

SQA Advanced Unit specification: general information

Unit title: Configuring a Desktop Operating System

Unit code: HR85 47

Superclass: CA

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Unit purpose

This Unit is designed to introduce candidates to the issues involved in installing, configuring, troubleshooting and maintaining a client operating system. It is intended for candidates undertaking an SQA Advanced Qualification in Computing or a related area, who require a broad knowledge of client operating systems and desktop support. Candidates should be able to install, deploy, and upgrade an operating system, including user migration, ensuring hardware and software compatibility. Additionally, candidates should be able to configure pre-installation and post-installation system and user settings, security features, network connectivity, applications, and mobile computing. Candidates should be able to maintain systems, including monitoring for and resolving performance and reliability issues.

- 1 Perform and configure an appropriate installation of a desktop operating system.
- 2 Configure, manage and troubleshoot access to resources, desktop and user environments.
- 3 Configure network protocols and services.

Recommended prior knowledge and skills

Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer hardware and software. This may be demonstrated by the possession of Units such as: HT0F 46 Hardware Concepts, HT0E 46 Operating System Concepts and/or HR79 48 Computer Operating Systems 2. Alternatively, candidates might provide evidence of informal prior learning or experience, or the achievement of commercially recognised qualifications.

SQA Advanced Unit Specification

Credit points and level

2 SQA Credits at SCQF level 7: (16 SCQF credit points at SCQF level 7*)

**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 National 1 to Doctorates.*

Core Skills

There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

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.

Assessment

Evidence for the knowledge and/or skills for the Unit must be produced using a set of 60 multiple-choice/multiple-response questions to assess candidates' capabilities. This should be administered as a single end-of-Unit test covering all outcomes.

Candidates must answer at least 60% of the questions correctly in order to obtain a pass.

Testing must take place in a closed-book environment where candidates have no access to books, handouts, notes or other learning material. Testing can be done in either a machine-based or paper-based format and must be invigilated by a tutor or mentor. There must be no communication between candidates and communication with the invigilator must be restricted to matters relating to the administration of the test.

If a candidate requires to be re-assessed, a different selection of questions must be used from all sections. A significant proportion of the questions used in the re-assessment must be different from those used in the original test. Candidates must answer at least 60% of the re-assessment questions correctly in order in to obtain a pass.

Unit specification: statement of standards

Unit title: Configuring a Desktop Operating System

The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Please refer to *Knowledge and/or Skills for the Unit* and *Evidence Requirements for the Unit* after the Outcomes.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Perform and configure an appropriate installation of a desktop operating system.

Knowledge and/or Skills

- ◆ Install a fresh operating system.
- ◆ Deploy an operating system using a captured system image.
- ◆ Upgrade an existing operating system.
- ◆ Migrate users from an existing operating system to a new operating system.
- ◆ Configure a virtual hard disk.
- ◆ Ensure hardware and software compatibility with a planned operating system.
- ◆ Configure devices.
- ◆ Configure pre- and post-installation system settings.

Evidence Requirements

This assessment is carried out as an end-of-Unit test combining assessments for all Outcomes within the Unit. (See Outcome 3 for details.)

Assessment Guidelines

The assessment guidelines are found in Outcome 3.

SQA Advanced Unit Specification

Outcome 2

Configure, manage and troubleshoot access to resources, desktop and user environments.

Knowledge and/or Skills

- ◆ Configure operating system security.
- ◆ Configure network access.
- ◆ Configure mobile computing.
- ◆ Configure a browser.
- ◆ Configure an application.
- ◆ Configure a desktop environment.
- ◆ Monitor and maintain an operating system for performance and reliability.

Evidence Requirements

This assessment is carried out as an end of Unit test combining assessments for all Outcomes within the Unit. (See Outcome 3 for details.)

Assessment Guidelines

The assessment guidelines are found in Outcome 3.

Outcome 3

Configure network protocols and services.

Knowledge and/or Skills

- ◆ Configure IPv4 network settings.
- ◆ Configure IPv6 network settings.
- ◆ Configure networking service settings.
- ◆ Configure a local firewall.
- ◆ Configure remote management.

Evidence Requirements

The assessment for all Outcomes must be undertaken at the end of the Unit. The candidate capabilities will be examined by 60 multiple-choice/multiple-response questions with appropriate sampling of the complete Unit content. The sample must cover **all** outcomes with a suitable selection of at least 50% of the Knowledge and Skills points listed for each of the outcomes.

The assessment must be undertaken in supervised conditions and is closed book. A candidate must complete this assessment within 2 hours. Candidates may not bring to the assessment event any notes, textbooks, handouts or other material (calculators are allowed). The questions presented must significantly change on **each** assessment occasion.

SQA Advanced Unit Specification

Assessment Guidelines

Testing can be done in either a machine-based or paper-based format and must be invigilated by a tutor or appropriate person. There must be no communication between candidates and communication with the invigilator must be restricted to matters relating to the administration of the test. Centres are recommended to create a coverage grid to highlight which questions cover which knowledge and skills bullet points to assist in the assessment process.

Unit specification: support notes

Unit title: Configuring a Desktop Operating System

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 80 hours.

Guidance on the content and context for this Unit

This Unit should be delivered in a real world context throughout. Individual, class and group discussions should be used to enhance comprehension and learning. Practical demonstration of the tasks involved in the teaching of this Unit should be linked to real world situations wherever possible. It is important that any required concepts and terminology are discussed and presented in an appropriate context.

The intention is that a significant time is available within the delivery of this Unit to allow centres to develop candidates to the correct level prior to assessment. Formative assessments, tutorials and frequent revision should be used to this end all through the duration of this Unit delivery. Candidates should be encouraged to accept responsibility for their own learning by providing opportunities to present chosen topics to the class and to assist others within class in the context of desktop support technicians.

The most important overall emphasis should be on the relevance and currency of content in such a rapidly evolving field. It is recommended that Centres deliver this Unit within the context of modern operating systems, eg installing components, customising settings and troubleshooting security and services associated with the chosen modern system.

This Unit may assist in preparing for vendor certifications like the Microsoft examination 70-680 TS: Windows 7, Configuring. Please see the separate credit transfer document which gives details of vendor certifications that will be accepted as assessment evidence. Vendor certifications can change rapidly and candidates should be encouraged to check current details at the relevant vendor web site to ensure all the objectives have been met. This Microsoft examination contributes towards the Microsoft Certified IT Professional Enterprise Desktop Support Technician (MCITP: EDST) certification and Microsoft Certified IT Professional Enterprise Desktop Administrator (MCITP: EDA) certification.

The Outcomes in this Unit have been written in a vendor-independent manner. There is no restriction placed on the operating system to be used and centres are free to choose alternative operating systems.

Guidance on the delivery and assessment of this Unit

This unit is likely to form part of a group award which is primarily designed to provide candidates with the technical or professional knowledge and skills related to a specific occupational area. It is moderately technical in content and should not be adopted by group awards in other areas or delivered as a stand-alone Unit without careful consideration of its appropriateness.

SQA Advanced Unit Specification

It is a Unit which candidates are likely to find accessible at an introductory level. It is suggested that it be delivered only as part of an SQA Advanced programme in Computing or a related area. It should be delivered in tandem with other Computing Units and opportunities for teaching and assessment integration explored.

To minimise assessment overhead, one set of closed-book multiple-choice/multiple-response questions is used to provide evidence of candidates' capabilities for all Outcomes. As well as reducing the time required for assessment and marking, these reduce the need for candidates to memorise details and encourages understanding. Candidates must meet the necessary threshold to gain a pass.

If a candidate requires to be re-assessed, a significant number of different questions must be used from all sections. The questions used in the re-assessment must be significantly different from those used in the original test. Candidates must meet the necessary threshold to gain a pass.

This Unit may assist in preparing for vendor certifications like the Microsoft examination 70-680 TS: Windows 7, Configuring. Please see the separate credit transfer document which gives details of vendor certifications that will be accepted as assessment evidence. Vendor certifications can change rapidly and candidates should be encouraged to check current details at the relevant vendor web site to ensure all the objectives have been met. The Microsoft examination contributes towards the Microsoft Certified IT Professional Enterprise Desktop Support Technician (MCITP: EDST) certification and Microsoft Certified IT Professional Enterprise Desktop Administrator (MCITP: EDA) certification.

The content of this Unit may be delivered using vendor-supplied curricula. As these materials are under continuous development, centres should check the appropriate vendor web site to ensure that such materials meet all the requirements of for this Unit.

Outcome 1

The candidate will install, upgrade and deploy an operating system. This will involve performing a clean install of an operating system, performing an upgrade of an existing operating system and performing a deployment of an operating system from an image the candidate created previously. The candidate will carry this out on both physical and a virtual environments. The candidate will be asked to check hardware requirements, use various installation methods, migrate user data, capture a system image, prepare a system image for deployment and deploy it to both physical and virtual environments.

Outcome 2

The candidate will be asked to configure hardware devices and software applications within an operating system previously configured. This will include updating, disabling, uninstalling, troubleshooting and configuring drivers. The candidate will check applications for operating system compatibility, configure applications for operation within a controlled environment and configure secure access to resources. The candidate will monitor and maintain an operating system to ensure reliance, data security and optimal performance.

SQA Advanced Unit Specification

Outcome 3

The candidate will configure aspects of networking in a desktop operating system such as the network protocols and services required to use a desktop/laptop in a modern environment. This will involve configuring IPv4, configuring IPv6, configuring a machine based firewall and configuring remote access. Both wired and wireless environments will be used. The candidate will configure aspects of mobile computing such as encryption, authentication and security.

Opportunities for developing Core Skills

There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Open learning

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance.

A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes.

For further information and advice, please see Assessment and Quality Assurance for Open and Distance Learning (SQA, February 2001 – publication code A1030)

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.

History of changes to Unit

Version	Description of change	Date

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SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of SQA Advanced Qualifications.

FURTHER INFORMATION: Call SQA's Customer Contact Centre on 44 (0) 141 500 5030 or 0345 279 1000. Alternatively, complete our [Centre Feedback Form](#).

General information for candidates

Unit title: Configuring a Desktop Operating System

This is a Unit intended for candidates undertaking a Computing or IT-related qualification who require a broad knowledge of client operating systems and desktop support to the level required by the industry. It is designed to develop an understanding of the issues involved in configuring, troubleshooting and maintaining a client operating system, installing and administering a client operating system. This understanding of the issues is then applied across the practical tasks covered within the Unit delivery.

On completion of the Unit you should be able to:

- 1 Perform and configure an appropriate installation of a desktop operating system.
- 2 Configure, manage and troubleshoot access to resources, desktop and user environments.
- 3 Configure network protocols and services.

In the first part of the course you will install, upgrade and deploy an operating system. This will involve performing a clean install of an operating system, performing an upgrade of an existing operating system and performing a deployment of an operating system from an image you created previously. You will carry this out on both physical and virtual environments. In this part you will check hardware requirements, use various installation methods, migrate user data, capture a system image, prepare your system image for deployment and deploy it to both physical and virtual environments.

The second part of the course will allow you to configure hardware devices and software applications within an operating system previously configured by you. This will include updating, disabling, uninstalling, troubleshooting and configuring drivers. You will check applications for operating system compatibility, configure applications for operation within a controlled environment and configure secure access to resources. You will monitor and maintain an operating system to ensure reliance, data security and optimal performance.

The third part of the course will allow you configure aspects of networking in a desktop operating system. You will configure the network protocols and services required to use a desktop/laptop in a modern environment. This will involve configuring IPv4, configuring IPv6, configuring a machine based firewall and configuring remote access. Both wired and wireless environments will be used. You will configure aspects of mobile computing such as encryption, authentication and security.

This Microsoft examination contributes towards the Microsoft Certified IT Professional Enterprise Desktop Support Technician (MCITP: EDST) certification and Microsoft Certified IT Professional Enterprise Desktop Administrator (MCITP: EDA) certification.