National Unit Specification: general information

UNIT Using Information (Higher)

NUMBER DM4C 12

COURSE Information Systems (Higher)

SUMMARY

This Unit is designed to develop knowledge and understanding of the principles, features and purposes of information and the systems used to retrieve, create and manipulate information. It also develops knowledge and understanding of the wide-ranging implications of the growing use of ICT within society. It provides an opportunity to develop practical skills in the use of contemporary information handling. Candidates may then apply this knowledge and these skills to solve practical problems. It is designed for candidates undertaking the Higher Information Systems Course, but it is also suitable for anyone wishing to develop an understanding of the use of information systems in a variety of contexts.

OUTCOMES

1. Demonstrate knowledge and understanding of the principles, features and purposes of information, organisational information systems, information management software, and the social, legal, ethical and economic implications of information systems.

2. Demonstrate practical skills in the use of contemporary hardware and software in the context of creating, storing, processing, retrieving and presenting information.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates would normally be expected to have attained one of the following or equivalent:

- Intermediate 2 Using Information Unit
- Intermediate 2 Information Systems
- Intermediate 2 Computing
- Standard Grade Computing Studies at Credit level

Administrative Information

Superclass: CY

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CREDIT VALUE

1 credit at Higher (6 SCQF credit points at SCQF level 6*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

This Unit gives automatic certification of the following:

Core Skill components for the Unit	Critical Thinking	H
	Planning and Organising	H

National Unit Specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME 1

Demonstrate knowledge and understanding of the principles, features and purposes of information, organisational information systems, information management software, and the social, legal, ethical and economic implications of information systems.

Performance Criteria

a) A range of terminology is used appropriately.
b) Technically accurate descriptions and explanations are related to practical and familiar contexts.
c) Conclusions, predictions and generalisations are made from knowledge and understanding.

Evidence Requirements

Written or oral evidence that the candidate can describe and explain the principles, features and purposes of information, decision making, applications and systems accurately and concisely. Evidence should be obtained using questions in a closed book test, under supervision, lasting no more than 45 minutes. The test must sample the content (see Information Systems (Higher) Course Content) in each of the following areas:

- data and information
- organisational information systems
- information management software
- implications of information and communications technology

(The content statements are also reproduced for convenience as a table in the support notes for this Unit)

The standard to be applied is illustrated in the National Assessment Bank items available for this Unit. If a centre wishes to design its own assessments for this Unit, they should be of a comparable standard.

OUTCOME 2

Demonstrate practical skills in the use of contemporary hardware and software in the context of creating, storing, processing, retrieving and presenting information.

Performance Criteria

a) An appropriate range of features of hardware are used effectively and efficiently.
b) An appropriate range of features of software are selected and used effectively and efficiently.
c) Practical tasks are planned and organised with minimal guidance.
d) Practical tasks are undertaken in an appropriate range of familiar contexts.

National Unit Specification: statement of standards (cont)

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Evidence Requirements

Observation checklist showing that the candidate has carried out practical activities in the following contexts:

- presenting information for print media using word processing **or** desktop publishing software
- presenting information for online media using presentation **or** web authoring software
- handling information using spreadsheet software

Hard copy evidence should be provided for one of these activities.

These practical skills may all be demonstrated in a single extended task, or in a number of smaller tasks.

The practical skills should be demonstrated in the context defined in the content statements (see Information Systems (Higher) Course Content).

The candidate will be allowed access to books, notes and online help while completing the task(s).

(The content statements are also reproduced for convenience as a table in the support notes for this Unit).

The standard to be applied is illustrated in the National Assessment Bank items available for this Unit. If a centre wishes to design its own assessments for this Unit, they should be of a comparable standard.

National Unit Specification: support notes

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This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

The content for this Unit is detailed below (and also in the National Course Specifications: Course details.)

Content statements in the left-hand column describe the content covered in the corresponding Unit at Intermediate 2 level, and are included here to clarify the context for the new learning for this Unit. They indicate the prior learning required by the candidate before undertaking new learning within this Unit.

Content statements in the right-hand column define the content for this Unit.

Content Statements: Data and Information	
Intermediate 2	Higher
Definitions and exemplification of the following terms in the context of an information system: ♦ *data* ♦ *information*	Explanations and descriptions of the following terms in the context of an information system, and the relationships between them: ♦ data (raw facts and figures) ♦ information (processed data with structure, organisation, context or meaning) ♦ knowledge (derived from information)
	Describing and exemplification of metadata (data describing data).
	Categorisation of information in terms of its: ♦ source (primary, secondary, internal, external) ♦ nature (formal, informal, quantitative, qualitative) ♦ level (strategic, tactical, operational) ♦ time (historic, present, future) ♦ frequency (continuous, hourly, daily, monthly, annually) ♦ use (planning, control, decision making) ♦ form (written, aural, visual) ♦ type (detailed, sampled, aggregated)

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	Identification and description of the characteristics which affect the quality of information, in terms of its: ♦ relevance (or appropriateness) ♦ accuracy ♦ completeness ♦ reliability (or objectivity) ♦ timing ♦ level of detail (or conciseness) ♦ presentation ♦ availability Understanding of the relationship between the characteristics of information and its value, and of the distinction between its cost and value.

Content Statements: Organisational Information Systems	
Intermediate 2	Higher
Explanation of the following concepts in relation to organisational information systems: ♦ *speed* ♦ *accuracy* ♦ *efficiency* ♦ *volume*	Definition, description and exemplification of data processing (DP) systems. Definition, description and exemplification of Management Information Systems (MIS) ♦ Decision Support Systems (DSS) ♦ Executive Information Systems (EIS) Definition, description and exemplification of Expert Systems.
Description and exemplification of the functions of organisational information system: ♦ *gathering information* ♦ *storing information* ♦ *processing information* ♦ *outputting information*	Identification of organisational information system management strategies: ♦ network strategy ♦ security strategy ♦ backup strategy ♦ upgrade strategy ♦ software strategy
Explanation of the need for organisational information system management strategies: ♦ *network strategy* ♦ *security strategy* ♦ *backup strategy* ♦ *upgrade strategy* ♦ *software strategy*	Description, exemplification and application of network strategy: ♦ identification and description of network topologies, including LANs, WANs, distributed networks ♦ identification and description of hardware, client/server, network adapter, structured cabling ♦ identification and description of software, including network operating system, network accounts ♦ description of audit and monitoring procedures and software

	Description, exemplification and application of security strategy: ♦ distinction between security, integrity and privacy of data ♦ description of the security risks to information systems, including viruses, hacking, denial of service ♦ description and exemplification of policies and procedures for implementing data security, including codes of conduct, password guidelines ♦ description and exemplification of methods of implementing data security, including virus protection, firewalls, encryption ♦ description and exemplification of access rights on a network system
	Description, exemplification and application of backup strategy: ♦ identification and description of archive, recovery and storage methods ♦ description of a rotation method for regular back-up, in terms of frequency and version control
	Description, exemplification and application of upgrade strategy: ♦ understanding of the need for 'future proofing', and of difficulties regarding hardware and software compatibility ♦ understanding the requirements to maintain legacy systems, and of methods of doing so, including emulation
	Description, exemplification and application of software strategy: ♦ identification and description of criteria for evaluation of software, in terms of functionality, performance, usability, compatibility, data migration, reliability, resource requirements, portability, and support ♦ description of the methods of providing training in using information systems software, including on-the-job training, in-house and external Courses ♦ identification and description of the means of obtaining user support, including manuals, online help/tutorials, help desk, newsgroups, and FAQs ♦ identification and description of the issues affecting decisions to upgrade software

National Unit Specification: support notes (cont)

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Description of the impact and advantages of a centralised database within an organisation.	Description of distributed databases; data warehouses and data mining within an organisation.

Content Statements: Information Management Software	
Intermediate 2	Higher
Description and exemplification of personal and organisational uses of the following types of applications software: ♦ *word processing* ♦ *spreadsheet* ♦ *database* ♦ *graphic design* ♦ *browsers* ♦ *e-mail clients* ♦ *chat clients* ♦ *DTP* ♦ *presentation* ♦ *financial* ♦ *reference* ♦ *web authoring*	Identification, description and application of the following classes of software: ♦ word processing/desktop publishing (presenting information for print media) ♦ presentation/web authoring (presenting information for online media) ♦ spreadsheet (data handling) ♦ project management ♦ personal information management
Description of standard word processing software in terms of data objects, operations and formatting functions	Description and exemplification of the main features of word processing/desktop publishing software, including: ♦ multi-page layout, including use of columns, header and footer, pagination ♦ contents/index ♦ incorporation of graphics with text wrapping ♦ use of stylesheets to implement a 'house style', including selection of fonts (serif/sans-serif), use of colour, formatting of text (font, size, style, alignment)
	Description and exemplification of the main features of presentation/Web authoring software, including: ♦ structuring of pages/slides ♦ incorporation of graphics and animation ♦ consideration of presentational style including selection of fonts and use of colour ♦ navigation including hyperlinks, home links and page transitions ♦ use of templates/masters to implement 'house style'

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Description of standard spreadsheet software in terms of data objects, operations and formatting functions.	Description and exemplification of the main features of spreadsheet software, including: ♦ goal seeking/forecasting ♦ lookup tables ♦ advanced functions (nested if, count) ♦ use of macros
	Description and exemplification of the main features of project management software, including: ♦ timelining ♦ resource allocation ♦ Gantt (and other) charts ♦ optimisation and critical path analysis
	Description and exemplification of the main features of personal information management software, including: ♦ communication ♦ contacts ♦ calendar ♦ task lists
Evaluation of software in terms of: ♦ *range of data objects* ♦ *range of operations* ♦ *formatting functions* ♦ *HCI (including use of keyboard commands, menus and toolbars/icons)* ♦ *online help and online tutorials*	

Content Statements: Implications of ICT	
Intermediate 2	Higher
Description and exemplification of the social implications of ICT in terms of: ♦ *ease of access and availability of IS* ♦ *information rich/poor and the impact of IS on social structures.* ♦ *educational qualifications and the need for citizens to be ICT aware.* ♦ *the range of jobs in industries that employ knowledge worker.* ♦ *online retail and changing shopping habits*	Description and exemplification of the social implications of ICT in the following contexts: ♦ globalisation and the impact of IS on business and societies ♦ the impact on business organisations of an IS driven business model ♦ e-commerce and the changing relationship between businesses and customers brought about by the internet ♦ the development of individuals' identities and persona when communicating on the internet ♦ the right to private communications across the Internet

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Description and exemplification of the legal implications of information systems in term of: ♦ *Data Protection Act (1998): data protection principles; rights of data subject; responsibilities of data controller; role of the Information Commissioner* ♦ *Computer Misuse Act (1990): offences* ♦ *Copyright, Designs & Patents Act (1988): works covered; copyright ownership; use of copyrighted material* ♦ *Health & Safety regulations: seating, lighting, RSI, eye strain and radiation*	Identification, description, application and implications of current legislation applying to information systems, including: ♦ Data Protection Act (1998): inadequacies of the 1984 Act; changes from the 1984 Act, including coverage of data in electronic transmission; requirement for prior consent of data subject; harmonisation of EU Data Protection legislation; export of data; paper based records ♦ Copyright, Designs and Patents Act (1988): application of copyright to computer software, computer databases, web content, and digital media; software piracy ♦ Regulation of Investigatory Powers Act (2000) (including Lawful Business Practice Regulations) ♦ Freedom of Information (Scotland) Act (2002) ♦ Health & Safety regulations: employers' responsibilities
Description and exemplification of the economic implications of ICT in terms of: ♦ *the type of jobs and associated costs within various modern organisations* ♦ *the effect of new ICT on business and individuals productivity and profitability*	Description and exemplification of the economic implications of ICT in terms of: ♦ the impact on business organisations in relation to competitive advantage ♦ business costs including initial/running and investment cost
Description and exemplification of the ethical implications of in terms of: ♦ *netiquette in both personal and business contexts* ♦ *information intellectual property rights*	Description and exemplification of the ethical implications of in terms of: ♦ censorship and freedom of speech ♦ privacy and encryption ♦ global citizenship