National Unit Specification: general information

UNIT Computers and the Internet (Intermediate 1)

NUMBER DF37 10

COURSE Computing Studies (Intermediate 1)

SUMMARY

This Unit is designed to develop knowledge and understanding of the components of computer systems and the main uses of operating systems. It will develop knowledge and understanding of the software development process and develop practical skills in the use of the Internet as a source of information and the production of a small website. This knowledge and understanding, and the practical skills will then be applied by the candidate to solve practical problems related to computing and the Internet. It is designed for candidates undertaking the Intermediate 1 computing studies Course, particularly those considering continuing to Intermediate 2 Computing, but also suitable for anyone interested in using the World Wide Web as a source of information about computer systems.

OUTCOMES

1. Demonstrate knowledge and understanding of a range of simple facts and terminology related to the hardware and software components of computer systems, and the software development process.

2. Demonstrate practical skills in the context of the World Wide Web and web page authoring using contemporary hardware and software.

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:

♦ Access 3 Internet Applications Unit

♦ Access 3 Computing Cluster

♦ Standard Grade Computing Studies at Foundation level

Administrative Information

Additional copies of this unit specification can be purchased from the Scottish Qualifications Authority. The cost for each unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

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CREDIT VALUE
1 credit at Intermediate 1 (6 SCQF credit points at SCQF level 4*).

* 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
There is no automatic certification of Core Skills or Core Skill components in this Unit.

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 a range of simple facts and terminology related to the hardware and software components of computer systems, and the software development process.

Performance Criteria
a)   Terminology is used appropriately.
b)   Simple descriptions of the purpose of computer systems hardware and software are correct.
c)   Descriptions of the stages involved in the software development process are correct.

Evidence Requirements
Written or oral evidence that the candidate can describe and explain the principles, features and purposes of computers systems and the Internet. Evidence should be obtained using questions in a closed book test, under supervision, lasting no more than 45 minutes. The test must sample content (see Computing Studies (Intermediate 1) Course content) in each of the following areas:
♦   computer hardware
♦   computer software
♦   the Internet
♦   software development process

The content statements are 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: statement of standards (cont)

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OUTCOME 2
Demonstrate practical skills in the context of the World Wide Web and web page authoring using contemporary hardware and software.

Performance Criteria
(a)   Basic features of hardware are used with guidance.
(b)   Basic features of software are selected and used with guidance.
(c)   Practical tasks in familiar contexts are carried out with guidance.

Evidence Requirements
Observation checklist showing that the candidate has demonstrated practical skills at the appropriate level in the following contexts:

♦   using basic features of the operating system
♦   capturing information using input devices
♦   searching the WWW for specified information
♦   using web authoring software to create linked web pages

Hard copy evidence is required of the web pages produced using web authoring software.

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

The practical skills should be demonstrated in the context and at a level defined by the content Statements (see Computing Studies Intermediate 1 Course content).

The candidate will be allowed access to books, notes and on-line 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.

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 Statement: Computer Hardware
Identification of the main features of: ♦ desktop as monitor, mouse, keyboard   ♦ laptop, including portability, computer integrated LCD screen, pointing device and battery operated   ♦ palmtop as very small, hand held, often with touch screen input, limited memory and processing power and battery operated   ♦ network (linked computers)   ♦ server (computer which controls the running of a network)
Identification and explanation of the purpose of hardware devices: ♦ input devices: mouse, keyboard, scanner, digital camera, microphone, digital video camera   ♦ output devices: printer (laser and inkjet), monitor (including CRT and flat screen (TFT)), speakers   ♦ backing storage: CD drives (CD-ROM, CD-R, CD-RW), hard disk drive, floppy disk drive   ♦ CPU: processor, RAM, ROM   ♦ other devices: modem, network card, sound card, graphics card

Demonstration of the following practical skills in the use of the following devices to input information:
      ♦ mouse
      ♦ keyboard
      ♦ scanner
      ♦ digital camera
      ♦ microphone
      ♦ digital video camera

Specification of computer system to meet a users needs in terms of:
      ♦ cost
      ♦ hard disk size
      ♦ RAM
      ♦ processor speed
      ♦ peripheral devices
      ♦ backing storage devices

National Unit Specification: support notes (cont)

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Content Statement: Computer Software
Simple description of the features and purposes of the following types of software: ♦ program file   ♦ data file   ♦ systems software   ♦ applications packages (including word processing, database, spreadsheet, graphics)
Selection of application software that will run on a given computer specification by checking compatibility of: ♦ operating system   ♦ hard disk capacity   ♦ RAM   ♦ processor speed
Description and use of the operating system to: ♦ create folders   ♦ organise saved work in folders   ♦ rename files   ♦ move/delete files
Content Statement: The Internet
Identification of the requirements relating to WWW (Internet) access):   ♦ computer system — processor, RAM   ♦ modem (speed of access of link, dial-up or broadband)   ♦ access to telephone line, cable, satellite   ♦ Internet service provider (ISP) costs   ♦ communications software — browser, e-mail software   Identification of costs relating to WWW (Internet) access: ♦ setup or initial costs including cost of hardware, software, installation and training   ♦ running costs including ISP subscription, call charges, maintenance, helplines, updating hardware and software
Identification of the security issues with using the Internet: ♦ user IDs and passwords   ♦ filtering   ♦ secure sites for e-commerce
Content Statement: Software Development Process
Identification of each stage, and description of its purpose in the context of web authoring: ♦ analysis: clarifying what is required   ♦ design: identifying the layout and elements   ♦ implementation: creating the pages   ♦ testing: checking the pages and links look and behave correctly   ♦ documentation: user and technical guide   ♦ evaluation: does it fulfill the specification; could it be improved
Creation of: ♦ a website with separate web pages   ♦ links from a home page to other pages   ♦ pages containing text and graphics

National Unit Specification: support notes (cont)

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GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Candidates will require individual access to appropriate computer hardware and software throughout this Unit. While not mandatory candidates would benefit more if using software designed specifically for web page authoring to complete the relevant practical tasks.

Suitable commercially available applications include Dreamweaver, Front Page (or comparable for PC), PageMill (or comparable for Mac), or free/shareware applications such as CoffeeCup, 1st Page 2000 (PC) or Page Spinner (Mac). By the nature of the subject these recommendations should be under constant review by departments as new software is released or older applications lose their functionality.

The two Outcomes should be delivered in an integrated way. For Outcome 2, the practical activities should be taught and used to illustrate and exemplify the knowledge and understanding required for Outcome 1.

A recommended approach is to use the Internet as a source of information to illustrate the teaching and learning of computer hardware and software. After learning the basics of these two topics, the candidate should research the Internet for hardware and software specifications to meet users' needs.

The use of web authoring could be taught in consecutive lessons, or interspersed between hardware and software lessons.

The software development process can then be taught in the context of developing web pages displaying the computer hardware and software specifications researched earlier.

The amount of time spent on each area of content will vary depending on the teaching methodology used and the ability and prior experience of the candidates. However, the following times are suggested as a rough guide:

computer hardware	10 hours
computer software	5 hours
the Internet	4 hours
web authoring	7 hours
software development process creating a simple website	10 hours

1½ hours should be set aside to
   ♦   administer the Outcome 1 test
   ♦   gather evidence for Outcome 2

A further 2½ hours is allowed for remediation and re-assessment if required.

If the Unit is delivered as part of a Course, the Course documentation will provide further information on teaching and learning in a Course context, including the identification of a number of 'themes' to facilitate holistic learning across the Course

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National Unit Specification: support notes (cont)

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GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

National Assessment Bank tests have been created specifically to assess Outcome 1 of the Unit. This assessment consists of a series of objective tests, and must be conducted under examination conditions. In order to gain success in this Outcome, the candidate must achieve at least the cut-off score for the test. If a centre wishes to design its own assessments for this Unit, they should be of a comparable standard.

Outcome 2 requires the candidate to demonstrate practical skills while using contemporary hardware and software. These practical skills will normally be demonstrated in a number of relatively short tasks. However, they may be demonstrated in a single extended task. The skills will normally be demonstrated by the candidate as part of the teaching and learning activities of the Unit, rather than as separate formal assessment activities.

The candidate will be allowed access to books, notes and online help while completing the tasks. The practical skills should be demonstrated in the context defined in the content statements (see Computing Studies (Intermediate 1) Course Content).

To gain success in this Outcome, the candidate must demonstrate practical skills in the following contexts:
* using basic features of the operating system
* capturing information using input devices
* searching the WWW for specified information
* using web authoring software to create linked web pages.

Hard copy evidence is required of the web pages produced using web authoring software

A pro-forma observation checklist for Outcome 2 is provided in the National Assessment Bank materials.

All evidence must be retained by the centre. The assessment of this Unit is subject to moderation by SQA.

SPECIAL NEEDS
This Unit Specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Unit. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, September, 2003).