Higher National Unit specification

General information

Unit title: CAD: User Systems (SCQF level 7)

Unit code: HE28 34

Superclass: VF

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Unit purpose

This Unit is designed to introduce learners to systematic methods of saving and maintaining files. The Unit also introduces learners to the operating system and user interfaces of IT applications, used as they would be in the CAD office.

Outcomes

On successful completion of the Unit the learner will be able to:

1 Manage and transfer files.
2 Create, populate and edit a database with specified information.
3 Link external data to a spreadsheet package to calculate data using complex formulae.
4 Use a word processing package to create a formatted document.

Credit points and level

1 Higher National Unit credit at SCQF level 7: (8 SCQF credit points at SCQF level 7)

Recommended entry to the Unit

Access to this Unit is at the discretion of the centre. However no prior knowledge is required.

Higher National Unit specification: General information (cont)

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Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

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

Context for delivery

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website **(http://www.sqa.org.uk/sqa/46233.2769.html)**.

Equality and inclusion

This Unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**.

Higher National Unit specification: Statement of standards

Unit title: CAD: User Systems (SCQF level 7)

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 SQA.

Outcome 1

Manage and transfer files.

Knowledge and/or Skills

- Searching for files/folders
- Wildcards
- File properties
- Clipboard
- Navigation
- Multitasking
- Online storage
- File sharing

Outcome 2

Create, populate and edit a database with specified information.

Knowledge and/or Skills

- Data types
- Database creation
- Table population
- Creating forms to edit a database
- Creating/running queries
- Printing data

Outcome 3

Link external data to a spreadsheet package to calculate data using complex formulae.

Knowledge and/or Skills

- Entering data into a worksheet
- Importing data into a worksheet
- Formatting worksheet data
- Using formulae
- Using 'If' statements
- Conditional formatting
- Using charts
- Printing worksheets

Higher National Unit specification: Statement of standards (cont)

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Outcome 4

Use a word processing package to create a formatted document.

Knowledge and/or Skills

- Keying in text
- Selecting and editing text
- Enhancing text
- Clipboard operations
- Text justification
- Inserting graphics
- Creating a mail merge
- Mark-up and review
- Printing

Evidence Requirements for this Unit

Learners will need to provide written and/or oral recorded and product based evidence to demonstrate their Knowledge and/or Skills across all Outcomes. Evidence should be generated under controlled, supervised, open-book conditions. Learners will be allowed access to course material, text books, the internet and the Help files associated to the software used. All evidence must be generated during the assessment period.

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

Outcome 1

- search for specific files.
- copy specific files to predetermined directories/folders.
- utilise File Management software to display the files in a sorted order.
- investigate and explain the properties of two of the copied files.
- show evidence of multitasking.
- store and share files using a cloud based system.

Outcome 2

- identify data types.
- create a database.
- populate a database.
- create and use forms.
- create and run queries.
- print data.

Higher National Unit specification: Statement of standards (cont)

Unit title: CAD: User Systems (SCQF level 7)

Outcome 3

- enter data into a worksheet.
- import data into a worksheet.
- format worksheet data.
- use formulae to calculate data.
- create 'if' statements.
- apply conditional formatting.
- create charts.
- print the spreadsheet(s).

Outcome 4

- create a document.
- Set mark-up and review setting to record the following changes.
- format a document.
- use graphics within a document.
- create a mail merge.
- print the document.

This evidence for this Unit may be gathered through four individual assessment events or one holistic project based assessment covering Outcomes 1–4.

Higher National Unit Support Notes

Unit title: CAD: User Systems (SCQF level 7)

Unit Support Notes are offered as guidance and 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

This Unit has been written in order to allow learners to develop knowledge, understanding and skills in the following areas:

1 Manage and transfer files.
2 Create, populate and edit a database with specified information.
3 Link data to a spreadsheet package to calculate data using complex formulae.
4 Use a word processing package to create a formatted document.

This Unit is at SCQF level 7 and has been devised as a mandatory Unit within the HNC and HND Computer Aided Draughting and Design and HNC and HND Computer Aided Architectural Design and Technology awards. However this does not preclude the use of the Unit in other awards where award designers feel this to be appropriate.

In designing this Unit, the Unit writer has identified the range of topics that would be expected to be covered by lecturers. The writer has also given recommendations as to how much time should be spent on each Outcome assessment. This has been done to help lecturers decide what depth of treatment should be given to the topics attached to each of the Outcomes. Whilst it is not mandatory for centres to use this list of topics, it is recommended that they do so as the Assessment Support Pack (ASP) for this Unit is based on the Knowledge and/or Skills and list of topics in each of the Outcomes.

A list of topics for each Outcome is given below. Lecturers are advised to study this list in conjunction with the ASP so that they can get a clear indication of the standard of achievement expected of learners in this Unit.

The following topics are generic in nature but should be put into context by reference to the operating system application package being used at the centre:

The Unit will aid progression throughout the Group Award where good ICT skills are required, this will include the management and creation of data and documents for the Graded Unit 1 project.

Higher National Unit Support Notes (cont)

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Outcome 1 (6 hours)

Manage and transfer files.

- Use of search tools to find files
- Use of clipboard to copy files to new directories/folders
- Use of File Management tools to show file details
- Use of File management tools to sort files
- Use of a cloud based storage system
- Use of a cloud based sharing platform
- Explain the properties of two of the copied files detailing both the old and new file paths

Outcome 2 (12 hours)

Create, populate and edit a database with specified information.

- Create a database using the correct data types and specify a key field
- Enter component specifications into a table
- Use query tools to find components based on treatment processes
- Use query tools to find components based on number of bends
- Edit the quantity required
- Create and use forms to edit the database
- Print of the complete table (PDF prints acceptable for digital submission)
- Print of the queries (PDF prints acceptable for digital submission)

Outcome 3 (12 hours)

Link external data to a spreadsheet package to calculate data using complex formulae.

- Enter material quantity/cost into a spreadsheet
- Enter man hours required
- Use formulae to calculate the estimated cost of project
- Format cells to highlight large quantities
- Use ‘if’ statements to discount the highlighted cells
- Edit the actual hours required
- Recalculate actual total cost
- Generate a chart to show how the cost is affected by tolerances/treatments
- Print a hardcopy of the spreadsheet showing the actual costs
- Print the formulae used (PDF prints acceptable for digital submission)
- Print only the chart (PDF prints acceptable for digital submission)

Higher National Unit Support Notes (cont)

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Outcome 4 (5 hours)

Use a word processing package to create a formatted document.

- Create a summary explaining the need for tolerances and heat treatment processes and how the cost is affected
- Record changes, updates and formatting of document
- Incorporate the charts created in Outcome 3
- Format the document to a given standard
- Create a standard letter head and use mail merge to automatically populate customer contact information from a given document

Guidance on approaches to delivery of this Unit

It is intended that this Unit be presented at all times using the relevant specialist software available at the centre. Appropriate technical and support material should be available to the learner.

Learners should be provided with the opportunity to gain as much 'hands on' experience as possible. Each learner should have access to a PC with the relevant software installed. Learners should NOT work in groups.

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

The assessment for Outcomes 1, 2 and 3 in this Unit should be practical, while Outcome 1 will also have a written and/or oral element. Outcome 4 will be entirely written/word processed.

These assessments can be carried out after each topic has been taught or at the end of the Unit. This is at the discretion of the presenting centre. It is recommended that centres develop checklists to support the assessment requirements for each of the Knowledge and/or Skills items.

Outcome 1 should take no longer than one hour.
Outcome 2 should take no longer than one hour.
Outcome 3 should take no longer than one hour.
Outcome 4 should take no longer than two hours.

Higher National Unit Support Notes (cont)

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Evidence for all Outcomes will be generated under controlled, supervised open-book conditions. Learners will be allowed access to course material, text books, the internet and the Help files associated to the software used. All evidence must be generated during the assessment period.

The evidence for this Unit may be gathered through four individual assessment events or one holistic project based assessment covering Outcomes 1–4.

Outcome 1 consists of the operating system being utilised to find specific file types. These files are to be copied to predetermined directories/folders, where they will be displayed in a sorted order. Store and share these files using a cloud based system. The file properties should be investigated and explained.

Outcome 2 should involve the learner being presented with a bill of materials, extracted from a CAD system. The learner is to create a database, with correctly defined data types, and transfer this listing into the database. The learner should create and utilise forms to edit the database before performing a number of searches, (ie queries) to locate specified components.

Outcome 3 should involve the learner being presented with a spreadsheet containing headings and example formulae. The learners should link some the data generated in Outcome 2 and create/use formulae to calculate an accurate total costing for the components listed. The learner should create 'if' statements to discount a total cost if a quantity exceeds a pre-determined value, and format the cells to highlight this. The learner must use graphical data, (ie charts) to help show how the cost is affected by different processes/limitations.

Outcome 4 should consist of the learner creating a standard letter for a client. The learner should create a written summary of why the processes/limitations given in Outcome 3 are required and how they affect cost to the client. The learner should include the graphical charts created in Outcome 3 to highlight the effect of the limitations on the cost. The learner should then create a mail merge using a given file containing relevant client information, to create an automatically generated letter for each client containing their written summary.

Higher National Unit Support Notes (cont)

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Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at **www.sqa.org.uk/e-assessment**.

Opportunities for developing Core and other essential skills

There are opportunities to develop the Core Skills of *Information and Communication Technology (ICT)*, *Numeracy* and *Communication* at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

The specific skills elements for *Information and Communication Technology (ICT)* can be enhanced to a sophisticated level as learners undertake the Unit. The selection of appropriate software application packages and the ability to manipulate, edit and modify numerical, graphical and textual data is an essential aspect of achievement. Selecting and importing relevant data and presenting textual, numerical and graphical information in an appropriate format on screen and in hard copy are required competences. Learners should be encouraged to identify needs of purpose and context and to maximise the effectiveness and impact of information communication. Decisions on the appropriate and effective use of resources, including time, cost and Outcome and an ability to extract information using an effective search strategy will be integral to achievement. Consideration for other users and an adherence to practices and procedures impacting on security and safety would be a routine aspect of good practice. Learners could in some circumstances be advised on techniques for diagnosing, and if practical, correcting some technical problems.

Analysis of resource implications and accuracy of project costings involves calculation and the effective communication of numerical and graphic information is assessed in Outcome 3. Some learners may benefit from formative opportunities to further develop their abilities to understand, analyse and apply numerical and graphic data, and access to dedicated software packages or on-line tutorials to enhance skills may be useful.

Although skills in written communication are not formally assessed, learners should be able to analyse and summarise complex information effectively. Essential ideas and information should be expressed coherently, using formal language and structure appropriate to professional standards. Spelling, punctuation and syntax should be accurate.

In addition to Core Skills, as the Unit is intended to be delivered to emulate a working environment, learners will have the opportunity to develop employability skills.

History of changes to Unit

Version	Description of change	Date

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General information for learners

Unit title: CAD: User Systems (SCQF level 7)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This Unit has been designed to provide you with the knowledge and skills that will enable you to utilise common CAD office applications.

On successful completion of the Unit you will be able to:

1 Manage and transfer files.
2 Create, populate and edit a database with specified information.
3 Link external data to a spreadsheet package to calculate data using complex formulae.
4 Use a word processing package to create a formatted document.

The formal assessment for this Unit is practical although there is a small written and/or oral recorded assessment requirement.

Outcome 1 consists of the operating system being utilised to find specific file types. You will be required to copy files to predetermined directories/folders, where you will then be required to display them in a sorted order. You will store and share these files using a cloud based system. You will be required to investigate and explain the file properties.

Outcome 2 should involve you being presented with a bill of materials, extracted from a CAD system. You will be required to create a database, with correctly defined data types, and transfer this listing into the database. You should create and utilise forms to edit the database before performing a number of searches, (ie queries) to locate specified components.

Outcome 3 should involve you being presented with a spreadsheet containing headings and example formulae. You should link some of the data generated in Outcome 2 and create/use formulae to calculate an accurate total costing for the components listed. You should create 'if' statements and complex formula and use graphical data, (ie charts) to help show how the resulting information.

Outcome 4 should consist of you creating a standard letter for a client. You should create a written summary and format the information appropriately. You will learn and be asked to use mail merge functions within the word processing software.

There are opportunities to develop the Core Skills of *Information and Communication Technology (ICT)*, *Numeracy* and *Communication* at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

In addition to Core Skills, as the Unit is intended to be delivered to emulate a working environment, you will have the opportunity to develop employability skills**.**