



National Unit Specification: general information

UNIT Security, Alarm and Communication Systems (SCQF level 5)

CODE F5JM 11

SUMMARY

This Unit is intended for candidates with little or no prior knowledge of security, alarm and communication systems but who wish to gain a basic understanding of how such systems function.

The aim of this Unit is to introduce candidates to the various types of system, enable them to recognise and use the relevant terminology and to gain a basic understanding of the system requirements.

This Unit may form part of a National Qualification Group Award or may be offered on a free-standing basis.

OUTCOMES

- 1 Identify security, alarm and communication systems.
- 2 Describe the component parts of security, alarm and communication systems.
- 3 Describe the operation of basic security, alarm and communication systems.

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:

- ◆ Standard Grade Mathematics — General Level
- ◆ Standard Grade Technological Studies — General Level
- ◆ Standard Grade Science — General Level

Administrative Information

Superclass: QH

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National Unit Specification: general information (cont)

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CREDIT VALUE

1 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

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

This Unit provides opportunities for candidates to develop aspects of the following Core Skills:

- ◆ Problem Solving (SCQF level 5)
- ◆ Communication (SCQF level 5)
- ◆ Using Information Technology (SCQF level 5)

These opportunities are highlighted in the Support Notes of this Unit Specification.

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

Identify security, alarm and communication systems.

Performance Criteria

- (a) Describe clearly the purpose of intruder security, fire alarm and communication systems.
- (b) Describe correctly the terminology used with intruder security, fire alarm and communication systems.
- (c) Identify correctly intruder security, fire alarm and communication systems from given diagrams and information.

OUTCOME 2

Describe the component parts of security, alarm and communication systems.

Performance Criteria

- (a) Identify correctly the component parts of intruder security, fire alarm and hard-wired local area network (LAN) data communication systems.
- (b) Describe clearly the function of intruder security, fire alarm and hard-wired local area network (LAN) data communication system components.
- (c) Describe clearly the operation of intruder security, fire alarm and hard-wired local area network (LAN) data communication system components.

OUTCOME 3

Describe the operation of basic security, alarm and communication systems.

Performance Criteria

- (a) Describe correctly the operation of a basic intruder security system from given diagrams and information.
- (b) Describe correctly the operation of a basic fire alarm system from given diagrams and information.
- (c) Describe correctly the operation of a basic hard-wired LAN data communication system from given diagrams and information.

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.

Written and/or recorded oral evidence should be produced to demonstrate that the candidate has achieved all the Outcomes and Performance Criteria. The evidence should be produced under supervised, controlled conditions in a practical environment throughout the duration of the Unit.

An appropriate form of assessment could be a single, holistic assignment which incorporates all the Outcomes and Performance Criteria.

Candidates should be presented with diagrams and information relating to:

- ◆ a basic intruder security alarm system
- ◆ a basic fire alarm system
- ◆ a basic hard-wired local area network data communications system

From this information the candidate should, for each system:

- ◆ describe the purpose of the system
- ◆ describe three terms used with each system
- ◆ identify the system from the diagrams and information
- ◆ identify correctly the component parts the systems
- ◆ describe the function of the system components
- ◆ describe the operation of the system components
- ◆ describe the operation of the system

Assessors should use a checklist to record candidate's achievement as they demonstrate the knowledge and skills set out in the Performance Criteria of each Outcome.

National Unit Specification: support notes

UNIT Security, Alarm and Communication Systems (SCQF level 5)

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 is an optional Unit within the National Certificate in Electrical Engineering at SCQF level 5. This Unit can also be delivered on a free-standing basis.

The aim of this Unit is to introduce candidates to security, alarm and communication systems and the terminology of these systems.

The Unit will enable candidates to recognise intruder security, fire alarm and hard-wired local area network data communications systems, to know their component parts and operating principles.

Candidates should be provided with practical examples of security systems, fire alarm systems and hard-wired LAN data communications systems and the need for and operation of such systems should be discussed.

Candidates should know the difference between normally open and closed circuits for security and alarm circuits and be able to compare their relative advantages and disadvantages. They should also be introduced to the terminology of security, alarm and communications systems and be able to discuss their operation.

Terms including the following should be described and examples given: visual warning devices, audible warning devices, LED, bell, buzzer, motorised siren, electronic sounder, actuating devices, key switch, glass point, smoke detector, heat detector, presence detector, magnetic reed switch, relay, supply sources, transformer, rectifier, primary and secondary batteries protected wiring systems, MI cable, FP200 cable, LV multi-core cable, pc terminal, visual display screen, pc networking.

This content and context of this Unit should provide candidates with an overview of security, fire alarm and hard-wired LAN systems.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

This Unit should be delivered in a practical environment and should encourage candidates to become familiar with the techniques and terminology of the systems being considered.

Candidates should be presented with practical arrangements for the installation of intruder security, fire alarm and hard-wired LAN communication systems. The relative features of open and closed-loop alarm systems should be discussed and candidates should be encouraged to participate fully in these discussions.

National Unit Specification: support notes (cont)

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Case studies and discussion groups are some of the methods which could be used to engage with candidates to emphasise the importance of the topics included in this Unit.

A practical approach should be used to provide a learning bias which candidates will relate to. This should be through the presentation of typical practical systems showing clearly the features and operating principles of each system chosen.

The Outcomes should be delivered in the sequence given in the 'statement of standards'.

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

Aspects of the Core Skill of *Problem Solving*, particularly critical thinking, will be developed in this Unit, which requires the application of knowledge. Candidates consider a range of factors to identify the essential components and applications of security, alarm and communication systems. Discussion of case studies during formative work will help to develop oral communication skills and allow candidates to review approaches and techniques.

The need to understand terminology and summarise technical information and data provides opportunities to develop reading skills. Guidance should be provided on acceptable standards for written responses which could be exemplified by manufacturers' instructions.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

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 communications 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)*.

The assessment of this Unit could take the form of an assignment in which a candidate-generated report is produced, containing the Performance Criteria specified in the Unit Outcomes ie:

- ◆ Identification of security, alarm and communication systems
- ◆ Description of the component parts of security, alarm and communication systems
- ◆ Description of the operation of basic security, alarm and communication systems

Alternatively, three separate reports may be produced, one for each Outcome, to cover all of the Performance Criteria contained within the Outcomes. The combination of these separate reports would constitute an integrated report covering the complete Unit.

The report/s should be structured round a series of questions relating to the various Performance Criteria. Each report would take no longer than 30 minutes to produce and the single, integrated report would be produced within a time limit of 1 hour 30 minutes.

National Unit Specification: support notes (cont)

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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