

# **BCS Higher Education Qualifications**

## **Level 4 Certificate in IT**

### **Information Systems Syllabus**

Version 3.0

December 2016

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

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## 1. 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 the changes made. The purpose is to identify quickly what changes have been made.

Version Number	Date	Changes Made
Version 1.0	May 2014	Released
Version 2.0	February 2016	Re-formatted with syllabus numbering and insertion of reading list – minor changes to content
Version 3.0	Dec 2016	Regulated statement added.

## 2. Rationale

This module covers the following topics: systems analysis and design, database systems, data analysis and management, systems and organisations.

## 3. Aims

- To develop an awareness of the nature and use of information and information systems in an organisational context
- To introduce the various techniques used within systems analysis and design
- To foster an appreciation of the different types of methodologies used in the system development process
- To provide an introduction to database management systems

## 4. Objectives

Upon successful completion of this module, candidates will be able to demonstrate their competence in, and their ability 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

## 5. Prior Knowledge Expected

There are no specific entrance requirements for the Certificate in IT, however 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.

## 6. Format and Duration of the Examination

The examination is a two hour closed book examination (no materials can be taken into the examination room) based on the syllabus in this document.

Examinations are held twice a year and are undertaken in normal examination conditions with one or more duly appointed invigilators.

The pass mark is 40%.

## 7. Syllabus Detail

Category	Ref	Content
1 DATA MANAGEMENT	1.1	The nature of information; its acquisition, presentation, storage and management - Characteristics of data; data capture and collection Data processing and data modelling
	1.2	Simple statistical measures; mean, mode, median, standard deviation Tabular representation of data; histograms, interpolation
	1.3	Requirements analysis and prototyping Fact finding methods Security, integrity and control
	1.4	Database design issues; entity modelling, normalisation, logical/physical mapping Database architectures and types of database management systems Functions of database management systems and database administration
	1.5	Introduction to multimedia and hypermedia
2 SYSTEMS ANALYSIS AND DESIGN	2.1	The systems development life-cycle and its implications for software design, coding, testing, implementation, security and support
	2.2	Prototyping and systems development tools Rapid application development and prototyping techniques
	2.3	Structured systems analysis and design techniques Hard and soft system methodologies Object-oriented modelling
	2.4	Human computer interface (HCI) design aspects
3 ORGANISATIONS	3.1	The flow of information in an organisation - Basic idea of management functions and structure of business and other organisations
	3.2	Personnel and social considerations in the consideration of new systems - Management of computer systems, staffing, maintenance, project management and scheduling
	3.3	Quality assurance aspects and methods
	3.4	Impact of cloud computing and emerging trends in information systems

## 8. Recommended Reading List

Module Name	ISBN 10	ISBN 13
<b>Primary Texts</b>		
• Britton & Doake, Software Systems Development — A Gentle Introduction, McGraw-Hill (4 <sup>th</sup> Ed) 2005	0077111036	978-0077111038
• Date, C. J., An Introduction to Database Systems, Addison-Wesley (8th Ed), 2003	0321189566	978-0321189561
• Kendall, K & Kendall, J. E., Systems Analysis & Design, Prentice-Hall (9 <sup>th</sup> Ed), 2013	0273787101	978-0273787105
<b>Other Texts</b>		
• Graham, I., Object-oriented Methods, Addison-Wesley (3rd Ed), 2000	020161913X	978-0201619133
• Nickerson, R. C., Business and Information Systems, AddisonWesley (2nd Ed) 2000	0130901229	978-0130901224
• Geoffrey Elliot & Susan Starkings, Global Business Information Technology, Pearson, 200	0321270126	978-0321270122
<b>Other Reading</b>		
The computer trade press and the computing/IT supplements of newspapers will help to give candidates both an understanding of the scope of the discipline and introduce new developments in the field.		

## 9. Contact Points

### Email:

Customer Service team via [www.bcs.org/contact](http://www.bcs.org/contact)

### Phone:

UK: 01793 417424 or 0845 300 4417 (lo-call rate)

Overseas: +44 (0)1793 417424

Lines are open Monday to Friday, 08.15 a.m. to 5.45 p.m. UK time.

### Website:

[www.bcs.org/heq](http://www.bcs.org/heq)

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