

## National Unit Specification: general information

**UNIT** PC Passport: Spreadsheets (Higher)

**NUMBER** DC9R 12

**COURSE** PC Passport

### SUMMARY

This unit is designed to enable candidates to develop advanced spreadsheet skills to a level expected in the workplace. The aim of this unit is to prove that the candidate is able to use a number of tools to create a spreadsheet model and analyse data in a contemporary business situation, and to demonstrate file and folder management.

### OUTCOMES

- 1 Use a computer system to perform complex tasks related to spreadsheets.
- 2 Construct a spreadsheet for a specific purpose.
- 3 Perform complex analysis on spreadsheet data.

### RECOMMENDED ENTRY

Entry is at the discretion of the centre. Candidates should possess prior knowledge and experience of spreadsheet software and be familiar with the main functions of contemporary document production software.

### 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.*

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### Administrative Information

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

### **CORE SKILLS**

This unit contributes to IT Core Skills at Higher level.

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).

## National Unit Specification: statement of standards

### UNIT PC Passport: Spreadsheets (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 to perform complex tasks related to spreadsheets.

##### Performance criteria

- a) The use of computer hardware is efficient and effective.
- b) The use of the operating system is efficient and effective.
- c) Use of help facilities is efficient and effective.
- d) The operating environment is customised to facilitate spreadsheet production.
- e) Common file formats are accurately described and their differences explained.
- f) A wide range of terminology relating to computer hardware, software and spreadsheets is used correctly.

##### Note on range for the outcome

Tasks: Navigating folders; create and delete folders; saving, renaming, moving and copying files; printing files (including cell range); cut, copy and paste cells (within and between spreadsheets, between applications); load and terminate spreadsheet program.

Operating environment customisation: folder structure; backup system; workgroup templates.

##### Evidence requirements

Performance evidence that the candidate can use a computer system to the standards defined by performance criteria (a) to (c). This will be in the form of an observation checklist or other means of recording candidate performance (such as a video recording).

Written evidence that the candidate can customise the operating environment as defined in performance criterion (d). This will be in the form of a report which describes the customisations established to support document production in a specific context; a hard copy of workgroup templates and macros must be supplied.

Evidence of knowledge and understanding will consist of 12 objective questions relating to performance criteria (e) and (f) and underpinning knowledge relating to performance criteria (a) to (d). Candidates are required to produce at least 8 correct answers.

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

### UNIT PC Passport: Spreadsheets (Higher)

#### OUTCOME 2

Construct a spreadsheet for a specific purpose.

##### Performance criteria

- a) The spreadsheet is created efficiently and effectively using the features of the software.
- b) Data entry is accurate and efficient using automation and validation facilities.
- c) The spreadsheet accurately models its defined purpose.
- d) The presentation of the spreadsheet is clear and consistent with its purpose.
- e) The spreadsheet is numerically correct.
- f) Protection facilities are used efficiently and effectively.
- g) Functions are correctly described.

##### Note on range for the outcome

Purpose: personal; commercial.

Features of software: editing features (including undo and search-and-replace); formatting features (including conditional formatting); functions; formulae.

Functions: general; statistical; logical; financial; lookup; database.

##### Evidence requirements

Performance evidence that the candidate can create a spreadsheet to the standards defined by performance criteria (a) to (f). Candidates must create a minimum of five spreadsheets spanning the defined range of purposes. The defined range of functions should be included in the models, although full coverage of the range can be distributed between the models; absolute and relative cell referencing should be used in at least one of the models.

Evidence of knowledge and understanding will consist of 14 objective questions relating to performance criterion (g) and the underpinning knowledge relevant to performance criteria (a) to (f). Candidates are required to produce at least 10 correct answers.

#### OUTCOME 3

Perform complex analysis on spreadsheet data.

##### Performance criteria

- a) Analysis is accurate and results are numerically correct.
- b) Data is appropriately and accurately represented in graphical format.
- c) The selection of chart type is appropriate to the data set.
- d) Future predicted values are accurately estimated using forecasting techniques.
- e) Data analysis tools are correctly described.

##### Note on range for the outcome

Data: routine; familiar; unfamiliar.

Analysis: filtering; goal seeking; charting; forecasting; trend analysis.

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

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### **Evidence requirements**

Performance evidence that the candidate can perform data analysis to the standards defined by performance criteria (a) to (d). Candidates must analyse a minimum of three sets of data, supplied by the assessor; the data sets should be substantial.

Evidence of knowledge and understanding will consist of 14 objective questions relating performance criterion (d) and the underpinning knowledge relevant to performance criteria (a) to (c). Candidates are required to produce at least 9 correct answers.

### **EVIDENCE REQUIREMENTS FOR THE UNIT**

The assessment of knowledge and understanding can be combined into a single instrument of assessment consisting of 40 objective questions relating to outcomes 1, 2 and 3. The distribution of questions should adhere to the evidence requirements for each outcome:

Outcome 1	12 questions
Outcome 2	14 questions
Outcome 3	14 questions.

The combined pass mark for this assessment is 27 correct answers (out of 40 questions). If a single instrument of assessment is used, it is not necessary to satisfy the pass mark for each outcome. Candidates will be deemed to have achieved all outcomes (with respect to their knowledge and understanding) if their combined score is at least 27 out of 40. However, for the purposes of re-assessment, the individual thresholds for each outcome will be followed.

## National Unit Specification: support notes

### UNIT PC Passport: Spreadsheets (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**

This unit may be delivered as a stand-alone unit or in combination with other units as part of the PC Passport award at Higher level.

This unit is one of a series of units entitled *Spreadsheets*. Similar units exist at Intermediate 1 and Intermediate 2 levels.

#### ***Corresponding to Outcomes 1-3***

The term “spreadsheets” is used to indicate the use of full-featured spreadsheet applications which go beyond a mere text editor and provide full formatting and layout facilities along with table feature and mailmerge and macros.

#### ***Outcome 1***

This outcome relates to the complex tasks candidates must be able to perform in order to make use of a spreadsheet application. Complex tasks are those required at a level expected of someone who might be regarded as an expert in the context of the workplace. The required tasks are defined in the range. The performance criteria define the standards which should be applied to candidate activity.

Performance criterion (a) requires the candidate to use hardware efficiently and effectively. The range of hardware used by candidates will vary from centre to centre, but typical hardware would include: keyboard, pointing device (such as a mouse), screen, printer and system unit. Effective use of hardware means that, for example, candidates will be able to use the hardware without assistance and even demonstrate some willingness and ability to do first-line troubleshooting. Eg If a monitor was blank then the student should be able to check whether the monitor has power and connected properly to system unit and whether or not system unit has power and whether or not there is hard disk activity. They are also expected to complete the prescribed range of activities efficiently, in other words, within an acceptable period of time and without too many attempts. The tasks set for candidates should be challenging and include tasks expected of someone who might be regarded as an expert in the context of the workplace (such as demonstrating use of advanced features).

Performance criterion (b) requires candidates to use an operating system efficiently and effectively. The use of the OS should be limited to that required to carry out the tasks defined in the range. At this level, there is a requirement that candidates not only accomplish the task (which relates to effectiveness) but that they also complete the task efficiently – without assistance and within a short period of time. Appropriate folder structures would be expected.

Performance criterion (c) relates to the help facility of a spreadsheet application. Candidates should be able to effectively navigate to information in the help database or on the Web.

Performance criterion (d) requires candidates to customise the operating environment to facilitate document production. They should be able to choose which toolbars are displayed, modify which buttons are displayed and even create new buttons. They should also make good use of the view menu to zoom in and out.

## National Unit Specification: support notes (cont)

### UNIT PC Passport: Spreadsheets (Higher)

Performance criterion (e) requires candidates to familiarise themselves with the range of file types which can be opened, saved, inserted or imported into Excel. S/he should be aware that the standard extension for the full MS Excel workbook file is \*.xls, and if saved as a template \*.xlt, others include: text for PC (\*.txt) or Mac; CSV (comma separated values (PC \*.CSV or Mac) and SYLK (Symbolic Link) as well as WK5 (Lotus 1-2-3). Many of the above files can also be imported eg CSV as can single tables from databases. Single worksheets can be exported to databases as tables. Graphics files like \*.GIF, JPEG and TIFF can be inserted. In addition candidates are expected to explain differences between the formats.

Performance criterion (f) relates to the terminology of spreadsheets. At this level, candidates are expected to possess an extensive technical vocabulary relating to computer hardware, computer software and all aspects of full-featured spreadsheets.

#### **Outcome 2**

This outcome relates to creating a range of spreadsheets. These must cover advanced features and functions listed in the range. The context and the level should be challenging and relate to personal and business situations. The performance criteria define the standards which should be applied to candidate activity.

Performance criterion (a) requires candidates to create complex spreadsheets using the advanced features of the software with assurance and using templates and macros where appropriate. Important points to bear in mind would be to know at this stage what sort of portfolio it is destined for and save and/or print accordingly to local machine and/or network and/or removable medium.

Performance criteria (b and e) require that data is entered accurately and also efficiently. Use of numeric keypad, Enter key, range selection, replication, series and macros is required. In any case input must not be unduly slow particularly where a fast method is available. Eg Students should not type a series of dates by hand when it can be set up by a range of two cells and then replication.

Performance criterion (c and d) require candidates to follow the instructions for the exercise in such a way that the final resulting spreadsheet matches the instructions sufficiently to be described as fit-for-purpose. For instance a forecasting spreadsheet should do its job.

Performance criterion (f) requires that various parts of a full workbook file are locked and/or password protected and/or encrypted.

Performance criterion (g) requires that functions are described correctly. This should not be difficult with the help facilities of a modern spreadsheet but that description must also translate into sufficient understanding to enter the correct data and syntax into the function to ensure the correct result. The ability to estimate can prove invaluable here.

#### **Outcome 3**

This outcome relates to manipulating and representing the Spreadsheet data but also going on to use the full power of spreadsheets to analyse and forecast.

Performance criterion (a) requires candidates to analyse data and produce accurate results.

## National Unit Specification: support notes (cont)

### UNIT PC Passport: Spreadsheets (Higher)

Performance criterion (b) relates to selecting a range of data and charting it to lend impact to the figures.

Performance criterion (c) require the student to understand the complex data supplied, represent it sensibly in rows and columns, make use of a range of advanced functions and finally to present the data in a compelling way with the aid of suitable types of chart eg Understanding of the concept of a data set or series is vital here and previewing the effects of choices.

Performance criterion. (d) is perhaps the most demanding and may require filtering, goal seeking, forecasting and trend analysis to be used in relatively complex commercial scenarios.

Performance criterion. (e) will require the student to describe the tools successfully used in Performance Criteria (a-d).

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

A practical, hands-on approach to learning should be adopted. The emphasis should be on learning-by-doing. Terminology and underpinning knowledge should be introduced in a practical context.

The actual distribution of time between outcomes is at the discretion of the centre. However, the following distribution is suggested as Outcome 2 will require the composition of some technically challenging and sophisticated documents using advanced features:

Outcome 1	10 hours
Outcome 2	14 hours
Outcome 3	16 hours

### **GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT**

It is recommended that centres combine the assessment of knowledge and understanding into a single objective question paper. Re-assessment should be undertaken by re-assessing the specific outcomes which have not been passed.

Evidence of practical competence should be stored in a portfolio. At the completion of this unit the portfolio should contain a range of evidence, drawn from the evidence requirements for each outcome. This will include an observation checklist based on all the outcomes

This material may be stored in paper or electronic format. Centres may choose to store candidate evidence in an electronic portfolio (e-portfolio).

### **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).