



National Unit Specification: general information

Unit title: Computing: Install and Configure Networked Hardware and Software (SCQF level 5)

Unit code: FY78 11

Superclass: CB

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Summary

The purpose of this Unit is to enable candidates to plan, build and test a small computer network from a given brief. It will allow candidates to go progress from environments with existing non-networked computers to set up and test networks. It will give candidates an opportunity to learn about shared folder permissions as they set up a folder directory and allow users access. It includes the opportunity to install and configure anti-virus software.

This is an optional Unit in the NC Computing: Technical Support at SCQF level 5. It is also available as a standalone Unit.

This Unit is suitable for candidates who have a basic knowledge of networking theory and who are interested in planning and building networks.

Outcomes

- 1 Produce a network installation plan from a given brief.
- 2 Build and test a computer network.
- 3 Configure software and systems.

Recommended entry

While entry is at the discretion of the centre, it would be beneficial if candidates have attained F1KH 11 *Computing: Computer Network Fundamentals*.

National Unit Specification: general information (cont)

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Credit points and level

1 National Unit credit at SCQF level 5: (6 SCQF credit points at SCQF level 5*).

**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 component 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

Produce a network installation plan from a given brief.

Performance Criteria

- (a) Identify health and safety issues to be considered in relation to networking.
- (b) Identify practical considerations and potential problems during installation.
- (c) Outline the hardware and software to be used in the network.
- (d) Create an installation plan.

Outcome 2

Build and test a computer network.

Performance Criteria

- (a) Prepare computers for networking.
- (b) Connect and configure the network.
- (c) Test the network.

Outcome 3

Configure software and systems.

Performance Criteria

- (a) Create and configure user accounts according to a given brief.
- (b) Create directory structure with appropriate access permissions.
- (c) Install and configure appropriate software to meet the requirements of the brief.

National Unit Specification: statement of standards (cont)

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Evidence Requirements for this Unit

Evidence is required to demonstrate that candidates have achieved all Outcomes and Performance Criteria.

For Outcome 1, written/oral recorded and product evidence is required to demonstrate that the candidate can produce an installation plan for networking two PCs without network cards and with appropriate cabling, network devices, etc. The installation plan should include:

- ◆ information gathered from surveying the environment in which the network is to be built
- ◆ a report detailing specification of PCs to be networked including installed software
- ◆ the client brief
- ◆ physical and logical diagrams
- ◆ a record of all steps taken in the planning of the network including the chosen topology and media types to be used, all hardware and software installation/upgrading and a proposed schedule of work, also all materials required including software and all appropriate health and safety considerations.

For Outcome 2 performance evidence is required to demonstrate that the candidate can:

- ◆ Install a Network Interface Card and appropriate drivers
- ◆ Correctly connect and configure a minimum of two computers, using appropriate network devices, cabling IP schemes, workgroups, etc
- ◆ Test connectivity using appropriate hardware and software tools.

For Outcome 3 performance evidence is required to demonstrate that the candidate can:

- ◆ install and configure anti-virus and e-mail software
- ◆ set up a folder directory as per the brief with appropriate basic share permissions in place for users including read, change and full control
- ◆ maintain a testing log with appropriate screen shots
- ◆ detail all steps taken to configure software and systems.

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

The overall aim of this Unit is to enable candidates to understand what is involved in the installation and configuration of a small network.

The candidate should be given a brief in which existing standalone PCs require to be networked for file and printer sharing, this should include floor plans and possibly photographs of a real office space. The candidate should then survey this environment and plan an appropriate network installation which should be prototyped and tested.

The candidate should be given a brief in which a directory structure is required and users require different levels of access to files and folders. Appropriate software such as anti-virus should be installed on PCs. The Unit should provide as realistic a situation as possible.

Within the NC Computing: Technical Support at SCQF level 5 this Unit could be delivered alongside or after the Unit *Computing: Network Fundamentals* (SCQF level 5) as the knowledge gained underpins activities carried out in this Unit.

This Unit is aligned to the following National Occupational Standards from eskills:

- ◆ IT/Technology infrastructure design and planning, competence (4.8.J.1). Follow under supervision, organisation strategy for IT/technology infrastructure design and planning activities point (f).

Guidance on learning and teaching approaches for this Unit

A practical approach could be adopted to engage learners. The use of virtual machines and/or simulation software is encouraged to enable candidates to plan and test networks. The candidate could be introduced to appropriate software for producing network diagrams. Candidates should be introduced to an appropriate PC auditing tool in order to complete their hardware and software report.

Guidance on approaches to assessment for this Unit

Assessment for Outcome 1 could be in the form of a report, including all relevant diagrams covering all of the Evidence Requirements. The hardware and software report should be generated from a report given by an appropriate PC auditing tool.

Assessment for Outcome 2 could take the form of a practical activity in which the candidate is observed fulfilling the Evidence Requirements by an assessor and should be supplemented by candidate logs and an assessor checklist.

National Unit Specification: support notes (cont)

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Assessment for Outcome 3 should take the form of combination of practical and oral/written activity. This activity can be supplemented by a candidate log and an assessor checklist. An accompanying report could be produced in the candidate's own words.

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 e-checklists. 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)*.

Opportunities for developing Core Skills

In this Unit candidates will develop skills in planning, building and testing a small computer network from a given brief.

Candidates will:

- ◆ survey the environment and carry out a systems audit
- ◆ produce a hardware and software report of computers to be networked
- ◆ plan an appropriate network installation which will take into account Health and Safety issues, practical considerations and potential problems
- ◆ build and test a computer network
- ◆ create and configure user accounts according to brief
- ◆ create directory structure with appropriate access permissions
- ◆ install and configure appropriate software

As candidates are doing this Unit they will be developing aspects of the Core Skills of *Problem Solving, Communication and Information and Communication Technology (ICT)*.

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

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