Higher National Unit specification

General information

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Unit code: H6T8 33

Superclass: XJ

Publication date: March 2014

Source: Scottish Qualifications Authority

Version: 01

Unit purpose

The Unit is aimed at learners working within the Electronic Fire and Security Systems Industry or those with an interest in gaining employment within this sector.

The Unit is designed to enable the learner to develop a general knowledge and understanding of the technology used in the installation of fire detection and alarm systems and the regulations and standards that apply to these systems.

This Unit forms part of the PDA in Providing Electronic Fire and Security Systems. This PDA provides underpinning knowledge and skills for the SVQ level 3 in Providing Electronic Fire and Security Systems at SCQF level 6. This SVQ forms part of the Modern Apprenticeship in Electronic Security Systems.

Outcomes

On successful completion of the Unit the learner will be able to:

1 Explain the current standard and industry codes of practice relating to fire detection and alarm systems.
2 Describe the types of circuits and detectors used in conventional and addressable fire detection and alarm systems.
3 Explain the requirements for the siting of detection devices and sounders.
4 Explain the functions of fire detection and alarm control equipment for conventional and addressable fire alarm systems.

Higher National Unit specification: General information (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Credit points and level

1 Higher National Unit credit at SCQF level 6: (8 SCQF credit points at SCQF level 6)

Recommended entry to the Unit

While entry is at the discretion of the centre, learners would normally be expected to have attained the following:

- F3GF 11 Numeracy (Core Skill Unit), SCQF level 5
  or
- C100 11 Mathematics: Mathematics 1, 2 and 3 (Intermediate 2), SCQF level 5
  or
- C101 11 Mathematics: Mathematics 1, 2 and Applications (Intermediate 2), SCQF level 5
  or
- 2500 Standard Grade Maths (Credit), SCQF level 5

Together with:

- F3GB 11 Communication (Core Skills Unit), SCQF level 5
  or
- C270 11 English (Intermediate 2), SCQF level 5
  or
- 0860 Standard Grade English (Credit), SCQF level 5

Core Skills

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

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

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.

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**.

Higher National Unit specification: Statement of standards

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

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

Explain the current standard and industry codes of practice relating to fire detection and alarm systems.

Knowledge and/or Skills

- British Standards for fire alarm installation
- Codes of Practice for fire alarm installation
- Inspectorates for fire alarm installation

Outcome 2

Describe the types of circuits and detectors used in conventional and addressable fire detection and alarm systems.

Knowledge and/or Skills

- Basic components used in a conventional and addressable fire alarm systems
- Circuitry used in conventional and addressable fire alarm systems, including the use of ring and radial circuits and the need for EOL resistors, addresses and diodes

Outcome 3

Explain the requirements for the siting of detection devices and sounders.

Knowledge and/or Skills

- Requirements for the installation of point detectors in a fire alarm system to meet British Standards, including location, distances apart and obstacles
- Requirements for the installation of beam type detectors in a fire alarm system to meet British Standards, including location, distances apart and obstacles
- Requirements for the installation of sounders in a fire alarm system to meet British Standards, including the minimum dB level for different environments, minimum amount of sounder circuits in a fire system, heights and location of sounders
- Requirements for the installation of manual call points in a fire alarm system to meet British Standards, including siting and heights

Higher National Unit specification: Statement of standards (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Outcome 4

Explain the functions of fire detection and alarm control equipment for conventional and addressable fire alarm systems.

Knowledge and/or Skills

- Cable selection requirements to meet British Standards for fire alarm installation
- Power supply and battery standby requirements to meet British Standards for fire alarm installation
- Networking of fire alarm systems on different sites
- User and engineer functions to operate the different menus/options of the control and indication equipment

Higher National Unit specification: Statement of standards (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Evidence Requirements for this Unit

Learners will need to provide evidence to demonstrate their knowledge and/or Skills across all Outcomes by showing that they can:

Outcome 1

The learner should provide oral and/or written evidence to satisfy the Evidence Requirements.

There is no sampling in this Outcome. All aspects of Knowledge and Skills must be assessed.

The standard and quality of the evidence produced by the learner should be reflective of SCQF level 6 and demonstrate a detailed knowledge and understanding of all items in the Knowledge and Skills Section.

For this Outcome, each learner will:

- Explain accurately the British Standards for fire alarm installation.
- Explain accurately the Codes of Practice for fire alarm installation.
- Explain accurately the inspectorates that operate in the industry.

The summative assessment tasks for Outcome 1 will be undertaken in closed-book, timed and supervised conditions. All summative assessment tasks must be unseen. Learners are not allowed to use reference sources. Approximately one hour should be allocated to the summative assessment of Outcome 1.

Outcome 2

The learner should provide oral and/or written evidence to satisfy the Evidence Requirements.

There is no sampling in this Outcome. All aspects of Knowledge and Skills must be assessed.

The standard and quality of the evidence produced by the learner should be reflective of SCQF level 6 and demonstrate a detailed knowledge and understanding of all items in the Knowledge and Skills Section.

For this Outcome, each learner will:

- Describe correctly the components used in the installation of a conventional and addressable fire alarm system.
- Describe correctly the circuitry used in the installation of both conventional and addressable fire alarm systems, including the use of ring and radial circuits and the need for EOL resistors, addresses and diodes.

The summative assessment tasks for Outcome 2 will be undertaken in closed-book, timed and supervised conditions. All summative assessment tasks must be unseen. Learners are not allowed to use reference sources. Approximately one hour should be allocated to the summative assessment of Outcome 2.

Outcome 3

The learner should provide oral and/or written evidence to satisfy the Evidence Requirements.

There is no sampling in this Outcome. All aspects of Knowledge and Skills must be assessed.

The standard and quality of the evidence produced by the learner should be reflective of SCQF level 6 and demonstrate a detailed knowledge and understanding of all items in the Knowledge and Skills Section.

For this Outcome, each learner will:

- Explain correctly the standards for the installation of point detectors in a fire alarm system, including location, distances apart and obstacles.
- Explain correctly the standards for the installation of beam type detectors in a fire alarm system, including location, distances apart and obstacles.
- Explain correctly the standards for the installation of sounders in a fire alarm system, including the minimum dB level for different environments, minimum amount of sounder circuits in a fire system, heights and location of sounders.
- Explain correctly the standards for the installation of manual call points in a fire alarm system, including siting and heights.

The summative assessment tasks for Outcome 3 will be undertaken in closed-book, timed and supervised conditions. All summative assessment tasks must be unseen. Learners are not allowed to use reference sources. Approximately one hour should be allocated to the summative assessment of Outcome 3.

Outcome 4

The learner should provide oral and/or written evidence to satisfy the Evidence Requirements.

There is no sampling in this Outcome. All aspects of Knowledge and Skills must be assessed.

The standard and quality of the evidence produced by the learner should be reflective of SCQF level 6 and demonstrate a detailed knowledge and understanding of all items in the Knowledge and Skills Section.

Higher National Unit specification: Statement of standards (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

For this Outcome, each learner will:

- Explain correctly the requirements for cable selection to meet British Standards for fire alarm systems.
- Explain correctly the requirements for power supplies and standby batteries to meet British Standards for fire alarm systems.
- Explain correctly the networking of conventional and addressable fire alarm systems on small to large sites.
- Explain correctly the user and engineer functions that are available when operating control and indication equipment.

The summative assessment tasks for Outcome 4 will be undertaken in closed-book, timed and supervised conditions. All summative assessment tasks must be unseen. Learners are not allowed to use reference sources. Approximately one hour should be allocated to the summative assessment of Outcome 4.

For all Outcomes

Centres should devise Instruments of Assessment that will allow the learner to meet the Evidence Requirements for the Outcome to the required standard (See Guide to Assessment). It is recommended that centre devised Instruments of Assessment are prior verified by SQA.

Assessment for this Unit can be carried out at the discretion of the centre in the following ways:

- Outcome by Outcome
- Combining Outcomes
- One holistic assessment of the Unit

Suggestions for approaches to assessment can be found in the Support Notes of this Unit.

As this is a 40 hour Unit, approximately four hours should be dedicated to summative assessment for the entire Unit.

Higher National Unit Support Notes

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Unit Support Notes are offered as guidance and 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 forms part of the PDA in Providing Electronic Fire and Security Systems. This PDA provides underpinning knowledge and skills for the SVQ level 3 in Providing Electronic Fire and Security Systems at SCQF level 6. The SVQ forms part of the Modern Apprenticeship in Electronic Security Systems.

Although not directly awarded, completion of the Modern Apprenticeship Award gives opportunities to apply for professional recognition through the Institute of Engineering Technology and successful recognition will result in the EngTech qualification being awarded.

It may be possible to progress from the Modern Apprenticeship Award to other qualifications.

Centres should ensure that learners are presented with sufficient theoretical information to succeed in the assessment of this Unit.

Outcome 1

This Outcome covers the necessary underpinning knowledge and skills relating to the current standards and industry codes of practice relating to the installation of fire alarm systems.

Higher National Unit Support Notes (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

This Outcome is designed to give learners an understanding of the main points of the current industry standards BS 5839 Parts 1−9:

- BS 5839−1:2013 — Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises.
- BS 5839–2 — Fire detection and alarm systems for buildings. Specification for manual call points.
- BS 5839–3:1988 — Fire detection and alarm systems for buildings. Specification for automatic release mechanisms for certain fire protection equipment.
- BSEN 54–2 and 4 — Fire detection and fire alarm systems. Control and indicating equipment.
- BS5839–5:1988 — Fire detection and alarm systems for buildings. Specification for optical beam smoke detectors.
- BS 5839–6:2004 — Fire detection and fire alarm systems for buildings. Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings.
- EN54–7:2001 — Fire detection and fire alarm systems. Smoke detectors. Point detectors using scattered light, transmitted light or ionization.
- BS 5839–8:2008 — Fire detection and fire alarm systems for buildings. Code of practice for the design, installation, commissioning and maintenance of voice alarm systems.
- BS 5839–9:2003 — Fire detection and alarm systems for buildings. Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems.

Learners should gain an understanding of the inspectorates that operate in this industry and in particular the British Approvals for Fire Equipment (BAFE) and their scheme SP203 which covers the design, installation, commissioning and maintenance of fire detection and fire alarm systems.

Outcome 2

This Outcome covers the necessary underpinning knowledge and skills relating to the types of circuitry and detectors used in both conventional and addressable fire alarm systems.

This Outcome is designed to provide learners with an understanding of the many components used within fire alarm systems and the differences between conventional and addressable systems, including components, equipment and programming.

Detectors that should be covered in this Unit are:

- Heat detectors (rate of rise and fixed)
- Smoke detectors (optical and ionization)
- Aspirating detectors
- Combustion gas detectors
- Multi-sensor fire detectors
- Beam detectors

Higher National Unit Support Notes (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Learners should gain an understanding for the circuitry used in both conventional and addressable fire alarm systems. This should include using radial circuits for conventional systems and the need for EOL resistors and diodes. In addressable fire systems learners should understand the process for addressing devices and using ring circuits.

Outcome 3

This Outcome covers the requirements for siting detection and sounder devices in order to meet the standards for the installation of fire alarm systems.

Learners should have an understanding of the requirements for siting both point and beam detectors and manual call points in accordance with BS 5839 Part 1. Alarm, detection and sounder zones should be explained.

In particular:

- Location and positioning of automatic smoke and heat detectors, including area of coverage and areas that may cause non-compliances.
- Requirements for lift shafts.
- Requirements for houses.
- Requirements for hallways.
- Requirements for industrial premises.
- Requirements in commercial premises.
- The difference between heat/smoke and beam detectors.
- Heights of installation for call points.

With regards to sounders and strobes, learners should have an understanding of the requirements to site devices in accordance with BS 5839 Part 1.

In particular:

- Sound levels in different working environments.
- Types of devices including sounders, sounder bases, integrated detector sounders, strobes and voice communication systems.
- An awareness of tactical devices should be included.
- Environmental effects on sounders.
- Test equipment for testing sound levels.

Higher National Unit Support Notes (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Outcome 4

This Outcome covers the functions of both conventional and addressable fire detection and alarm control panels.

This Outcome is designed to give learners a better understanding of the functions that are available to them as an installer and user of control indicating equipment and detection devices in both conventional and addressable fire alarm systems.

Learners should have an understanding of the types of cables used in fire alarm systems, cable grades (enhanced and standard), the requirements for installation in accordance with the IEE wiring regulations and BS 5839.

The following cables should be discussed:

- FP 200 GOLD
- FP 400 GOLD
- FP 600S
- Fire resistant fibre optic cable

Learners should have an understanding of the control and indication equipment used in fire alarm systems. This should include:

- Programming
- Sounder Circuits
- Detector Circuits
- Circuitry — Radial and Ring
- Advantages and disadvantages of conventional and addressable systems
- Walk test
- AC and DC power requirements
- Terminology
- Reset and silencing alarms
- Engineer functions
- Calibrating and testing devices

Learners should have an understanding of the networking of control and indication equipment in accordance with the manufacturer's instructions and BS 5839 Part 1 and the advantages of having 24-hour monitoring of premises.

Learners are required to have an understanding of the power requirements for fire alarm systems. This should include calculation of load for circuit in active and quiescent state, standby battery power requirements in accordance with BS 5839 Part 1 and BSEN 54−2 and 4.

Learners should use the formula: $Q = I \times t$

Higher National Unit Support Notes (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Guidance on approaches to delivery of this Unit

This Unit can be delivered as a free-standing Unit or as part of a Group Award. This Unit is mandatory in the PDA Providing Electronic Fire and Security Systems and is designed to give learners the underpinning knowledge and skills to support the SVQ level 3 in Providing Electronic Fire and Security Systems. The SVQ forms part of the Modern Apprenticeship Award in Electronic Security Systems.

A variety of delivery approaches could be adopted in this Unit and, although there is no preferred order of teaching, a systematic approach is recommended. Practitioners should use their professional judgement in designing and delivering the Unit so that it is appropriate, relevant and motivating for individual learners. Approaches should be learner-centred, participative and practical, for example, group activities, one-to-one tutorials, differentiated learning materials and visual aids. Home study activities should also be designed.

Links in this Unit should be made to the National Occupational Standards (NOS) for the Electronic Security Systems Sector and in particular:

SFS SYS 6	Plan the installation of electronic security systems
SFS SYS 8	Make preparations and arrangements to install electronic security systems
SFS SYS 10	Install electronic security systems
SFS SYS 11	Test and confirm operation of electronic security systems

Learners could use information or resources acquired during this Unit to help with the completion of the above NOS.

It is recommended that use of a wiki or similar should be encouraged to allow learners to share knowledge and research findings.

Where resources permit, centres should use technology as much as possible to support learning, teaching and assessment. This could include, for example:

- Compiling and maintaining e-portfolios
- Web-based research
- Game based learning
- Using chat rooms for discussion
- Using virtual learning environments
- Submission of assessed work through VLE, email

The learning and teaching approaches used should encourage learners to be aware of the Knowledge and/or Skills gained, to retain these and use in other contexts.

Higher National Unit Support Notes (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres should create formative assessments that are both appropriate to the individual's needs and which also prepare the learner for summative assessment. Summative assessment should only take place when the learner has developed the knowledge and skills at the required level for the Unit.

Lecturers should provide adequate opportunities for informal assessment to take place prior to learners undertaking summative assessments. Lecturers may give learners advice and support during any informal assessment in order to prepare them for summative assessment.

Centres may use the Instruments of Assessment which are considered by lecturers to be most appropriate. Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

A range of different assessment methods could be used. Suggested examples can be found in SQA's Guide to Assessment **www.sqa.org.uk**

Records of all assessment instruments used and evidence produced by each learner for summative assessment purposes — oral/written/practical — must be retained for internal and external verification purposes.

Practical evidence can be either:

- Assessor checklist with oral questioning

or

- Photographic/video evidence

All learner evidence must be signed and dated by the assessor thus ensuring authentication.

Opportunities for 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 learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of E-assessment to support SQA's qualifications is available at **www.sqa.org.uk/e-assessment.**

Higher National Unit Support Notes (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

Opportunities for developing Core and other essential skills

There is no automatic certification of Core Skills in this Unit. However, there are opportunities to develop aspects of Core Skills in *Communication* (Oral and Written Communication) *Problem Solving* (Critical Thinking and Planning and Organising), *Numeracy* (Using Number), *Information and Communication Technology* (Accessing Information) and *Working with Others* (Working Co-operatively with Others).

***Communication*: Oral Communication**

The Core Skill component Oral Communication at SCQF level 6 could be developed in this Unit. The general skill for this component is — *Produce and respond to oral communication on a complex topic.* This component could be developed through participating in discussions, one-to-one dialogues and group work for both formative and summative assessment purposes. Tasks involving group activities and joint feedback sessions would offer the learner opportunities to make a contribution to a discussion on a complex topic.

***Communication*: Written Communication**

The Core Skill component Written Communication *(Writing)* at SCQF level 5 could be developed in this Unit. The general skill for this component is — *Produce well-structured written communication.* This component could be developed through research activities and the production of reports, essays or other forms of written communication. Some learners may develop this skill at SCQF level 6.

***Problem Solving*: Critical Thinking**

The Core Skill component Critical Thinking at SCQF level 5 could be developed in this Unit. The general skill for this component is — *Analyse a situation or issue.* This component could be developed where a situation or issue has arisen in the course of the learner's work or study. The learner would need to analyse and evaluate the situation or issue and devise a strategy to deal with it. The learner should reflect on and evaluate the success of the strategy. Alternatively, the tutor could provide a case study.

***Problem Solving*: Planning and Organising**

The Core Skill component *Planning and Organising* at SCQF level 5 could be developed in this Unit. The general skill for this component is — *Plan, organise and complete a task*. This component could be developed through planning, organising and completing a task. The learner would need to develop a plan, identify and obtain the required resources and then carry out the task. Resources could include, for example, time available, paper work and documentation, set procedures, people and equipment. The learner must decide on how the task will be managed. This could include allocation of responsibilities in a group context. Planning and organising skills could be developed through the completion of home study, research and practical tasks.

Higher National Unit Support Notes (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

***Information and Communication Technology*: Accessing Information**

The Core Skill component *Accessing Information* at SCQF level 6 could be developed in this Unit. The general skill for this component is - *Use ICT independently to carry out complex searches across a range of tasks*. This component could be developed by carrying out searches and accessing information for tasks in the Unit. This could involve some searching on complex tasks on unfamiliar information.

***Working with Others*: Working Co-operatively with Others**

The Core Skill component Working Co-operatively with Others at SCQF level 6 could be developed in this Unit. The general skill for this component is — *In complex interactions, work with others co-operatively on an activity and/or activities.* This component could be developed by gathering evidence from the workplace or by taking part in group activities in the centre. This could include, for example, joint information and feedback sessions, group research or practical activities.

Numeracy

The Core Skill component Using Number at SCQF level 5 could be developed in this Unit. The general skill for this component is — *Apply a range of numerical skills in various everyday situations.* The component could be developed in Outcome 4 where the learner has to use complex formulae to calculate battery capacity.

Other Essential Skills developed through the completion of this Unit

- Time Management: through the completion of projects and research task the learner will learn new skills in how to manage their own time to help achieve a common goal.

History of changes to Unit

Version	Description of change	Date

General information for learners

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

The Unit is aimed at learners working within the Electronic Fire and Security Systems Industry or those with an interest in gaining employment within this sector.

The Unit is designed to enable the learner to develop a general knowledge and understanding of the technology used in the installation of fire detection and alarm systems and the regulations and standards that apply to these systems.

This Unit forms part of the PDA in Providing Electronic Fire and Security Systems. This PDA provides underpinning knowledge and understanding for the SVQ level 3 in Providing Electronic Fire and Security Systems at SCQF level 6 which forms part of the Modern Apprenticeship in Electronic Security Systems.

On completion of the Unit you will be able to:

1 Explain the current standard and industry codes of practice relating to fire detection and alarm systems.
2 Describe the types of circuits and detectors used in conventional and addressable fire detection and alarm systems.
3 Explain the requirements for the siting of detection devices and sounders.
4 Explain the functions of fire detection and alarm control equipment for conventional and addressable fire alarm systems.

You will participate in class lectures, group activities and home study.

There are different ways in which you can be assessed. Questions will be generated to test your knowledge and understanding. Practical exercises will be used to assess your skills.

Opportunities for developing Core and other essential skills

There is no automatic certification of Core Skills in this Unit. However, there are opportunities to develop aspects of Core Skills in *Communication* (Oral and Written Communication) *Problem Solving* (Critical Thinking and Planning and Organising), *Numeracy* (Using Number), *Information and Communication Technology* (Accessing Information) and *Working with Others* (Working Co-operatively with Others).

General information for learners (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

***Communication*: Oral Communication**

The Core Skill component Oral Communication at SCQF level 6 could be developed in this Unit. The general skill for this component is — *Produce and respond to oral communication on a complex topic.* This component could be developed through participating in discussions, one-to-one dialogues and group work for both formative and summative assessment purposes. Tasks involving group activities and joint feedback sessions would offer you opportunities to make a contribution to a discussion on a complex topic.

***Communication*: Written Communication**

The Core Skill component Written Communication *(Writing)* at SCQF level 5 could be developed in this Unit. The general skill for this component is — *Produce well-structured written communication.* This component could be developed through research activities and the production of reports, essays or other forms of written communication. You may develop this skill at SCQF level 6.

***Problem Solving*: Critical Thinking**

The Core Skill component Critical Thinking at SCQF level 5 could be developed in this Unit. The general skill for this component is — *Analyse a situation or issue.* This component could be developed where a situation or issue has arisen in the course of your work or study. You would need to analyse and evaluate the situation or issue and devise a strategy to deal with it. You should reflect on and evaluate the success of the strategy. Alternatively, your tutor could provide a case study.

***Problem Solving*: Planning and Organising**

The Core Skill component *Planning and Organising* at SCQF level 5 could be developed in this Unit. The general skill for this component is — *Plan, organise and complete a task*. This component could be developed through planning, organising and completing a task. You would need to develop a plan, identify and obtain the required resources and then carry out the task. Resources could include, for example, time available, paper work and documentation, set procedures, people and equipment. You must decide on how the task will be managed. This could include allocation of responsibilities in a group context. Planning and organising skills could be developed through the completion of home study, research and practical tasks.

***Information and Communication Technology*: Accessing Information**

The Core Skill component *Accessing Information* at SCQF level 6 could be developed in this Unit. The general skill for this component is — *Use ICT independently to carry out complex searches across a range of tasks.* This component could be developed by carrying out searches and accessing information for tasks in the Unit. This could involve some searching on complex tasks on unfamiliar information. Researching standards and industry codes of practice would help develop your skills in accessing information on a complex task.

General information for learners (cont)

Unit title: Electronic Fire and Security Systems: Fire Alarm Systems Installation (SCQF level 6)

***Working with Others*: Working Co-operatively with Others**

The Core Skill component Working Co-operatively with Others at SCQF level 6 could be developed in this Unit. The general skill for this component is — *In complex interactions, work with others co-operatively on an activity and/or activities.* This component could be developed by gathering evidence from the workplace or by taking part in group activities in the centre. This could include, for example, joint information and feedback sessions, group research or practical activities.

Numeracy

The Core Skill component Using Number at SCQF level 5 could be developed in this Unit. The general skill for this component is — *Apply a range of numerical skills in various everyday situations.* The component could be developed in Outcome 4 where you have to use complex formulae to calculate battery capacity.

Other Essential Skills developed through the completion of this Unit

- Time Management: through the completion of projects and research task you will learn new skills in how to manage your own time to help achieve a common goal.

Although not directly awarded, completion of the Modern Apprenticeship Award gives opportunities to apply for professional recognition through the Institute of Engineering Technology and successful recognition will result in the EngTech qualification being awarded.