social considerations.

3.3 Describe quality assurance aspects.

Indicative content

a. Quality assurance methods
b. Stakeholders' involvement in quality assurance
c. Impact of using quality assurance methods

Guidance

Candidates should be able to describe a range of quality assurance methods, their impact and use.

3.4 Explain the advances in technology and impact of emerging trends in IS.

Indicative content

a. Online technologies
b. Software development
c. Automation

Guidance

Candidates will be expected to keep abreast of technologies and trends, and to give details about their impact on various aspects of society.

Examination Format

This module is assessed through completion of an invigilated written exam.

Type	Two questions from Section A and five questions from Section B
Duration	Two hours
Supervised	Yes
Open Book	No (no materials can be taken into the examination room)
Passmark	10/25 (40%)
Delivery	Paper 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.

Question Weighting

Section A and Section B each carry equal marks. Candidates are advised to spend about one hour on Section A (30 minutes per question) and one hour on Section B (12 minutes per question).

Recommended Reading

Primary texts

Title:	Database Systems: A Practical Approach to Design, Implementation and Management
Author:	T. Connolly and C. Begg
Publiser:	Pearson
Publisher Date:	2015
ISBN:	978-0132943307

Title:	Modern Systems Analysis and Design
Author:	J. Valacich and J. F. George
Publiser:	Pearson
Publisher Date:	2017
ISBN:	978-1292154145

Additional texts

Title:	Introduction to Information Systems
Author:	P. Wallace
Publiser:	Pearson
Publisher Date:	2015
ISBN:	978-1292071107

Title:	Global Business Information Technology
Author:	G. Elliot and S. Starkings
Publiser:	Pearson
Publisher Date:	2000
ISBN:	978-0321270122

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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.

Version Number	Changes Made
Version 1.0 July 2021	Document Creation

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