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National Unit specification: general information

Unit title: Computing: Troubleshoot Desktop Operating Systems (SCQF level 6)

Unit code: FX1M 12

Superclass:	CB
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Source:	Scottish Qualifications Authority
Version:	01

Summary

The purpose of this Unit is to introduce candidates to the issues involved in configuring and troubleshooting a desktop operating system. The candidate will perform installations using a variety of methods. An important outcome of this Unit is to provide candidates with the confidence that they can solve common operating system errors.

This is a mandatory Unit in the NC Computing: Technological Support (SCQF level 6). It can also be taken as a standalone Unit.

This Unit is suitable for a wide range of candidates but is particularly appropriate for those who are interested in a career in technical support.

Outcomes

1 Describe installation methods, system requirements and common installation errors.
2 Perform desktop operating system installations.
3 Configure, manage and troubleshoot access to resources, desktop and user environments.

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:

♦ F1K2 11 Computing: Computer Hardware and Systems (SCQF level 5)
♦ F1KD 11 Computing: Troubleshoot and Secure IT Systems (SCQF level 5)

National Unit specification: general information (cont)

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Credit points and level

1 National Unit credit at SCQF level 6: (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

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

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

National Unit specification: statement of standards

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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

Describe installation methods, system requirements and common installation errors.

Performance Criteria

(a) Identify different installation methods and requirements.
(b) Identify common installation errors.

Outcome 2

Perform desktop operating system installations.

Performance Criteria

(a) Perform an attended installation.
(b) Perform an unattended installation.
(c) Perform an upgrade installation.

Outcome 3

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

Performance Criteria

(a) Configure and troubleshoot the user environment.
(b) Manage and troubleshoot access to shared folders/directories.
(c) Configure and troubleshoot local user and group accounts
(d) Troubleshoot system start-up and user logon problems.

National Unit specification: statement of standards (cont)

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Evidence Requirements for this Unit

Evidence is required to demonstrate that candidates meet the requirements of all Outcomes and Performance Criteria.

Outcome 1 — Written and/or oral recorded evidence that demonstrates that the candidate can:

♦   identify different installation methods (Clean, Upgrade by either attended or unattended methods and requirements (CPU, Memory, Hard disk space, Display, Input devices, CD-ROM, Network adapter card)
♦   identify a minimum of three common installation errors

The evidence for this Outcome must be obtained under controlled, supervised conditions. The assessment will be closed-book.

Outcome 2 — Written and/or oral recorded and performance evidence that demonstrates that the candidate can:

♦   perform an attended installation of a desktop operating system and complete a record of the tasks carried out including the application of service pack updates
♦   perform and troubleshoot an unattended installation of a desktop operating system and complete a record of the tasks carried out, including any unattended installation files or scripts used
♦   upgrade from a previous version of desktop operating system and complete a record of the tasks carried out, including migration of user state data from an existing computer to a new computer

 Outcome 3 — Written and/or oral recorded and performance evidence that demonstrates that the candidate can:

♦   configure and troubleshoot the user environment and complete a record of the tasks carried out including toolbar and/or task settings, accessibility options, pointing devices, ie mouse or similar and fast user switching
♦   manage and troubleshoot access to shared folders/directories and complete a record of the tasks carried out including access to shared folders, including partition volumes
♦   configure and troubleshoot local user and group accounts and complete a record of the tasks carried including rights and permissions
♦   troubleshoot system start-up and user logon problems and complete a record of tasks carried out

The evidence for Outcomes 2 and 3 must be obtained under controlled, supervised conditions. The assessment will be open-book. Candidates will have access to notes and reference books.

National Unit specification: support notes

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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 is aligned to the following e-Skills UK National Occupational Standards level 3: IT Security for Users/Optimise IT System Performance.

The overall aim of this Unit is to enable candidates to develop the skills required to support the end user with installing and configuring the operating system.

The current context for this Unit is the on-going demand for computer support personnel as organisations adopt and integrate new and increasingly complex technologies. An important outcome of this Unit is to provide candidates with the confidence that they can solve common operating system errors.

This Unit should ideally be delivered over an extended period of time to give candidates the opportunity to configure and troubleshoot many scenarios. The precise content of this Unit will change over time as computing technology develops and new versions of system software are introduced.

Outcome 1

This Outcome relates to the knowledge and understanding of the installation and configuration of an operating system and procedures a desktop support technician should adopt in industry.

Candidates should be able to identify, configure and troubleshoot installation types and methods.

This should include clean, upgrade by either attended or unattended methods.

A candidate should be able to troubleshoot attended installation procedures by determining what has changed, eliminating possible causes, identifying, and test solutions and be able to modify boot options.

♦ Hardware requirements for installation — CPU, Memory, Hard disk space, Display, Input devices, CD-ROM, Network adapter card.
♦ Checking compatibility of hardware — Windows Catalog, Preparing BIOS, Manufacturers site.
♦ Preparation of the Hard Disk — Disk Partitioning, File System.
♦ Identification of methods available for installation — Attended, unattended, upgrade.
♦ Troubleshoot common installation errors.
♦ Troubleshoot upgrades — Including Upgrade Paths, Migrating Existing User Environments.
♦ Troubleshoot unattended installations.

National Unit specification: support notes (cont)

Unit title: Computing: Troubleshoot Desktop Operating Systems (SCQF level 6)

Outcome 2

Candidates should be able to perform a clean and upgrade installation of a Desktop Operating System. This should be carried out using both attended and unattended methods.

They should be able to perform the following regardless of any type of installation:

♦ hard disks (formatting and partitioning) including, file system choices
♦ hardware compatibility, BIOS settings, configuring device drivers and hardware issues relating to an installation

For unattended installation of a desktop operating system a candidate should be able to use automated answer files.

Candidates should be able to perform an upgrade from a previous version of a desktop operating system by running the upgrade advisor. They should be able to use migration tools in a workgroup to transfer user data safely and know how to uninstall an upgrade

Outcome 3

Candidates should be able to configure, manage and troubleshoot access to resources, desktop and user environments.

Configure the user environment: candidates must know how to configure and manage user profiles (local and roaming), start-up menus and task bar options, desktop and folder views, user configuration and accessibility options.

Monitor, manage, and troubleshoot access to files and folders/directories: candidates must know how to manage files and folders and troubleshoot access to files and folders (shared and offline). How/ when to use file compression, encrypting file system and the different types of files and folders you have/can create.

Configure and troubleshoot local user and group accounts: candidates must be able to identify the different types of user accounts (system, administrative, local and domain), user profiles, and user rights (administrative, limited, guest etc) that can be configured, applied and managed in a local or domain environment including password management and fast user switching.

Troubleshoot system start-up and user logon problems: candidates must be able to configure, manage and troubleshoot logon problems associated with corrupt profiles, cached credentials, missing domain controller or incorrect connection to domain and bad password issues.

National Unit specification: support notes (cont)

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Guidance on learning and teaching approaches for this Unit

A practical hands-on approach to learning should be adopted to engage learners and exemplify key concepts. However, all practical activities should be underpinned with appropriate knowledge before candidates commence these activities.

Role plays could be adopted to practically envisage troubleshooting in Outcome 3. This could be done face to face or by phone/internet.

The actual time distribution between Outcomes is at the discretion of the centre.

Guidance on approaches to assessment for this Unit

Written and/or recorded oral evidence is required which demonstrates that the candidate has achieved Outcome 1. The evidence for this Outcome should be obtained under controlled, supervised conditions. The assessment will be closed-book. It's recommended that this assessment is completed within 45 minutes.

Where re-assessment of knowledge and understanding is required the questions presented to the candidate must be different on each assessment occasion.

The assessment for Outcome 2 could consist of a series of practical tasks. The tasks will involve the observation of the candidate over an extended period of time during which the candidate is required to maintain an activity log. It is recommended that this assessment is started at the earliest opportunity, as soon as the candidate has acquired the necessary knowledge and skills to permit him/her to commence appropriate tasks.

The performance evidence for Outcome 3 will consist of a candidate activity log. This activity log will provide a record of candidate activity during this Unit and also provide evidence that the candidate has satisfied all the Performance Criteria for Outcome 3.

An assessor must endorse each candidate activity log together with the candidate with each of their names, signatures and the relevant date(s). The assessor observation checklist will be used to record that all the tasks have been undertaken correctly by the candidate. An assessor must endorse each checklist with the candidate's name, their name, signature and date.

Opportunities for the use of 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 candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003), SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

National Unit specification: support notes (cont)

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It may be appropriate for some of the evidence for this Unit to be produced using e-assessment. This may take the form of e-testing (for knowledge and understanding) and/or e-portfolios (for practical abilities). Centres using e-assessment must ensure the normal standards for validity and reliability are observed.

If a centre is presenting Outcome 1 of these assessments on-line the following assessment methods, where appropriate, may be selected:

♦   Multiple choice
♦   Drag and drop
♦   Multiple response
♦   Mix and match
or a combination of the above.

It is expected that the questions will be of the multiple-choice variety. Centres may consider the use of alternative question types, particularly if using Computer Assisted Assessment approaches. However, care should be taken that the questions are valid and at an appropriate level. Simple true/false question responses are unlikely to achieve this and should not be used.

Opportunities for developing Core Skills

In this Unit candidates will develop skills required to support the end user with installing and configuring the operating system.

Candidates will:

◆   identify, configure and troubleshoot installation types and methods
◆   troubleshoot attended installation procedures by determining what has changed, eliminating possible causes, identifying, and testing solutions and be able to modify boot options
◆   perform a clean and upgrade installation of a Desktop Operating System using both attended and unattended methods.
◆   use migration tools to transfer user data safely and uninstall an upgrade
◆   configure and manage user profiles
◆   manage files, folders and user accounts
◆   configure, manage and troubleshoot logon

This means that as candidates are doing this Unit they will be developing aspects of the Core Skills of *Problem Solving* and *Information and Communication Technology.*

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**

History of changes to Unit

Version	Description of change	Date