

**COMPUTING STUDIES**  
**(Intermediate 1)**

**Second edition – published 2006**

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**COURSE TITLE:** **Computing Studies**

**COURSE NUMBER:** **C207 10**

## **National Course Specification**

**Course Details** No Changes

**National Unit Specification(s):**

*DF33 10 Computer Applications (Intermediate 1)*

Core skills statement amended to reflect core skill information.

## National Course Specification

### COMPUTING STUDIES (Intermediate 1)

**COURSE CODE** C207 10

#### COURSE STRUCTURE

This Course has two mandatory Units and one optional Unit:

##### Mandatory Units:

<i>Unit Code</i>	<i>Unit Title</i>	<i>Credit and Duration</i>
DF33 10	Computer Applications (Intermediate 1)	1 credit (40 hours)
DF34 10	Multimedia Applications (Intermediate 1)	1 credit (40 hours)

##### Optional Units — one selected from:

<i>Unit Code</i>	<i>Unit Title</i>	<i>Credit and Duration</i>
DF37 10	Computers and the Internet (Intermediate 1)	1 credit (40 hours)
DF36 10	Information and the Internet (Intermediate 1)	1 credit (40 hours)

All Courses include 40 hours over and above the 120 hours for the Unit. This may be used for induction, extending the range of learning and teaching approaches, support, consolidation, integration of learning and preparation for external assessment.

#### 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 Computing Studies
- ◆ Standard Grade Computing Studies at Foundation level

#### PROGRESSION

This Course or its Units may provide progression in the following way:

- ◆ progression to Intermediate 2 Computing
- ◆ progression to Intermediate 2 Information Systems

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#### Administrative Information

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## **National Course Specification: (cont)**

### **COMPUTING STUDIES (Intermediate 1)**

#### **CORE SKILLS**

Achievement of this Course gives automatic certification of the following.

**Complete Core Skills for the Course:** Information Technology Intermediate 1

**Core Skill component(s)**                      None

#### **CREDIT VALUE**

The Intermediate 1 Computing Studies Course is allocated 24 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.*

## National Course Specification: Course details

### COMPUTING STUDIES (Intermediate 1)

#### RATIONALE

In recent years, computing has played an increasingly important role in society. The influence of computer and information systems has been pervasive, affecting work, home and leisure activities. As a result, it is increasingly important that all members of our society should have an understanding of the basics of this subject area.

Computing Studies Intermediate 1 provides an overview of the subject area within a broad-based Course that reflects the wide ranging nature of the subject. It provides an opportunity for candidates to acquire knowledge and skills in the use of contemporary hardware and software, and an awareness of the implications of the use of computer related technology. The Course has been designed to facilitate progression to both Information Systems and Computing Courses at Intermediate 2 level and beyond.

The importance of both knowledge and understanding, and related practical skills are reflected in the two Outcomes of each Unit. The ability to combine knowledge and understanding and practical skills to solve problems is a key theme of the Course.

#### AIMS

The aims of the Course are to develop:

- ◆ knowledge and understanding of information technology concepts
- ◆ practical skills in the use of computer hardware and software
- ◆ ability to solve problems by applying knowledge, understanding and practical skills
- ◆ awareness of the professional, social, ethical and legal implications of IT
- ◆ ability to communicate IT concepts clearly and concisely using appropriate terminology
- ◆ interest, confidence and enjoyment in the use of computer hardware and software

Related to these aims, and underlying the study of Computing Studies are a number of **unifying themes** which are developed and exemplified throughout the Units of the Course. These themes are:

- ◆ technological development and progress
- ◆ social, professional, ethical and legal implications
- ◆ the relationship between software and hardware
- ◆ computing terminology
- ◆ problem solving skills
- ◆ the development process as it applies to software and hardware systems

The Course is designed to build on prior learning at Access level 3 and Standard Grade Foundation level (or their equivalents) and to provide progression to both Information Systems and Computing at Intermediate 2 level.

## National Course Specification: Course details (cont)

### COMPUTING STUDIES (Intermediate 1)

#### COURSE CONTENT

The Course is made up of two mandatory Units, *Computer Applications* and *Multimedia Applications*, and a choice of one from two optional Units.

The purpose of the two mandatory Units is to provide candidates with the opportunity to develop and consolidate basic skills in a number of standard application packages. These include word processing, spreadsheets, simple databases, graphics packages, desktop publishing, presentation software and multimedia applications. While working with these packages, candidates should develop an appropriate level of confidence in using computer terminology correctly, and an awareness of the social, ethical, professional and legal implications of their use.

The choice of two optional Units is to facilitate progression to either further study of information systems or further study of computing. The *Information and the Internet* Unit prepares candidates for further study of database systems and the use and characteristics of information in Information Systems Courses at Intermediate 2 and above. The *Computers and the Internet* Unit prepares candidates for further study of computer systems in Computing Courses at Intermediate 2 and above. In both optional Units, candidates use the Internet as a source of relevant information, and apply the system development process to produce a simple relevant website.

To ensure consistency of terminology, the meanings of the technical terms used throughout this documentation (including the Unit Specifications) were taken from the British Computer Society's publication *A Glossary of Computing Terms*, 10<sup>th</sup> edition, pub. Addison-Wesley, 2002. This glossary of terms will be used as a reference for all internal and external assessments, and its use is encouraged in all teaching and learning activities

The Unit Specifications have been fully developed and provide detailed support notes to assist assessors in their understanding of Outcomes and Performance Criteria. The detailed content for each Unit is provided in the form of a table in the content/context section of each Unit Specification.

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## National Course Specification: Course details (cont)

### COMPUTING STUDIES (Intermediate 1)

#### Content statements

The following pages of content statements describe in detail the knowledge and understanding which a candidate should be able to demonstrate in the external Course assessments, which will sample across these content statements. In order to achieve a Course award, candidates must also demonstrate an appropriate level of problem solving skills (application, analysis, synthesis and evaluation) based on these content statements.

This table defines the terms ‘knowledge and understanding’ and ‘problem solving’ as used in these arrangements in terms of the terminology used in the widely known Bloom’s Taxonomy of Learning:

Arrangements	Bloom’s Classification	Typical skills/words
<i>Knowledge and Understanding</i>	<i>Knowledge</i>	<i>recall of information (list, state, define, label, describe, name, identify)</i>
	<i>Comprehension</i>	<i>interpreting information in own words, grasping meaning (interpret, explain, discuss, predict, summarise, classify)</i>
<i>Problem Solving</i>	<i>Application</i>	<i>application to new situations (apply, demonstrate, show, relate, explain)</i>
	<i>Analysis</i>	<i>Identification of patterns, recognising relationships (analyse, arrange, order, explain, connect, infer, compare, categorise)</i>
	<i>Synthesis</i>	<i>generalise, create new ideas, bring together from different sources, draw conclusions, predict (integrate, modify, design, compose, plan, arrange)</i>
	<i>Evaluation</i>	<i>Make judgements, assess ideas, compare ideas, evaluate data (judge, evaluate, recommend, justify)</i>

## National Course Specification: Course details (cont)

### Intermediate 1 Computing Studies: Computer Applications (mandatory Unit)

The candidate must demonstrate knowledge and understanding, practical skills and problem solving based on the following content statements:

#### All applications

- ◆ Description and demonstration of the following practical skills in an appropriate application package:
  - save as (new name, new location)
  - use of online help/tutorial/online assistance as appropriate (wizard)
  - print efficiently and responsibly
  - use correct page orientation (landscape/portrait)
  - formatting
  - editing
- Selection of correct application as solution to a problem
- Distinguishing between applications packages and other types of software (between word processing, spreadsheets, databases and graphics)
- Identification of the following hardware/software requirements of an individual package from manufacturers documentation, magazine adverts and websites:
  - input devices (mouse, keyboard, graphics tablet, touchpad, scanner, digital camera)
  - output devices (printer, monitor)
  - types of storage required (floppy disk, hard disk, CD-ROM, CD-R, CD-RW, USB Flash drive, DVD devices)
  - amount of storage required (bit, byte, Kb, Mb, Gb, Tb)
  - RAM
  - processor speed
  - operating system

#### Word processing

- ◆ Description and demonstration of the following practical skills in an appropriate application package:
  - edit text (insert, amend, delete)
  - format text (font, size, style, colour), justify text (left, right, full, centre)
  - use bullet points
  - format page (set margin width, tabs, header/footer)
  - add graphics (clip art, photo, other graphics)
  - wrap text to added object
  - cut, copy and paste
  - search and replace (find and change)
  - spell check
- ◆ Identification of advantages/disadvantages of word processing over manual methods
- ◆ Description of advantages and limitations of a spell checker
- ◆ Identification of personal and work-related uses of word processing
- ◆ Description of alternative methods of text entry including: handwriting recognition, optical character recognition (OCR), voice recognition using microphone, touch (sensitive) screen

#### Spreadsheet

- Description and demonstration of the following practical skills in an appropriate application package:
  - use cell address/reference correctly
  - edit data (insert, amend, delete), (numbers, text, formulae)

## National Course Specification: Course details (cont)

### Intermediate 1 Computing Studies: Computer Applications (mandatory Unit)

- copy formulae (fill down, fill right)
- insert/delete row/column
- create basic arithmetic formulas [+ , - , \* , /]
- use SUM, AVERAGE functions
- sort data on 1 column
- format cells (currency, decimal places, change row height, column width)
- create simple chart/graph

- ◆ Identification of advantages/disadvantages of spreadsheets over manual methods
- ◆ Identification of personal and work-related uses of spreadsheets
- ◆ Identification of changes made to a spreadsheet resulting from electronic recalculation

#### Database

- Description and use of the following skills in an appropriate application package:
  - design database, choose suitable field names
  - field types including text, number, date, time, graphics and calculated
  - create new database
  - edit database (insert, amend, delete record and field)
  - sort on single or multiple fields
  - search on single or multiple fields
- ◆ Identification of advantages/disadvantages of an electronic/manual database
- ◆ Correct use of the following terms: field, record, file
- ◆ Identification of personal and work-related use of a database

#### Graphics

- ◆ Description and use of the following skills in an appropriate drawing (vector) package **and** in a painting (bit mapped) package:
  - use of a range of tools (including the following) to create/manipulate a graphic: rectangle, ellipse, line, freehand, text, library of standard shapes
  - use of a range of painting operations (including the following) to create/manipulate a graphic: select rectangle and irregular block of pixels, change colour of selection, set own colours, change colour of individual pixels, zoom/magnify, change colours on imported image
  - use of a range of operations (including the following) to create/manipulate an image: select multiple objects, flip, rotate, duplicate, group, order objects, zoom/magnify
- ◆ Identification of personal and work-related use of graphics applications
- ◆ Comparison of features and uses of painting and drawing packages

## National Course Specification: Course details (cont)

### Intermediate 1 Computing Studies: Multimedia Applications (mandatory Unit)

The candidate must demonstrate knowledge and understanding, practical skills and problem solving based on the following content statements:

#### Hardware factors

- ◆ Description and uses of hardware devices for inputting/capturing text: keyboard, mouse, scanner (including OCR), voice recognition (including microphone)
- ◆ Description and uses of hardware devices for inputting/capturing graphics: scanner, graphics tablet, digital camera/digital video camera
- ◆ Description and uses of hardware devices for inputting/capturing audio: microphone
- ◆ Description and uses of hardware devices for output: high resolution monitor, speakers, data projector
- ◆ Description of hardware required and method of obtaining text/graphics/audio from the World Wide Web (Internet)
- ◆ Description and uses of hardware devices for backing storage: cost, speed of access, portability, capacity (bits, byte, Kb, Mb, Gb, Tb) of the following backing storage media: hard disc, floppy disk, CD-ROM, CD-R, CD-RW, USB Flash drive, DVD devices
- ◆ Identification of common file types: text (txt, rtf), graphics (jpeg, bmp, gif), video (mpeg, avi), sound (wav, mp3)
- ◆ Simple description of the need for compression
- ◆ Description of need for sound card for capturing and outputting sound
- ◆ Description of need for graphics card for displaying graphics on monitor

#### Features of multimedia software

- ◆ Description and use of the following types of multimedia applications: presentation, desktop publishing, multimedia authoring
- ◆ Description and use of the following skills in each of the above applications.
  - creating a new document
  - using a template
  - inserting text/graphic/photograph
  - page formatting (landscape/portrait/margins/paper size)
  - saving and printing
- ◆ Description of text editing facilities software: font, size, style (italics, underline, bold), colour, tabs, justify text (left, right, full, centre), use bullet points, text effects (flashing, dissolving, fade in/out)
- ◆ Description of graphic editing facilities of software: scale (resize), crop, rotate, colour
- ◆ Description and use of the following features in presentation and multimedia authoring software:
  - page linking, including transitions and hyperlinks
  - inserting sound/video

## National Course Specification: Course details (cont)

### Intermediate 1 Computing Studies: Information and the Internet (optional Unit)

The candidate must demonstrate knowledge and understanding, practical skills and problem solving based on the following content statements:

#### Database terms

- ◆ Description and demonstration of the following practical skills in an appropriate application package:
  - create a new database (design), edit records, add new fields
  - search on single/multiple fields
  - sort on single/multiple fields
  - output of record — table to form (card format to list format)
- ◆ Correct identification of the following terminology: field, record, file, field types (numeric, text, date/time, graphic, calculated), field sizes, search, sort

#### Information systems

- ◆ Description of the difference between public and information systems
- ◆ Identification of examples of each:
  - private including DVLC, police, government
  - public including library, newspapers, telephone directories, Yellow Pages
- ◆ Description of the difference between manual and electronic information systems
- ◆ Identification of examples of each:
  - manual (including newspapers, telephone directories, Yellow Pages, address books)
  - electronic (including newspapers, telephone directories, Yellow Pages, address books)
- ◆ Description of advantages/disadvantages of manual/electronic information systems
- ◆ Description of the differences between data and information
- ◆ Identification of examples which breach the following legislation:
  - Data Protection Act (1998)
  - Copyright, Designs and Patent Act (1988)
  - Computer Misuse Act (1990)
- ◆ Description of the Internet as a large network of computer networks
- ◆ Description of the World Wide Web (WWW) as interlinked pages of information on the Internet
- ◆ Identification of the benefits of networking of computers in information systems

#### The Internet

- ◆ Identification of 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
- ◆ 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
  - communications software— browser, e-mail software
- ◆ Identification of the security issues with using the Internet
  - user IDs and passwords
  - filtering
  - secure sites for e-commerce

## **National Course Specification: Course details (cont)**

### **Intermediate 1 Computing Studies: Information and the Internet (optional Unit)**

#### **Information sources**

- ◆ Demonstration of information retrieval from CD-ROM and WWW (Internet) sites as information in the following contexts: shopping, advertising, sport, leisure, education, news

#### **Software development process**

- ◆ Identification of each stage of the software development process 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 fulfil 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 Course Specification: Course details (cont)

### Intermediate 1 Computing Studies: Computers and the Internet (optional Unit)

The candidate must demonstrate knowledge and understanding, practical skills and problem solving based on the following content statements:

#### Computer hardware

- ◆ Identification of the main features of:
  - desktop including monitor, mouse, keyboard.
  - laptop, including portability integrated LCD screen and pointing device, battery operated
  - palmtop, including very small, hand held, often with touch screen input, limited memory and processor power, 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), speakers
  - backing Storage: CD Drives (CD-ROM, CD-R, CD-RW), hard disk drive, floppy disk drive, DVD devices, USB flash drives
  - CPU: processor, RAM, ROM
  - other devices: modem, network card, sound card, graphics card
- ◆ Demonstration of practical skills in the use of keyboard, scanner, digital camera, microphone and digital video camera to input information
- ◆ Specification of computer systems to meet a users needs in terms of cost, hard disk capacity, RAM, processor speed, peripheral and backing storage devices

#### Computer software

- ◆ Simple description of the features and purposes of the following types of software: program file, data file, systems software, applications software (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

#### The Internet

- ◆ Identification of 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
- ◆ 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
  - communications Software — browser, e-mail software
- ◆ Identification of the security issues with using the Internet:
  - user IDs and passwords
  - filtering
  - secure sites for e-commerce

## **National Course Specification: Course details (cont)**

### **Intermediate 1 Computing Studies: Computers and the Internet (optional Unit)**

#### **Software development process**

- ◆ Identification of each stage of the software development process 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 fulfil 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 Course Specification: Course details (cont)**

### **COMPUTING STUDIES (Intermediate 1)**

#### **ASSESSMENT**

To achieve the Course award the candidate must pass the Units as well as the Course assessment. The candidate's grade is based on the Course assessment.

The Course is made up of two mandatory Units and one from a choice of two optional Units.

#### **Unit assessment**

Unit assessment consists of knowledge tests and a practical skills checklist. The knowledge test is a closed book test, under supervision, lasting no more than 45 minutes. The practical skills can be demonstrated through a single extended task or a number of smaller tasks.

Further details about the Unit assessment can be found in each of the Unit Specifications.

#### **DETAILS OF THE INSTRUMENTS FOR COURSE ASSESSMENT**

Course assessment should provide opportunities to demonstrate:

- ◆ retention of knowledge, understanding and skills over a longer period of time
- ◆ integration of knowledge, understanding and skills acquired in Units
- ◆ application of knowledge, understanding and skills in more complex contexts
- ◆ application of knowledge, understanding and skills in less familiar contexts

The Course assessment for Computing Studies at Intermediate 1 level will consist of two components:

- ◆ practical coursework task
- ◆ question paper

The purpose of the question paper is to assess the candidate's competence to integrate and retain knowledge and understanding, and demonstrate higher order cognitive abilities across the contents of all the Units and in varied contexts, and to demonstrate the ability to communicate computing concepts clearly.

The practical coursework task provides candidates with the opportunity to demonstrate and integrate the practical skills, knowledge and understanding from the Units, and apply these in a more complex practical context.

#### **Practical coursework task**

Candidates will undertake a practical coursework task provided by SQA. The task may be undertaken in 'open book' conditions, but under supervision, to ensure that the work presented is the candidate's own work. The task will be marked internally, using a marking scheme provided by SQA, but be subject to moderation. The marking scheme will provide a mark out of 40, which will be submitted directly to SQA.

## **National Course Specification: Course details (cont)**

### **COMPUTING STUDIES (Intermediate 1)**

#### **Question Paper**

The question paper will comprise a single paper of 1 hour duration. The total marks available will be 60. The examination will be set and marked by SQA. The paper will be composed of two sections:

#### **SECTION 1 (40 marks)**

This will consist of objective and short response questions sampling across the content statements for the two mandatory Units. Some questions will require integration of knowledge from the two mandatory Units. There will be no choice of questions within this section.

#### **SECTION 2 (20 marks)**

This will have two sub-sections, one for each of the optional Unit, and will consist of objective and short response questions sampling across the content statements for the optional Units. Some questions will require integration of knowledge from the mandatory Units. There will be no choice of questions within each sub-section.

There will be an equal balance of knowledge and understanding and problem solving in both sections of the examination.

*Note: refer to the table on page 6 of these arrangements for guidance on the meaning of the terms 'knowledge and understanding' and 'problem solving' in this context.*

Further details about assessment for this Course can be found in NAB materials, the Course Assessment Specification, the Specimen Question Paper and the specimen coursework task.

## National Course Specification: Course details (cont)

### COMPUTING STUDIES (Intermediate 1)

#### GRADE DESCRIPTIONS AT A AND C

The candidate's grade will be based on the total score obtained by adding the marks for the practical coursework tasks and the question paper from the Course assessment. The descriptions below indicate the nature of achievement required for the award at grade C and A in the Course.

GRADE C	GRADE A
<b>♦ retention of knowledge, understanding and skills over a longer period of time</b>	
Candidates are able to describe and explain <b>some</b> of the facts and concepts to the standard defined by the Performance Criteria.	Candidates are able to describe and explain <b>most</b> of the facts and concepts to the standard defined by the Performance Criteria.
Candidates are able to demonstrate <b>some</b> practical skills to the standards defined by the Performance Criteria.	Candidates are able to demonstrate <b>most</b> of the practical skills which <b>exceed</b> the standards defined by the Performance Criteria.
<b>♦ integration of knowledge, understanding and skills acquired in component Unit</b>	
Candidates are able to demonstrate their knowledge and understanding in the context of specific Unit.	Candidates are able to demonstrate the <b>integration</b> of knowledge and understanding from more than one Unit.
Candidates are able to demonstrate their practical skills in the context of specific Unit.	Candidates are able to demonstrate the <b>integration</b> of practical skills from more than one Unit.
<b>♦ application of knowledge, understanding and skills in more complex contexts</b>	
Candidates are able to apply knowledge and understanding to solve problems in straightforward contexts relating to a single Unit.	Candidates are able to apply knowledge and understanding to solve problems in <b>more complex contexts relating to more than one Unit.</b>
Candidates are able to apply practical skills to solve problems in straightforward contexts relating to a single Unit.	Candidates are able to apply practical skills to solve problems in <b>more complex contexts relating to more than one Unit.</b>
<b>♦ application of knowledge, understanding and skills in less familiar contexts</b>	
Candidates are able to apply knowledge, understanding and skills to solve problems in familiar contexts.	Candidates are able to apply and <b>transfer</b> knowledge, understanding and skills to solve problems in <b>less familiar contexts.</b>
Candidates are able to carry out defined tasks to the standards defined in the Performance Criteria.	Candidates are able to <b>resolve non-routine problems</b> that arise during practical activity, <b>by independent research.</b>

## **National Course Specification: Course details (cont)**

### **COMPUTING STUDIES (Intermediate 1)**

#### **ESTIMATES AND APPEALS**

##### **Estimates**

In preparing estimates, evidence of performance should be considered across the breadth of coverage of the content of the Course and must take account of performance in both of the Course components, the coursework task and the question paper. Further advice on the preparation of estimates is given in the Course Assessment Specification.

##### **Appeals**

Evidence used to support appeals for the question paper component must come from an integrated test (or tests) adequately reflecting the Course content and Grade Descriptions.

Although a 'prelim' examination is not mandatory, it can provide the opportunity for a candidate to demonstrate problem solving skills, integration across Units, and the application of knowledge in more complex and less familiar contexts as in the external examination. Any prelim should replicate the style, level of demand and mark allocation of the specimen SQA examination.

Centres that submit an integrated test or prelim that only covers the knowledge and understanding of Units 1 and 2 should also submit an additional test covering the knowledge and understanding of Unit 3. Furthermore, this additional test must integrate some knowledge and understanding from Unit 1 and Unit 2.

The coursework task which has been completed and marked internally (with the mark submitted to SQA by the due date) is expected to represent a candidate's best practical work. Additional evidence of problem solving in practical contexts does not require to be submitted for appeals.

While it is acceptable for centres generating their own test materials to draw on past SQA question papers or commercial papers from previous years, such papers **must not** be used in their entirety. Where material from past papers is used, a judicious selection of items and/or appropriate adaptation is required to make this acceptable as evidence to support an appeal. Items from past SQA papers may also be supplemented or replaced by internally devised materials.

Whatever approach is taken to the creation of prelim papers or other assessment items, centres must be certain that the material has not been seen previously by the candidates.

Unit assessments (NABs) are designed to allow candidates to demonstrate the knowledge and understanding and practical skills required to pass the Units. NABs do not provide opportunities for the candidate to demonstrate problem solving skills, integration across Units, and application of knowledge in more complex and less familiar contexts, and therefore do not provide sufficient evidence for appeals.

#### **QUALITY ASSURANCE**

All National Courses are subject to external marking and/or moderation. External markers, visiting examiners and moderators are trained by SQA to apply national standards. SQA is currently seeking to assist centres by preparing exemplification of standards materials in a number of subject areas. This will be rolled out to all subjects in due course.

## **National Course Specification: Course details (cont)**

### **COMPUTING STUDIES (Intermediate 1)**

The Units of all Courses are subject to internal moderation and may also be chosen for external moderation. This is to ensure that national standards are being applied across all subjects.

Courses may be assessed by a variety of methods. Where marking is undertaken by a trained marker in their own time, markers meetings are held to ensure that a consistent standard is applied. The work of all markers is subject to scrutiny by the Principal Assessor and a PA report is published for all subjects.

### **APPROACHES TO LEARNING AND TEACHING**

The aims of the Course are to develop:

- ◆ knowledge and understanding of information technology concepts
- ◆ practical skills in the use of computer hardware and software
- ◆ ability to solve problems by applying knowledge, understanding and practical skills
- ◆ awareness of the professional, social, ethical and legal implications of IT
- ◆ ability to communicate IT concepts clearly and concisely using appropriate terminology
- ◆ interest, confidence and enjoyment in the use of computer hardware and software

There is no prescriptive ‘best way’ to approach the teaching and learning of this Course. However a holistic approach is recommended which relates each of these aims to the facts and concepts being studied. Within each Unit, there is a combination of knowledge and understanding with practical problem solving skills. Assessors are encouraged to provide learning experiences which blend together the acquisition of knowledge and understanding, the development of practical skills and opportunities to apply these to solve problems.

Throughout the Course, reference should be made to professional, social, ethical and legal implications where appropriate, and to ‘real world’ applications. Candidates should be encouraged to develop the use of appropriate terminology to communicate their understanding.

Related to the Course aims, a number of unifying themes have been identified which should be used to bring a coherence to the Course. Most of these themes can be illustrated and exemplified in each of the Units of the Course. These themes include:

- ◆ technological development and progress
- ◆ social, professional, ethical and legal implications
- ◆ the relationship between software and hardware
- ◆ computing terminology
- ◆ problem solving skills
- ◆ the development process as it applies to software and hardware systems

The Course has been designed to articulate with the Access 3 Computing Studies cluster of Units. The content/context grids in the support notes for the mandatory Units in this Course show how the content and contexts at Intermediate 1 extend and deepen the Access 3 Unit content. This should assist assessors who have to work with bi-level classes to design an appropriate Course plan.

## National Course Specification: Course details (cont)

### COMPUTING STUDIES (Intermediate 1)

#### APPROACHES TO LEARNING AND TEACHING (cont)

Candidates will require individual access to appropriate computer hardware and software throughout the Course. More detailed guidance is given within the support notes for each Unit.

Those who are presenting the course are encouraged to make use of the wide range of teaching and learning materials (both paper-based and electronic) which have been developed to support this Course.

The Units of the Course may be taught sequentially or in parallel (or a combination of these). When taught sequentially, the two mandatory Units would normally be taught before the optional Units, as the optional Units relate to and prepare the candidate for further study in the following session. It is also recommended that the *Computer Applications* Unit precedes the *Multimedia Applications* Unit.

The practical Coursework task is designed to allow candidates to demonstrate and integrate practical skills and knowledge they have developed within Units, and so should not be undertaken until at least the two mandatory Units have been covered.

A typical Course plan might, therefore, take the form:

August — October	Computer Applications
October — December	Multimedia Applications
January	practical coursework task
January	preparation for prelim examination(s)
February — March	optional Unit
April	flexible time

Preliminary examinations, if used, should be timed to allow maximum coverage of the three Course Unit. This can be achieved by holding the prelim as late as possible (end of March), or by having an early prelim covering two Units, with a supplementary prelim later covering the third Unit and integration with the mandatory Units.

The teaching and learning and internal assessment of the three Units of the Course is designed to be completed within 120 hours. This includes practical activities in preparation for the practical Coursework task. As centres are advised to allow 160 hours for the delivery of a National Course, this leaves up to 40 hours of flexible time.

#### Use of the additional 40 hours

Appropriate activities for this time include:

- ◆ an introduction to the Course
- ◆ revision of required prior learning
- ◆ consolidation and integration of learning
- ◆ remediation and re-assessment
- ◆ formative assessment (class tests)
- ◆ preliminary examination(s)
- ◆ preparation for external assessment
- ◆ completion of the practical coursework task
- ◆ extending the range of study

## National Course Specification: Course details (cont)

### COMPUTING STUDIES (Intermediate 1)

#### SPECIAL NEEDS

This Course 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 alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, September, 2003).

#### COMPUTING IN A BROADER CONTEXT

A number of national initiatives and programmes have been designed to promote themes that are important to contemporary society such as citizenship and enterprise. These themes contribute to individual subjects and Courses by making connections beyond the subject boundaries and enrich the learning experience. Similarly, the specialist knowledge and skills developed through study of a particular subject contributes to the understanding of these themes.

There are several opportunities within Computing Studies (Intermediate 1) for assessors to help candidates make links to cross-curricular themes. Some suggestions are given below.

<b>Cross-curricular theme</b>	<b>Course content</b>
Enterprise in Education	Understanding how the Internet is used in business, commerce and leisure.
Education for Citizenship	Developing citizenship skills by locating, using and communicating ideas using ICT.  Initial understanding of the rights, responsibilities and protection related to the use of databases and the Internet.
Financial Education	Issues relating to shopping around for the best deal when using the Internet as a consumer.
Health Education	Understanding of the importance of safety in computer use.

## National Unit Specification: general information

**UNIT** Computer Applications (Intermediate 1)

**NUMBER** DF33 10

**COURSE** Computing Studies (Intermediate 1)

### SUMMARY

This Unit is designed to develop knowledge and understanding of computer applications, and practical skills related to computer applications, through the use of contemporary hardware and software. This knowledge and understanding, and these practical skills, may then be applied by the candidate to solve practical problems related to computer applications. The computer applications covered are: word processing, spreadsheets, databases and graphics. It is designed for candidates undertaking the Intermediate 1 Computing Studies Course, but is also suitable for anyone wishing to develop basic competence in word processing, databases, spreadsheets and computer graphics, and an understanding of the associated terminology.

### OUTCOMES

1. Demonstrate knowledge and understanding of simple facts, ideas and terminology relevant to the features, uses and purposes of computer applications.
2. Demonstrate basic practical skills in the context of computer applications, 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:

- ◆ Access 3 Computer Applications Unit
- ◆ Access 3 Computing Cluster
- ◆ Standard Grade Computing Studies at Foundation level

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### Administrative Information

**Superclass:** CD

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## National Unit Specification: general information (cont)

**UNIT**                      Computer Applications (Intermediate 1)

### **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**

**Complete Core Skills for the Unit:**      Problem Solving Intermediate 1

**Core Skill component(s)**                      None

## National Unit Specification: statement of standards

### UNIT Computer Applications (Intermediate 1)

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 simple facts, ideas and terminology relevant to the features, uses and purposes of computer applications.

#### Performance Criteria

- a) Basic computing terminology is used appropriately.
- b) Identification of features, uses and purposes of applications software is correct.
- c) Simple descriptions and explanations related to practical contexts are understood.

#### Evidence Requirements

Written or oral evidence that the candidate can identify the features uses and purposes of computer applications accurately. 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:

- ◆ word processing
- ◆ spreadsheets
- ◆ databases
- ◆ bit-mapped (paint) graphics
- ◆ vector (draw) graphics

(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 basic practical skills by applying knowledge and understanding of the features uses and purposes of computer applications to solve problems 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.

## National Unit Specification: statement of standards (cont)

### UNIT Computer Applications (Intermediate 1)

#### Evidence Requirements

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

- ◆ word processing
- ◆ spreadsheets
- ◆ databases
- ◆ bit-mapped (paint) graphics
- ◆ vector (draw) graphics

Hard copy evidence should be provided for any two 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 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)

### UNIT Computer Applications (Intermediate 1

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 statements in the left hand column describe the content covered in the corresponding Unit at Access 3 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 in the right hand column is the new content for this Unit.

<b>Content Statement: all applications</b>	
<i>Access 3</i>	Intermediate 1
<i>Demonstration of the following practical skills in an appropriate application package:</i>	Description and demonstration of the following practical skills in an appropriate application package:
<ul style="list-style-type: none"> <li>◆ <i>start/open application package</i></li> <li>◆ <i>create new document</i></li> <li>◆ <i>open existing document</i></li> <li>◆ <i>save document</i></li> <li>◆ <i>close/quit/exit from package</i></li> </ul>	<ul style="list-style-type: none"> <li>◆ save as (new name, new location)</li> <li>◆ use of online help/tutorial/wizard online assistance as appropriate</li> <li>◆ print efficiently and responsibly</li> <li>◆ use correct page orientation</li> <li>◆ formatting</li> <li>◆ editing</li> </ul>
<i>Correct identification of the following terminology: new, open, save, close/quit/exit, print</i>	Selection of correct application as solution to a problem Distinguishing between applications packages (word processing, spreadsheets, databases, graphics)
	Identification of the following hardware/software requirements of an individual package from manufacturers documentation, magazine adverts and websites: Input devices <ul style="list-style-type: none"> <li>◆ mouse</li> <li>◆ keyboard</li> <li>◆ graphics tablet</li> <li>◆ touchpad</li> <li>◆ scanner</li> <li>◆ digital camera</li> </ul> Output devices <ul style="list-style-type: none"> <li>◆ printer</li> <li>◆ monitor</li> </ul>

## National Unit Specification: support notes

### UNIT Computer Applications (Intermediate 1)

Content Statement: all applications	
<i>Access 3</i>	Intermediate 1
	Type of storage required <ul style="list-style-type: none"><li>◆ floppy disk</li><li>◆ hard disk</li><li>◆ CD-ROM</li><li>◆ CD-R</li><li>◆ CD-RW</li><li>◆ USB flash drive</li><li>◆ DVD devices</li></ul> Amount of storage required <ul style="list-style-type: none"><li>◆ bit, byte</li><li>◆ Kb, Mb, Gb, Tb</li></ul> RAM Processor speed Operating system

## National Unit Specification: support notes (cont)

### UNIT Computer Applications (Intermediate 1)

<b>Content Statement: Word Processing software</b>	
<i>Access 3</i>	Intermediate 1
<p><i>Demonstration of the following practical skills in an appropriate application package:</i></p> <ul style="list-style-type: none"> <li>◆ <i>Edit text (insert, amend, delete)</i></li> <li>◆ <i>format text</i> <ul style="list-style-type: none"> <li>- <i>font, size, style, colour</i></li> <li>- <i>justify text (left, right, full, centre)</i></li> </ul> </li> <li>◆ <i>select character, word, block of text</i></li> <li>◆ <i>add graphics (clip art, photo, other graphics)</i></li> <li>◆ <i>undo</i></li> <li>◆ <i>move, resize added object</i></li> <li>◆ <i>use spellcheck</i></li> </ul>	<p>Description and demonstration of the following practical skills in an appropriate application package:</p> <ul style="list-style-type: none"> <li>◆ edit text (insert, amend, delete)</li> <li>◆ format text <ul style="list-style-type: none"> <li>- font, size, style, colour</li> <li>- justify text (left, right, full, centre)</li> <li>- use bullet points</li> </ul> </li> <li>◆ format page (set margin width, tabs, header/footer)</li> <li>◆ add graphics (clip art, photo, other graphics)</li> <li>◆ wrap text to added object</li> <li>◆ cut, copy and paste</li> <li>◆ search and replace (find and change)</li> <li>◆ spell check</li> </ul>
<p><i>Correct identification of the following terminology:</i>  <i>spell check, enter, delete, undo, font, size, bold, italic, underline, centre, clip art</i></p>	<p>Identification of advantages/disadvantages of word processing over manual methods</p>
	<p>Description of advantages and limitations of a spell checker</p>
<p><i>Identification of personal uses for word processing</i></p>	<p>Identification of personal and work-related uses of word processing</p>
<p><i>Identification of changes made to a document</i></p>	<p>Description of alternative methods of text entry including:</p> <ul style="list-style-type: none"> <li>- handwriting recognition</li> <li>- optical character recognition (OCR)</li> <li>- voice recognition using microphone</li> <li>- use of touch (sensitive) screen</li> </ul>

## National Unit Specification: support notes (cont)

### UNIT Computer Applications (Intermediate 1)

<b>Content Statement: Spreadsheet</b>	
<i>Access 3</i>	<i>Intermediate 1</i>
<p><i>Demonstration of the following practical skills in an appropriate application package:</i></p> <ul style="list-style-type: none"> <li>◆ <i>enter numbers, text, formulas</i></li> <li>◆ <i>delete cell contents</i></li> <li>◆ <i>insert content in named cells</i></li> <li>◆ <i>select cell, row, column, block, whole spreadsheet</i></li> <li>◆ <i>change font, size, style, text colour</i></li> <li>◆ <i>centre text</i></li> <li>◆ <i>automatic addition of a set of numbers</i></li> </ul>	<p>Description and demonstration of the following practical skills in an appropriate application package:</p> <ul style="list-style-type: none"> <li>◆ use cell address/reference correctly</li> <li>◆ Edit data (insert, amend, delete)               <ul style="list-style-type: none"> <li>- numbers</li> <li>- text</li> <li>- formulae</li> </ul> </li> <li>◆ copy formulae (fill down, fill right)</li> <li>◆ insert/delete row/column</li> <li>◆ create basic arithmetic formulas [+ , - , * , /]</li> <li>◆ use SUM, AVERAGE functions</li> <li>◆ sort data on 1 column</li> <li>◆ format cells               <ul style="list-style-type: none"> <li>- currency, decimal places</li> <li>- change row height, column width</li> </ul> </li> <li>◆ create simple chart/graph</li> </ul>
<p><i>Correct identification of the following terminology:</i> <i>cell, row, column, spreadsheet</i></p>	<p>Identification of advantages/disadvantages of spreadsheets over manual methods</p>
<p><i>Identification of uses for spreadsheets</i></p>	<p>Identification of personal and work-related uses of spreadsheets</p>
<p><i>Reading simple information from a simple spreadsheet</i></p>	<p>Identification of changes made to a spreadsheet resulting from electronic recalculation</p>

<b>Content Statement: Database</b>	
<i>Access 3</i>	<i>Intermediate 1</i>
<p><i>Demonstration of the following practical skills in an appropriate application package:</i></p> <ul style="list-style-type: none"> <li>◆ <i>browse/navigate</i></li> <li>◆ <i>add a record</i></li> <li>◆ <i>enter data</i></li> <li>◆ <i>delete a record</i></li> <li>◆ <i>sort on single field</i></li> <li>◆ <i>search on single field</i></li> </ul>	<p>Description and use of the following skills in an appropriate application package:</p> <ul style="list-style-type: none"> <li>◆ design database               <ul style="list-style-type: none"> <li>- choose suitable field names</li> <li>- field types including text, number, date, time, graphics and calculated</li> </ul> </li> <li>◆ create new database</li> <li>◆ edit database               <ul style="list-style-type: none"> <li>- insert, amend, delete record</li> <li>- insert, amend, delete field</li> </ul> </li> <li>◆ sort on single/multiple field</li> <li>◆ search on single/multiple field</li> </ul>

## National Unit Specification: support notes (cont)

### UNIT Computer Applications (Intermediate 1)

	Identification of advantages/disadvantages of a electronic/manual database
<i>Correct identification of the following terminology: database, search, sort, add, delete</i>	Correct use of the following terms: <ul style="list-style-type: none"><li>• field</li><li>• record</li><li>• file</li></ul>
<i>Identification of personal uses for a database</i>	Identification of personal and work-related uses of a database
<i>Obtaining information from a database</i>	

## National Unit Specification: support notes (cont)

### UNIT Computer Applications (Intermediate 1)

<b>Content Statement: Graphics</b>	
<i>Access 3</i>	Intermediate 1
<p><i>Demonstration of the following practical skills in an appropriate application package:</i></p> <p><i>use of basic tools and operations (including the following as available) to change/manipulate an image create a new image:</i></p> <p><i>tools:</i></p> <ul style="list-style-type: none"> <li>◆ <i>rectangle</i></li> <li>◆ <i>ellipse</i></li> <li>◆ <i>line</i></li> <li>◆ <i>freehand</i></li> <li>◆ <i>text</i></li> <li>◆ <i>library of standard shapes</i></li> </ul> <p><i>operations:</i></p> <ul style="list-style-type: none"> <li>◆ <i>use rubber/delete</i></li> <li>◆ <i>select object of block</i></li> <li>◆ <i>set and change attributes (colour, pattern, thickness)</i></li> <li>◆ <i>insert clip art or other image</i></li> <li>◆ <i>move, resize</i></li> </ul>	<p>Description and use of the following skills in an appropriate drawing (vector) package <b>and</b> in a painting (bit mapped) package:</p> <p>Use of a range of tools and operations (including the following) to create/manipulate a graphic:</p> <p>tools:</p> <ul style="list-style-type: none"> <li>◆ rectangle</li> <li>◆ ellipse</li> <li>◆ line</li> <li>◆ freehand</li> <li>◆ text</li> <li>◆ library of standard shapes</li> </ul> <p>painting operations:</p> <ul style="list-style-type: none"> <li>◆ select rectangle and irregular block of pixels</li> <li>◆ change colour of selection</li> <li>◆ set own colours</li> <li>◆ change colour of individual pixels</li> <li>◆ zoom/magnify</li> <li>◆ change colours on imported image</li> </ul> <p>drawing operations:</p> <ul style="list-style-type: none"> <li>◆ select multiple objects</li> <li>◆ flip</li> <li>◆ rotate</li> <li>◆ duplicate</li> <li>◆ group</li> <li>◆ order objects</li> <li>◆ zoom/magnify</li> </ul>
	Identification of personal and work-related use of graphics applications
	Comparison of features and uses of painting and drawing packages

## National Unit Specification: support notes (cont)

### UNIT Computer Applications (Intermediate 1)

#### GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Candidates will require individual access to appropriate computer hardware and software throughout this Unit.

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

Candidates who have completed the *Computer Applications* Unit at Access 3 level should already have covered the content listed in the left hand column of the content grids, but may need to revise this material before progressing to the right hand column.

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:

word processing	8 hours
spreadsheets	8 hours
databases	8 hours
bit-mapped (paint) graphics	6 hours
vector (draw) graphics	6 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.

## National Unit Specification: support notes (cont)

### UNIT Computer Applications (Intermediate 1)

#### 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 closed book test, 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 may be demonstrated in a single extended task or a number of relatively small tasks. The task(s) will normally be undertaken 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 task(s). 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 at an appropriate level in the following contexts:

- ◆ word processing
- ◆ spreadsheets
- ◆ databases
- ◆ bit-mapped (paint) graphics
- ◆ vector (draw) graphics

Hard copy evidence should be provided for any two of these activities. A single page showing evidence of appropriate practical skills is enough for each type of 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).

## National Unit Specification: general information

**UNIT** Multimedia Applications (Intermediate 1)

**NUMBER** DF34 10

**COURSE** Computing Studies (Intermediate 1)

### SUMMARY

This Unit is designed to develop knowledge and understanding of the principles of multimedia application software and develop practical skills in the use of contemporary hardware and multimedia software. This knowledge and understanding, combined with practical skills, may then be applied by the candidate to solve problems related to multimedia applications. It is designed for candidates undertaking the Intermediate 1 Computing Studies Course, but is also suitable for anyone wishing to develop basic competence handling multimedia elements, and using presentation, desktop publishing and web authoring software.

### OUTCOMES

1. Demonstrate knowledge and understanding of the principles, features and purposes of multimedia application software and hardware.
2. Demonstrate practical skills in the use of multimedia software and hardware.

### 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 Multimedia Applications Unit
- ◆ Access 3 Computing Cluster
- ◆ Intermediate 1 Computing Applications Unit
- ◆ Standard Grade Computing Studies at Foundation level

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### Administrative Information

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## **National Unit Specification: general information (cont)**

**UNIT**                      Multimedia Applications (Intermediate 1)

### **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**

### **UNIT        Multimedia Applications (Intermediate 1)**

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 multimedia application software and hardware.

#### **Performance Criteria**

- a) Simple multimedia terminology is used appropriately.
- b) Descriptions and explanations are technically accurate and concise.

#### **Evidence Requirements**

Written or oral evidence that the candidate can describe and explain the principles, features and purposes of multimedia application software 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 content (see Computing Studies (Intermediate1) Course content) in each of the following areas:

- ◆ hardware factors
- ◆ features of multimedia software:
  - 1. presentation software
  - 2. desktop publishing software
  - 3. multimedia authoring software

(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: statement of standards (cont)

### UNIT Multimedia Applications (Intermediate 1)

#### OUTCOME 2

Demonstrate practical skills in the use of multimedia software and hardware.

#### Performance Criteria

- a) Multimedia hardware is used correctly to capture text, graphics, sound and video.
- b) Multimedia software is used to produce documents combining text, graphics, sound and video, including page linking.

#### Evidence Requirements

Observation checklist showing that the candidate has demonstrated practical skills in the following contexts:

- ◆ capturing text, graphics and audio
- ◆ downloading data from WWW (Internet)

and **two** of the following types of software

- ◆ presentation software
- ◆ desktop publishing software
- ◆ multimedia authoring software

Hard copy evidence should be provided for **both** of the types of software chosen.

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

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

The practical skills should be demonstrated in the context defined in the content statements (see Computing Studies (Intermediate1) Course content).

(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

### UNIT Multimedia Applications (Intermediate 1)

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 statements in the left hand column describe the content covered in the corresponding Unit at Access 3 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 in the right hand column is the new content for this Unit.

<b>Content Statement: Hardware Factors</b>	
<i>Access 3</i>	Intermediate 1
<p><i>Identification of the hardware devices for:</i></p> <p><i>capturing text:</i></p> <ul style="list-style-type: none"> <li>◆ keyboard</li> <li>◆ mouse</li> </ul> <p><i>capturing graphics:</i></p> <ul style="list-style-type: none"> <li>◆ scanner</li> <li>◆ digital camera</li> </ul> <p><i>capturing audio:</i></p> <ul style="list-style-type: none"> <li>◆ microphone</li> </ul>	<p>Description and uses of hardware devices for</p> <p>inputting/capturing text:</p> <ul style="list-style-type: none"> <li>◆ keyboard</li> <li>◆ mouse</li> <li>◆ scanner (including OCR)</li> <li>◆ voice recognition (including microphone)</li> </ul> <p>inputting/capturing graphics:</p> <ul style="list-style-type: none"> <li>◆ scanner</li> <li>◆ graphics tablet</li> <li>◆ digital camera/digital video camera</li> </ul> <p>inputting/capturing audio:</p> <ul style="list-style-type: none"> <li>◆ microphone</li> </ul>
	<p>Description and uses of hardware devices for output</p> <ul style="list-style-type: none"> <li>◆ high resolution monitors</li> <li>◆ speakers</li> <li>◆ data projectors</li> </ul>
<p><i>Identification of hardware required and method of obtaining text/graphics/audio from the World Wide Web</i></p>	<p>Description of hardware required and method of obtaining text/graphics/audio from the World Wide Web (Internet)</p>

## National Unit Specification: support notes (cont)

### UNIT Multimedia Applications (Intermediate 1)

<p><i>Identification of the following backing storage media:</i></p> <ul style="list-style-type: none"> <li>◆ <i>hard disk</i></li> <li>◆ <i>floppy disk</i></li> <li>◆ <i>CD-ROM</i></li> <li>◆ <i>CD-R</i></li> <li>◆ <i>CD-RW</i></li> </ul>	<p>Description and uses of hardware devices for backing storage:</p> <ul style="list-style-type: none"> <li>◆ cost</li> <li>◆ speed of access</li> <li>◆ portability</li> <li>◆ capacity (bits, byte, Kb, Mb, Gb, Tb)</li> </ul> <p>of the following backing storage media:</p> <ul style="list-style-type: none"> <li>◆ hard disk</li> <li>◆ floppy disk</li> <li>◆ CD-ROM</li> <li>◆ CD-R</li> <li>◆ CD-RW</li> <li>◆ USB flash drive</li> <li>◆ DVD devices</li> </ul>
<p><i>Identification of common file types:</i></p> <ul style="list-style-type: none"> <li>◆ <i>text</i></li> <li>◆ <i>graphics</i></li> <li>◆ <i>video</i></li> <li>◆ <i>sound</i></li> </ul>	<p>Identification of common file types:</p> <ul style="list-style-type: none"> <li>◆ text (txt, rtf)</li> <li>◆ graphics (jpeg, bmp, gif)</li> <li>◆ video (mpeg, avi)</li> <li>◆ sound (wav, mp3)</li> </ul>
	<p>Simple description of the need for compression</p>
	<p>Description of need for sound card for capturing and outputting sound Description of need for graphics card for displaying graphics on monitor</p>

## National Unit Specification: support notes (cont)

### UNIT Multimedia Applications (Intermediate 1)

<b>Content Statement: Features of Multimedia Document</b>	
<i>Access 3</i>	Intermediate 1
<p><i>Identification of the following types of multimedia applications.</i></p> <ul style="list-style-type: none"> <li>◆ <i>presentation</i></li> <li>◆ <i>desktop publishing</i></li> </ul>	<p>Description and uses of the following types of multimedia applications:</p> <ul style="list-style-type: none"> <li>◆ presentation</li> <li>◆ desktop publishing</li> <li>◆ multimedia authoring</li> </ul>
<p><i>Identification of the following skills in each of the above applications:</i></p> <ul style="list-style-type: none"> <li>◆ <i>creating a new document</i></li> <li>◆ <i>using a (template)</i></li> <li>◆ <i>inserting text</i></li> <li>◆ <i>inserting graphic/photograph</i></li> <li>◆ <i>page formatting (landscape/portrait / margins/paper size)</i></li> <li>◆ <i>saving</i></li> <li>◆ <i>printing</i></li> </ul>	<p>Description and use of the following skills in each of the above applications:</p> <ul style="list-style-type: none"> <li>◆ creating a new document</li> <li>◆ using a (template)</li> <li>◆ inserting text</li> <li>◆ inserting graphic/photograph</li> <li>◆ page formatting (landscape/portrait/ margins/paper size)</li> <li>◆ saving</li> <li>◆ printing</li> </ul>
<p><i>Identification of the facilities of software:</i></p> <p><i>text</i></p> <ul style="list-style-type: none"> <li>◆ <i>font, size, style (italics, underline, bold), colour, tabs</i></li> <li>◆ <i>justify text (left, right, full, centre)</i></li> <li>◆ <i>use bullet points</i></li> </ul> <p><i>graphic</i></p> <ul style="list-style-type: none"> <li>◆ <i>scale (resize)</i></li> <li>◆ <i>crop</i></li> <li>◆ <i>rotate</i></li> <li>◆ <i>colour</i></li> </ul>	<p>Description of editing facilities of software:</p> <p><i>text</i></p> <ul style="list-style-type: none"> <li>◆ font, size, style (italics, underline, bold), colour, tabs</li> <li>◆ justify text (left, right, full, centre)</li> <li>◆ use bullet points</li> <li>◆ text effects (flashing, dissolving, fade in/out)</li> </ul> <p><i>graphic</i></p> <ul style="list-style-type: none"> <li>◆ scale (resize)</li> <li>◆ crop</li> <li>◆ rotate</li> <li>◆ colour</li> <li>◆ graphic effects (flashing, dissolving, fade in/out)</li> </ul>
	<p>Description and uses of the following features in presentation and multimedia authoring software:</p> <ul style="list-style-type: none"> <li>◆ page linking — including transitions/hyperlinks</li> <li>◆ inserting sound/video</li> </ul>

## National Unit Specification: support notes (cont)

### UNIT Multimedia Applications (Intermediate 1)

#### GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Candidates will require individual access to appropriate computer hardware and software throughout this Unit.

The two Outcomes should be delivered in an integrated way rather than sequentially. For Outcome 2, the practical activities should be taught and used to illustrate and exemplify the knowledge and understanding required for Outcome 1. Where possible, candidates should be given an opportunity to use examples of all three types of software – presentation, desktop publishing and multimedia authoring. However, the skills and concepts for this Unit do not require that candidates have access to industry standard ‘high end’ professional software.

Candidates who have completed the *Multimedia Applications* Unit at Access 3 level should already have covered the content listed in the left hand column of the content grids, but may need to revise this material before progressing to the right hand column.

The amount of time spent on each area of content will vary depending on the teaching methodology used (and also whether practical work in multimedia authoring software is covered) and the ability and prior experience of the candidates. However, the following times are suggested as a rough guide:

hardware factors	6 hours
features of a multimedia software.	5 hours
presentation software	3 hours
desktop publishing software	3 hours
multimedia authoring software	3 hours
practical work using two of presentation, DTP and authoring packages	8 hours each

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.

## National Unit Specification: support notes (cont)

### UNIT Multimedia Applications (Intermediate 1)

#### 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 closed book test, 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 hardware and software. These practical skills may be demonstrated as a single extended task or a number of relatively small tasks. The task(s) will normally be undertaken 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, online help and limited tutor guidance while completing the task(s). 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:

- ◆ capturing text, graphics and audio
- ◆ downloading data from WWW (Internet)

and two of the following types of software

- ◆ presentation software
- ◆ desktop publishing software
- ◆ multimedia authoring software

Knowledge and understanding of all three types of software will be assessed for Outcome 1 but for Outcome 2 the candidate is only required to demonstrate practical skills in any two of them.

Hard copy evidence should be provided for both of the types of software chosen. A single page showing evidence of appropriate practical skills is enough for each type of software.

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

All evidence for Outcome 2 should be gathered under 'open book' conditions and 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).

## National Unit Specification: general information

<b>UNIT</b>	Information and the Internet (Intermediate 1)
<b>NUMBER</b>	DF36 10
<b>COURSE</b>	Computing Studies (Intermediate 1)

### SUMMARY

This Unit is designed to develop knowledge and understanding of the principles of databases and information systems and to develop practical skills in the use of databases, information sources and web page authoring through the use of contemporary hardware and software. This knowledge, understanding and practical skills may then be applied by the candidate to solve practical problems related to information systems and the Internet. It is designed for candidates undertaking the Intermediate 1 Computing Studies Course, particularly those considering continuing to Intermediate 2 Information Systems, but also suitable for anyone interested in using the World Wide Web as a source of information.

### OUTCOMES

1. Demonstrate knowledge and understanding of a range of simple facts and terminology related to the features and uses of databases, information systems and the Internet, and the software development process.
2. Demonstrate practical skills in the context of databases, information sources 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

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### Administrative Information

<b>Superclass:</b>	CB
<b>Publication date:</b>	April 2004
<b>Source:</b>	Scottish Qualifications Authority
<b>Version:</b>	01

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## **National Unit Specification: general information (cont)**

**UNIT** Information and the Internet (Intermediate 1)

### **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**

### **UNIT**      Information and the Internet (Intermediate 1)

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 features and uses of databases, information systems and the Internet, and the software development process.

#### **Performance Criteria**

- a) Basic computing terminology is understood and used appropriately.
- b) Simple descriptions of the features and uses of databases, information systems and the Internet 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 information 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 content (see Computing Studies (Intermediate 1) Course content) in each of the following areas:

- ◆ database terms
- ◆ information systems
- ◆ the Internet
- ◆ information sources
- ◆ software development process

(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: statement of standards (cont)**

### **UNIT** Information and the Internet (Intermediate 1)

#### **OUTCOME 2**

Demonstrate practical skills in the context of databases, information sources 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 an appropriate level in all of the following contexts:

- ◆ creating, searching and sorting a simple database
- ◆ accessing information from the Internet
- ◆ accessing information from CD-ROM based software
- ◆ web page authoring

Hard copy evidence should be provided of the database and website created.

These 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 defined in the content statements (see Computing Studies (Intermediate 1) 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

### UNIT Information and the Internet (Intermediate 1)

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.)

<b>Content Statement: Database Terms</b>
Description and demonstration of the following practical skills in an appropriate application package: <ul style="list-style-type: none"><li>◆ create a new database (design)</li><li>◆ edit records</li><li>◆ add new fields</li><li>◆ search on single/multiple fields</li><li>◆ sort on single/multiple fields</li><li>◆ output of record — table to form (card format to list format)</li></ul>
Correct identification of the following terminology: <ul style="list-style-type: none"><li>◆ fields</li><li>◆ record</li><li>◆ file</li><li>◆ field types (numeric, text, date/time, currency)</li><li>◆ field sizes</li><li>◆ search/sort</li></ul>

<b>Content Statement: Information Systems</b>
Description of the difference between public and private information systems Identification of examples of each: <ul style="list-style-type: none"><li>◆ private (including DVLC, police, government)</li><li>◆ public (including library, newspapers, telephone directories, Yellow Pages)</li></ul>
Description of the difference between manual and electronic information systems Identification of examples of each: <ul style="list-style-type: none"><li>◆ manual (including newspapers, telephone directories, Yellow Pages, address books)</li><li>◆ electronic (including newspapers, telephone directories, Yellow Pages, address books)</li></ul> Description of advantages/disadvantages of manual/electronic databases
Description of the differences between data and information
Identification of examples which breach the following legislation: <ul style="list-style-type: none"><li>◆ Data Protection Act (1998)</li><li>◆ Copyright, Designs and Patent Act (1988)</li><li>◆ Computer Misuse Act (1990)</li></ul>
Description of the Internet as a large network of computer networks Description of the World Wide Web (WWW) as a collection of interlinked pages of information on the Internet
Identification of the benefits of networking of computers in information systems

## National Unit Specification: support notes (cont)

### UNIT Information and the Internet (Intermediate 1)

<b>Content Statement: The Internet</b>
Identification of the requirements relating to WWW (Internet) access <ul style="list-style-type: none"><li>◆ computer system — processor, RAM</li><li>◆ modem (speed of access of link, dial-up or broadband)</li><li>◆ access to telephone line, cable, satellite and cost of calls</li><li>◆ Internet service provider (ISP) costs</li><li>◆ communications software — browser, e-mail software</li></ul> Identification of costs relating to WWW (Internet) access: <ul style="list-style-type: none"><li>◆ setup or initial costs including cost of hardware, software, installation and training</li><li>◆ running costs including ISP subscription, call charges, maintenance, helplines, updating hardware and software</li></ul>
Identification of the security issues with using the Internet: <ul style="list-style-type: none"><li>◆ user IDs and passwords</li><li>◆ filtering</li><li>◆ secure sites for e-commerce</li></ul>

<b>Content Statement: Information Sources</b>
Demonstration of information retrieval from CD-ROMs and WWW sites in the following contexts: <ul style="list-style-type: none"><li>◆ shopping/advertising</li><li>◆ sport</li><li>◆ leisure</li><li>◆ education</li><li>◆ news</li></ul>

<b>Content Statement: Software Development Process</b>
Identification of each stage of the software development process in the context of web authoring: <ul style="list-style-type: none"><li>◆ analysis: clarifying what is required</li><li>◆ design: identifying the layout and elements</li><li>◆ implementation: creating the pages</li><li>◆ testing: checking the pages and links look and behave correctly</li><li>◆ documentation: user and technical guide</li><li>◆ evaluation: does it fulfill the specification; could it be improved</li></ul>
Creation of: <ul style="list-style-type: none"><li>◆ a web site with separate web pages</li><li>◆ links from a home page to other pages</li><li>◆ pages containing text and graphics</li></ul>

## National Unit Specification: support notes (cont)

### UNIT Information and the Internet (Intermediate 1)

#### GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Candidates will require individual access to appropriate computer hardware and software throughout this Unit.

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

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:

databases — terminology and practical work	10 hours
information systems	4 hours
the Internet	4 hours
information retrieval from Internet and CD ROMs	8 hours
software development process — creating a small web site	10 hours

The small website created by the candidates could be based on the information retrieved in the preceding section of the work.

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.

#### 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 closed book test, 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 assessment 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 may be demonstrated as a single extended task or a number of relatively small tasks. The task(s) will normally be undertaken 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 task(s). The practical skills should be demonstrated in the context defined in the content statements (see Computing Intermediate 1 Course content).

## National Unit Specification: support notes (cont)

### UNIT Information and the Internet (Intermediate 1)

To gain success in this Outcome, the candidate must demonstrate practical skills in the following contexts:

- ◆ creating, searching and sorting a simple database
- ◆ accessing information from the Internet
- ◆ accessing information from CD-ROM based software
- ◆ web page authoring

Hard copy evidence should be provided of the database and website created.

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).

## National Unit Specification: general information

<b>UNIT</b>	Computers and the Internet (Intermediate 1)
<b>NUMBER</b>	DF37 10
<b>COURSE</b>	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

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### Administrative Information

<b>Superclass:</b>	CB
<b>Publication date:</b>	April 2004
<b>Source:</b>	Scottish Qualifications Authority
<b>Version:</b>	01

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## **National Unit Specification: general information (cont)**

**UNIT**                      Computers and the Internet (Intermediate 1)

### **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**

### **UNIT       Computers and the Internet (Intermediate 1)**

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)**

### **UNIT       Computers and the Internet (Intermediate 1)**

#### **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

### UNIT Computers and the Internet (Intermediate 1)

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.)

<b>Content Statement: Computer Hardware</b>
Identification of the main features of: <ul style="list-style-type: none"><li>◆ desktop as monitor, mouse, keyboard</li><li>◆ laptop, including portability, computer integrated LCD screen, pointing device and battery operated</li><li>◆ palmtop as very small, hand held, often with touch screen input, limited memory and processing power and battery operated</li><li>◆ network (linked computers)</li><li>◆ server (computer which controls the running of a network)</li></ul>
Identification and explanation of the purpose of hardware devices: <ul style="list-style-type: none"><li>◆ input devices: mouse, keyboard, scanner, digital camera, microphone, digital video camera</li><li>◆ output devices: printer (laser and inkjet), monitor (including CRT and flat screen (TFT)), speakers</li><li>◆ backing storage: CD drives (CD-ROM, CD-R, CD-RW), hard disk drive, floppy disk drive</li><li>◆ CPU: processor, RAM, ROM</li><li>◆ other devices: modem, network card, sound card, graphics card</li></ul>
Demonstration of the following practical skills in the use of the following devices to input information: <ul style="list-style-type: none"><li>◆ mouse</li><li>◆ keyboard</li><li>◆ scanner</li><li>◆ digital camera</li><li>◆ microphone</li><li>◆ digital video camera</li></ul>
Specification of computer system to meet a users needs in terms of: <ul style="list-style-type: none"><li>◆ cost</li><li>◆ hard disk size</li><li>◆ RAM</li><li>◆ processor speed</li><li>◆ peripheral devices</li><li>◆ backing storage devices</li></ul>

## National Unit Specification: support notes (cont)

### UNIT Computers and the Internet (Intermediate 1)

<b>Content Statement: Computer Software</b>
<p>Simple description of the features and purposes of the following types of software:</p> <ul style="list-style-type: none"> <li>◆ program file</li> <li>◆ data file</li> <li>◆ systems software</li> <li>◆ applications packages (including word processing, database, spreadsheet, graphics)</li> </ul>
<p>Selection of application software that will run on a given computer specification by checking compatibility of:</p> <ul style="list-style-type: none"> <li>◆ operating system</li> <li>◆ hard disk capacity</li> <li>◆ RAM</li> <li>◆ processor speed</li> </ul>
<p>Description and use of the operating system to:</p> <ul style="list-style-type: none"> <li>◆ create folders</li> <li>◆ organise saved work in folders</li> <li>◆ rename files</li> <li>◆ move/delete files</li> </ul>
<b>Content Statement: The Internet</b>
<p>Identification of the requirements relating to WWW (Internet) access:</p> <ul style="list-style-type: none"> <li>◆ computer system — processor, RAM</li> <li>◆ modem (speed of access of link, dial-up or broadband)</li> <li>◆ access to telephone line, cable, satellite</li> <li>◆ Internet service provider (ISP) costs</li> <li>◆ communications software — browser, e-mail software</li> </ul> <p>Identification of costs relating to WWW (Internet) access:</p> <ul style="list-style-type: none"> <li>◆ setup or initial costs including cost of hardware, software, installation and training</li> <li>◆ running costs including ISP subscription, call charges, maintenance, helplines, updating hardware and software</li> </ul>
<p>Identification of the security issues with using the Internet:</p> <ul style="list-style-type: none"> <li>◆ user IDs and passwords</li> <li>◆ filtering</li> <li>◆ secure sites for e-commerce</li> </ul>
<b>Content Statement: Software Development Process</b>
<p>Identification of each stage, and description of its purpose in the context of web authoring:</p> <ul style="list-style-type: none"> <li>◆ analysis: clarifying what is required</li> <li>◆ design: identifying the layout and elements</li> <li>◆ implementation: creating the pages</li> <li>◆ testing: checking the pages and links look and behave correctly</li> <li>◆ documentation: user and technical guide</li> <li>◆ evaluation: does it fulfill the specification; could it be improved</li> </ul>
<p>Creation of:</p> <ul style="list-style-type: none"> <li>◆ a website with separate web pages</li> <li>◆ links from a home page to other pages</li> <li>◆ pages containing text and graphics</li> </ul>

## National Unit Specification: support notes (cont)

### UNIT Computers and the Internet (Intermediate 1)

#### 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, 1<sup>st</sup> 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

## National Unit Specification: support notes (cont)

### UNIT Computers and the Internet (Intermediate 1)

#### 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).