Higher National Unit specification

General information

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

Unit code: H6S5 33

Superclass: XJ

Publication date: February 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 underpinning technology used in electronic fire and security 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. The 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 Describe the relevant requirements of the IEE Wiring Regulations in respect of the electronic fire and security industry.
2 Describe the methodology of containment used in the security industry.
3 Explain the methodology used in the installation process.
4 Identify the components of electronic fire and security systems.

Credit points and level

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

Higher National Unit specification: General information (cont)

Unit title: Electronic Fire and Security Systems: Installation Practices (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

Health and Safety Unit or a relevant health and safety, safe isolation qualification or experience.

A science or technical subject at SCQF level 5 would also be useful.

In the absence of formal qualifications, the centre may wish to interview or test the learner on general aptitude to make a judgement on whether the learner has the potential to achieve this Unit.

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.

Higher National Unit specification: General information (cont)

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

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: Installation Practices (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

Describe the relevant requirements of the IEE Wiring Regulations in respect of the electronic fire and security industry.

Knowledge and/or Skills

- Effects of electric shock and the protection measures taken to avoid electric shock in relation to equipment and humans
- Electrical circuits used in the electronic fire and security industry, including radial, lighting, ring main, series and parallel circuits
- Extra low voltage, low voltage electricity and the differences between single phase and three phase supplies, including the inherent dangers of electricity
- Safe isolation of electrical power sources when installing electronic fire and security systems

Evidence Requirements

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 effects of electric shock and the protection measures taken in the electronic fire and security industry to protect and save life.
- describe correctly the electrical circuits used in the electronic fire and security industry, including radial, lighting, ring main, series and parallel circuits.
- describe correctly the requirements of extra low voltage, low voltage electricity and the inherent dangers of electricity.
- describe accurately the differences between single phase and three phase supplies.
- describe accurately the process of safe isolation of electrical power sources when installing electronic fire and security systems.

The summative assessment tasks for Outcome 1 will be undertaken in closed-book, timed and supervised conditions. All summative 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.

Higher National Unit specification: Statement of standards (cont)

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

Outcome 2

Describe the methodology of containment used in the security industry.

Knowledge and/or Skills

- Typical sizes, quantities and types of PVC and metal conduit used in the electronic fire and security industry
- Typical sizes, quantities and types of PVC and metal trunking and cable tray used in the electronic fire and security industry
- Standards relating to the use of containment, including BS 7671
- Cable and wiring management systems, including the segregation of extra low and low voltage cables; EMF (electromagnetic field); cabling and containment to prevent the interference of EMF

Evidence Requirements

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 accurately typical sizes, quantities and types of PVC and metal conduit used in the electronic fire and security industry.
- describe accurately typical sizes, quantities and types of PVC and metal trunking and cable tray used in the electronic fire and security industry.
- describe correctly the standards relating to the use of containment, including BS 7671.
- describe correctly cable and wiring management systems, including the segregation of extra low and low voltage cables; EMF (electromagnetic field); cabling and containment to prevent the interference of EMF.

The summative assessment tasks for Outcome 2 will be undertaken in closed-book, timed and supervised conditions. All summative 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

Explain the methodology used in the installation process.

Knowledge and/or Skills

- Current legislation, standards, regulations and codes of practice that relate to working on building sites
- Project plans for the provision of the installation of electronic fire and security systems including, customer details; communication arrangements/channels; deadlines; access for staff equipment and vehicles
- Key documentation used when installing security systems including, survey risk assessments; site characteristics; insurance requirements; site drawings; operational checklist; commissioning report; handover documentation and maintenance agreements
- Importance of feedback and communication with management, colleagues and customers
- Test equipment for extra low voltage systems

Evidence Requirements

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 current legislation, standards, regulations, codes of practice that relate to working on building sites.
- explain correctly what is required in a project plan including, customer details; communication arrangements/channels; deadlines; access for staff equipment and vehicles.
- explain correctly key documentation used when installing security systems including, survey risk assessments; site characteristics; insurance requirements; site drawings; operational checklist; commissioning report; handover documentation and maintenance agreements.
- explain correctly the methods used to provide feedback and communicate with management, colleagues and customers during the installation of electronic fire and security systems.
- explain correctly the process used in selecting appropriate test equipment for extra low voltage systems used in the electronic fire and security industry.

The summative assessment tasks for Outcome 3 will be undertaken in closed-book, timed and supervised conditions. All summative 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

Identify the components of electronic fire and security systems.

Knowledge and/or Skills

- Components used in the installation of a basic intruder alarm system
- Components used in the installation of a basic access control system
- Components used in the installation of a basic fire alarm system
- Components used in the installation of a basic CCTV alarm system

Evidence Requirements

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:

- identify correctly the components used in the installation of a basic intruder alarm system.
- identify correctly the components used in the installation of a basic access control system.
- identify correctly the components used in the installation of a basic fire alarm system.
- identify correctly the components used in the installation of a basic CCTV alarm system.

The summative assessment tasks for Outcome 4 will be undertaken in closed-book, timed and supervised conditions. All summative 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.

Higher National Unit specification: Statement of standards (cont)

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

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, no more than 4 hours should be dedicated to summative assessment for the entire Unit.

Higher National Unit Support Notes

Unit title: Electronic Fire and Security Systems: Installation Practices (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 understanding 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.

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 current requirements of the IEE Wiring Regulations with regards to the electronic fire and security industry.

This Outcome is designed to give learners an understanding of the effects of electric shock and what can be put in place to minimise the risk of faulty equipment exposing them to live parts. Learners should be taught the importance of safe isolation, tagging consumer units and visually assessing equipment before use (eg PAT).

In the electronic fire and security industry many different circuits are used, below are examples of some that should be covered in this Outcome:

- Fire conventional systems — Radial Circuit with EOL resistors
- Fire addressable systems — Ring circuits
- Intruder alarm systems — Radial Circuit with EOL resistors or double pole wiring
- Access control systems — Actuating circuits/Radial/Ring circuits
- CCTV systems — Radial/Ring circuits

Where there are more than two methods of electrical circuits that can be used, examples must be given to help the learner understand.

For example:

- Access control may use lighting circuits to control locks, relays, etc. However, a ring circuit may be installed to allow the system to be networked.

- CCTV may use a radial circuit for each individual camera. However, mains and telemetry cabling would be installed using a ring circuitry.

Learners are expected to gain a better understanding of the IEE wiring regulations and in particular the definitions of extra low voltage, low voltage and examples of where they would be used.

Extra low voltage would not normally exceed 50v AC between conductors or to earth. Examples of extra low voltage found in the electronic fire and security industry would be telephone points, ethernet points, CCTV cameras' power supplies, devices used in the installation process and locking devices for access control. Low voltage is described by the IEE as normally exceeding extra low voltage but not exceeding 1000v AC or 1500v DC between conductors. Although learners may not be competent working on these voltages, the dangers should be explained and examples of where it would be used given.

Learners require an understanding of the need for protection from electric shock in relation to persons and equipment and the risks caused by electric shock. Learners should have a basic understanding of typical electric circuits (radial, ring main and lighting).

Learners require a clear understanding of the correct methods of tagging off circuits before commencing any work to systems or circuits.

Finally, the learner should be made aware of the differences between single phase and three phase supplies and the inherent dangers of electricity.

Outcome 2

This Outcome covers the necessary underpinning knowledge and skills relating to the methodology of containment used in the electronic fire and security systems industry.

This Outcome is designed to train learners to install cabling and wiring management systems to BS 7671, which is the British standard for electrical installation. This Outcome should teach learners to select the correct type, size and quantity of containment that is required for the installation of electronic fire and security systems.

In this Outcome, the learners require a clear understanding of the containment systems available in the security industry (PVC Conduit, Metal Conduit, PVC Trunking, Metal Trunking, and Cable Tray), a clear understanding of the methods of installation and the capacities of the containment selected in accordance with BS 7671.

Learners should be taught that BS 7671 prohibits Band I and Band II cables sharing the same cable enclosure or multi-core cable, unless every cable is insulated for the highest voltage present, or each conductor in a multi-core cable is insulated for the highest voltage present, unless conductors of the two bands are separated by an earthed metal screen, or they are installed in separate compartments of a trunking or ducting system, or they are installed on a tray with a partition providing separation, or a separate conduit or ducting system is provided for each band. This does mean that BS 7671 allows circuits such as those for fire alarm systems; emergency lighting; telephones; data transmission; intruder alarms; sound systems; bell and call systems, to be run together without segregation.

Learners should also be taught that BS 5838:1988 makes it clear that fire alarm cables must be separated from all others.

Learners should understand that the reason for these standards is that interference created on low voltage cabling can affect the operational performance of the extra low voltage electronic fire and security systems.

Outcome 3

This Outcome covers the installation processes and key features relevant to the electronic fire and security industry.

This Outcome is designed to give learners a better understanding of the legislation, standards, regulations and codes of practice that affect them while working on building sites.

Learners should have an understanding of the legislation, standards, regulations and codes of practice that relate to working on building sites, in particular the Health and Safety at Work Act (1974), IEE Wiring Regulations and the Electricity at Work Regulations (1989).

Under the above legislation it should be explained to learners that training is available regarding the safe use of plant and access to plant. For example:

- IPAF
- PASMA

In this Outcome, learners should learn what documentation is included in a project plan. The plan is normally developed prior to the job/task starting and will identify deadlines. The plan's main purpose is to ensure that deadlines are adhered to and details the penalties for non-compliance. The project plan is used as an informal contract between client and company.

The importance of key documentation used during the installation process should be highlighted to learners. Learners should be familiar with the different types of documentation used, to help build their confidence when dealing with customers, managers and peers.

Learners should also gain an understanding of the correct selection of equipment, containment, fixings and safe storage of equipment and plant. Learners should be able to provide effective feedback on critical information regarding the progress of the installation to both the customer and management team.

Higher National Unit Support Notes (cont)

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

Learners should gain knowledge and understanding of the test equipment used in electronic fire and security systems and in what particular tasks it should be used. The importance of safely selecting the correct equipment and ensuring it is calibrated should also be explained.

Finally, learners will need to develop their communication skills in order to provide effective feedback.

Outcome 4

This Outcome is designed to give learners a better understanding of the different types of components used in the installation of electronic fire and security systems.

Intruder Alarms:

- Control Equipment
- Power Sources: secondary and primary
- Actuating devices
- Manually operated devices
- Visual warning devices
- Audible warning devices
- Expanders
- Transmission mediums
- Communicators

Access Control Systems:

- Visual warning devices
- Audible warning devices
- Readers
- Relays
- Sources of supply: primary and secondary
- Control Equipment
- Exit switches and emergency switches
- Transmission mediums

Fire Alarms:

- Visual warning devices
- Audible warning devices
- Actuating devices
- Relays
- Sources of supply: primary and secondary
- Control Equipment: Panel, PSU, Expanders
- Communicators
- Transmission mediums

CCTV:

- Analogue cameras
- Digital cameras
- Network cameras
- Spy cameras
- Static
- Motor driven cameras
- Control equipment
- Transmission mediums

After completing this Outcome, learners should be more confident in identifying the different components used in the installation of electronic fire and security systems.

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 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 electronic security systems 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 2	Make sure your own actions reduce risks to health and safety
SFS 4	Communicate effectively with others

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.

Higher National Unit Support Notes (cont)

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

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, e-mail

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.

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 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.

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 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 could 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**.

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* (Written and/or Oral), *Problem Solving* (Critical Thinking and Planning and Organising), *Information and Communication Technology (ICT)* (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.* Learners could fulfil this component 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 will 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.* Learners could fulfil this component 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.

Higher National Unit Support Notes (cont)

Unit title: Electronic Fire and Security Systems: Installation Practices (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.

Information and Communication Technology (ICT): 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. In Outcome 4, learners could work in groups to identify the components used in the installation of systems.

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: Installation Practices (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 those working within the Electronic Fire and Security Systems Industry or with an interest in gaining employment within this sector.

The Unit is designed to enable you to develop a general knowledge and understanding of the underpinning technology used in electronic fire and security 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. The SVQ forms part of the Modern Apprenticeship in Electronic Security Systems.

On completion of the Unit you will be able to:

1 Describe the relevant requirements of the IEE Wiring Regulations in respect of the electronic fire and security industry.
2 Describe the methodology of containment used in the security industry.
3 Explain the methodology used in the installation process.
4 Identify the components of electronic fire and security 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.

There is no automatic certification of Core Skills in this Unit. However, there are opportunities to develop aspects of Core Skills in *Communication* (Written and/or Oral), *Problem Solving* (Critical Thinking and Planning and Organising), *Information and Communication Technology (ICT)* (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.* You could fulfil this component 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 will offer you opportunities to make a contribution to a discussion on a complex topic.

General information for learners (cont)

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

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.* You could fulfil this component 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 (ICT): 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 your 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. In Outcome 4, you could work as part of a group to identify the components used in the installation of systems.

General information for learners (cont)

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

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.

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.