National Unit Specification: General Information

SCOTTISH
QUALIFICATIONS
AUTHORITY

UNIT   Information Technology (Higher)

NUMBER   D01D 12

COURSE

SUMMARY

This core skills Unit is about using a computer system to carry out some complex processing tasks of a range of information in an unfamiliar context.

OUTCOMES

1   Use a computer system effectively.
2   Use software in an unfamiliar context to produce complex information.
3   Carry out searches to extract and present relevant information.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates would normally be expected to have attained Information Technology (Intermediate 2).

CREDIT VALUE

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

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

CORE SKILLS

Information on the automatic certification of any core skills in this Unit is published in *Automatic Certification of Core Skills in National Qualifications* (SQA, publication code BA0906).

The attainment of this Unit will lead to the automatic award of:

•   Information Technology at Higher.

Administrative Information

Superclass: CD

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Version: 02

National unit specification: statement of standards

UNIT Information Technology (Higher)

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
Use a computer system effectively.

Performance Criteria
a)   Use of hardware components is efficient.
b)   Operation of the system is responsible and considerate to other users.
c)   Problems are identified and corrected effectively.
d)   Security and management of data is effective and efficient.
e)   Use of operating system is effective.

Evidence Requirements
Performance evidence that the candidate can use a computer system. Candidates must use a minimum of five hardware components including the following: keyboard, mouse, monitor, printer, disk drive, processor.

Candidates must use the operating system to: start up the system; close down the system; launch applications; locate data and applications; use a filing system; manage data.

Candidates should use simple tools selected from a range of simple tools such as file managers, print managers and control panels. Candidates must resolve at least one hardware or software problem.

OUTCOME 2
Use software in an unfamiliar context to produce complex information.

Performance Criteria
a)   The analysis of the information requirements is correct.
b)   The design of the solution is effective.
c)   The selection of application packages is appropriate.
d)   The data types are integrated within a package.
e)   The output format is clear and helpful to users.

Evidence Requirements
Performance evidence that the candidate can use software to produce complex information. At least two presentation styles must be used, selected from alphanumeric styles in form of documents, designs, compositions or models, graphics, video or audio.

National unit specification: statement of standards (cont)

UNIT   Information Technology (Higher)

OUTCOME 3
Carry out searches to extract and present relevant information.

Performance Criteria
a)   Selection of data sources is effective.
b)   Search strategy selected considers related factors.
c)   Data is correctly extracted using several selection criteria.
d)   Information is presented effectively.

Evidence Requirements
Oral and/or written evidence that the candidate can select data sources.

Performance evidence that the candidate can carry out searches and extract and present data. At least two searches must be carried out involving different data sets or same source for two different forms of information or searching from two different sources.

A paper or electronic copy of the presented information should be retained.

National unit specification: support notes

UNIT   Information Technology (Higher)

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

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

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT
The content and context for this core skills Unit should be appropriate to the personal and vocational needs of the candidate.

Core skills Units are stated at five levels of attainment, with activities becoming progressively more demanding in breadth and depth, and in the extent of individual autonomy required. The appendix to this Unit shows the relationship between the levels in *Information Technology*.

Outcome 1
This outcome relates to the effective use of a computer system. Candidates are required to operate hardware efficiently (performance criterion a). Candidates are required to use a keyboard, mouse, monitor, disk drive, processor and printer. Efficient use means that candidates are able to use these devices productively and independently. Candidates' activities must be consistent with manufacturers' recommended procedures but teachers/lecturers may interpret manufacturers' instructions for candidates. It is not anticipated that candidates will be exposed directly to manufacturers' documentation.

The operation of the system must be responsible and considerate to other users (performance criterion b). This means that the system should be used in a mature and conscientious way with due regard for other users. For example, mistreating hardware or accessing unsuitable material would be considered irresponsible use of a system.

Candidates must identify and correct problems (performance criterion c). The problems must relate to computer hardware or computer software but should be common problems that are simple to resolve. Examples include printer off-line or out of paper, system freeze, sound not working, CD-ROM not recognised, too many open programs and fragmented disk, cable connections, device settings, software option settings. Candidates are not required to identify or resolve complex technical problems. Candidates should be aware of the cause of common problems and be able to take action to successfully solve these.

Candidates are required to manage data efficiently, effectively and securely (performance criterion d). Data security may involve backups, virus checking encryption passwords. Backups can involve full system backups or individual (or group) file backups and may involve special backup software or standard file copying software. The critical aspect is the candidate's appreciation of the importance of protecting important data. Virus testing may be undertaken using special software designed for this purpose. The use of passwords should include advice on the creation of effective passwords and the differences between good and bad passwords.

Candidates are also required to use an operating system effectively (performance criterion e). Candidates are required to start up and close down applications, start up and close down the system, use a filing system, manage data (see above) and use simple software tools (such as print managers, file managers and control panels). Their use of a filing system should include organising files (naming, copying and deleting) and folders (creating, naming and copying).

National unit specification: support notes (cont)

UNIT   Information Technology (Higher)

Outcome 2

This outcome relates to candidates' skills in using a range of application software. This outcome should be undertaken in a problem solving context which involves the candidate in using a range of application software to produce complex information. Candidates must analyse the information requirements of the problem (performance criterion a). For example, if the problem relates to the presentation of complex information in the form of a report then the candidate would define the contents of the report at this stage. S/he must then design a solution (performance criterion b). This would involve him/her in planning the layout of the report. This will vary from problem to problem. In another context the design would take a different form. Performance criterion (c) relates to the selection of software. Having analysed the information requirements and designed a solution, the candidate must now select a range of software tools to implement that solution. These tools will take the form of a range of application software and might include word processing (for the text layout), spreadsheet (for numerical computations) and graphics (for drawing and images) communications, audio/music, animation, video/multimedia, desktop publishing, data logging, retrieval, control or other packages. Once the components of the report (text, numbers, graphics, etc.) have been assembled, they must be combined into a coherent document (performance criterion d). This might involve importing the objects into a word processing program and then formatting them into an appropriate layout (performance criterion e).

Outcome 3

This outcome relates to candidates' ability to search, extract and present information. The source of the information could be a simple database (created by the candidate or provided to the candidate) or a CD-ROM based information source (such as an educational program) or the Internet (such as the World Wide Web). Candidates must select the source of the data (performance criterion a). For example, if the requisite data relates to a foreign country then appropriate sources would include CD-ROMs and the World Wide Web. Irrespective of the source, candidates are required to select a search strategy (performance criterion b). This simply means that the candidate should plan how s/he will go about searching for the requisite information, what factors should be considered in working out a search strategy and might involve a list of search engines and a mix of media (such as Internet, CD-ROM or local network). The plan need not be sophisticated but aimless browsing is not acceptable. An effective search strategy comes up with the required information. Candidates are required to select information which satisfies several criteria (performance criterion c). The criteria should be simple such as key terms or fields. The criteria may be issued separately (i.e. one after the other so long as each criterion acts as a filter) or in combination (which may, or may not, involve Boolean operators). For example, a database file may be filtered using criteria on three fields within the database; an electronic encyclopaedia may be searched by progressively applying criteria one after the other; and a Boolean search could be applied to a WWW search engine.

Once the information has been located it must be extracted and presented (performance criterion d). This will depend on the nature of the information. For example, a subset of a database could simply be formatted and printed; an excerpt from an encyclopaedia could be copied to a clipboard and then inserted into a document; a sound file from the WWW could be downloaded and stored locally.

Results of searches must be presented clearly so that others can understand them. For the purposes of assessment, the searches must be diverse so, for example, two similar searches conducted using similar criteria and resulting in similar results would not be acceptable. Information should be extracted from local and remote computer data sources.

National unit specification: support notes (cont)

UNIT Information Technology (Higher)

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT
The learning and teaching approaches should encourage candidates to identify the evidence of their attainment and to transfer the skills acquired to other contexts.

Programmes of work in core skills should be designed to engage candidates in the varied and purposeful use of interrelated skills through a range of tasks. These tasks may reflect the candidates' vocational interests or may be of more general interest. It is recommended that these tasks should be negotiated and planned in such a way that the evidence required for assessment is generated in the course of ongoing work rather than as a discrete exercise.

Learning and teaching in core skills should be active and candidate-centred. Candidates should have the opportunity to plan and make decisions for themselves and to show initiative and independence. Activities should provide opportunities to use skills in real situations for real purposes and may be part of projects or practical exercises set within the IT programme or drawn from activities in other vocational and social contexts.

Where the *Information Technology* Unit is being combined with another Unit to create an enhanced learning and teaching programme, care must be taken to ensure that all aspects of each Unit are covered and adequate time must be allowed for the coverage of both Units. Such a programme would create opportunities to consolidate the skills gained in this Unit and may provide further opportunities for transferring/building on skills in *Problem Solving*, and *Communication.*

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT
The statement of satisfactory performance for each outcome indicates the minimum required for the purpose of summative assessment. However, the number of activities undertaken by the candidate in the course of the Unit should not be limited to those specified for assessment purposes. In awarding the candidate Information Technology at Higher, the teacher/lecturer must be confident that the candidate will be able to demonstrate these skills in any appropriate context and set of circumstances.

Teachers/lecturers must remember to distinguish between their differing roles in formative and summative assessment. In the former, as much help and support as is required by the candidate may legitimately be given by the teacher/lecturer. *Tasks which are used to provide evidence for summative assessment must be completed by the candidate unaided.*

Evidence of attainment should be gathered, wherever possible, from integrated activities, whether this Unit is being studied as a stand alone Unit or is being used in combination with others.

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 Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, publication code AA0645).

Skill	Access 2	Access 3	Intermediate 1	Intermediate 2	Higher
Use a computer System	Perform basic operations using a computer system.	Perform basic operations using a computer system.	Use a computer system effectively.	Use a computer system effectively.	**Use a computer system effectively.**
Use IT software	Perform simple processes using an application package.	Perform simple processes using a range of application packages.	Perform simple processes using a range of application packages.	Perform processes using a range of application packages.	**Use software in an unfamiliar context to produce complex information.**
Carry out searches	Extract and present information from an electronic source.	Extract and present information from an electronic source.	Carry out simple searches to extract and present relevant information.	Carry out searches to extract and present relevant information.	**Carry out searches to extract and present relevant information.**