



# **BCS Higher Education Qualifications**

## **Level 6 Network Information Systems**

Version 4.0

December 2016

This qualification is regulated by one or more of the following: Ofqual, Qualifications Wales, CCEA Regulation or SQA.

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## 1. Change History

Version Number	Date	Changes Made
Version 1.0	March 2014	Released
Version 2.0	March 2016	Re-formatted with syllabus numbering – no change to content
Version 3.0	Dec 2016	Minor updates, including reading list
Version 4.0	Dec 2016	Regulation Statement Added

## 2. Rationale

Network information systems have in many ways become the public face of the profession. In most developed and developing cultures, the NIS use is almost ubiquitous, for functions as diverse as medical treatment scheduling and road traffic management.

## 3. Aims

To gain an understanding of how to propose, develop, manage and review all aspects of Network Information/systems – in terms of both strategic and operational requirements

## 4. Objectives

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

- Assist in planning the development of a new networked information system in a technical environment with which they are familiar
- Advise, within the limits of their knowledge and experience, on the suitability of information systems and network architectures for specific environments and applications
- Give appropriate advice regarding HCI issues in relation to network information systems, with reference to other appropriate professional specialisms
- Provide examples of both good and bad practice in networked information systems development – and justify their views by detailed analysis
- Demonstrate knowledge of legal and moral issues relating to networked information systems. This should include the needs of security, integrity, availability, subject privacy, licensing, copyright and access management

## 5. Prior Knowledge Expected

### Professional Graduate Diploma in IT

The learner must have achieved the Diploma in IT or have an appropriate exemption to be entered for the Professional Graduate Diploma in IT.

Candidates are expected to be familiar with the material covered in the Certificate syllabuses and at least one of the Computer Networks, Systems Analysis or Systems Design syllabuses. In addition, it would be useful if candidates understood the historical developments of the Internet.

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

### Professional Graduate Diploma in IT

The examination is a three-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 ADVANTAGES AND DISADVANTAGES OF DISTRIBUTED PROCESSING SYSTEMS	1.1	Distributed processing systems
	1.2	Distributed applications and distributed data
	1.3	Client/server architecture
2 SECURITY, DATA INTEGRITY AND AVAILABILITY OF NIS	2.1	Backup
	2.2	User access
	2.3	Control
	2.4	Encryption
	2.5	Security certificates
	2.6	Digital signatures
	2.7	Electronic payment systems
	2.8	ISO 27001
3 OPERATIONAL NETWORK/NIS MANAGEMENT ISSUES	3.1	Traffic modelling and congestion control
	3.2	Examples of tools/protocols for network management
	3.3	Response and other performance issues
4 HUMAN COMPUTER INTERACTION	4.1	Requirements for good and bad interface design
	4.2	Human factors.
5 LOCAL AND WIDE AREA NETWORKS	5.1	Compare and contrast the strategic and operational issues
	5.2	An awareness of intellectual property
	5.3	Copyright and licensing issues, including the needs of Intranet and Internet NIS development.
6 LOCAL AREA NETWORKS	6.1	Compare currently available architectures
	6.2	Performance issues
	6.3	Scalability
	6.4	Bridging vs routing
	6.5	Cabling infrastructure
	6.6	Hubs
	6.7	Traffic management.
7 WIDE AREA NETWORKS	7.1	Compare different WAN structures - packet switching -circuit switching
	7.2	Development of ISO-OSI Layer 2 WAN technology
8 MESSAGING AND INFORMATION SERVICES	8.1	Electronic mail
	8.2	Web Services
	8.3	SOAP, WSDL and UDDI
	8.4	Web site development and management

## 8. Recommended Reading List

Module Name	ISBN 10	ISBN 13
<b>Primary Texts</b>		
The range of titles available in this field is very wide, and it is important to note that the books listed here are only examples. These titles have been chosen because they: cover one or more areas of the syllabus		
Behrouz A. Forouzan Data communications and networking, McGraw-Hill Education (5 <sup>th</sup> Ed), 2012	0073376221	978-0073376226
Stallings W. & Case T., Business Data Communications - Infrastructure, Networking and Security, Prentice Hall (7th Ed), 2012.	0133023893	978-0133023893
<b>Other Reading</b>		
Secure Computing, ISSN: 13524097. Available on-line at <a href="http://www.scmagazine.com">www.scmagazine.com</a>		

## 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)

### Post:

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Swindon SN2 1FA, United Kingdom