



National Unit specification: general information

Unit title: Building Services Engineering: Basic Electrical Installation Operations (SCQF level 5)

Unit code: FT7X 11

Superclass: TH

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Summary

This is a mandatory Unit of the Building Services Engineering National Progression Award and is suitable for candidates with little or no previous engineering, technical or employment experience. The Unit is designed to enable candidates to recognise a range of basic tools associated with the electrical installation industry and to then go on to develop an understanding, through practical application, of how to use those tools in practical settings. Candidates will also be encouraged to develop an appreciation of their responsibilities in the workplace.

Outcomes

- 1 Identify and safely use basic tools and materials associated with the electrical installation industry.
- 2 Demonstrate safe basic electrical installation operations.

Recommended entry

Entry is at the discretion of the centre.

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.*

General information (cont)

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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

Identify and safely use basic tools and materials associated with the electrical installation industry.

Performance Criteria

- (a) Identify and safely use basic tools associated with the electrical industry.
- (b) Identify and safely use basic materials and components associated with the electrical industry.
- (c) Work safely and in accordance with all relevant legislation and procedures.

Outcome 2

Demonstrate safe basic electrical installation operations.

Performance Criteria

- (a) Identify all relevant requirements for electrical installation operations.
- (b) Carry out safe basic electrical installation operations.
- (c) Work safely and in accordance with all relevant legislation and procedures.

National Unit specification: statement of standards (cont)

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In terms of the specific Outcomes of this Unit:

Outcome 1

Candidates must be able to recognise, use and maintain all of the basic tools below in accordance with relevant legislation and procedures:

- ◆ assorted files
- ◆ battery operated drill/driver
- ◆ claw hammer
- ◆ continuity tester
- ◆ electrical knife
- ◆ hacksaw (large and small)
- ◆ level
- ◆ pliers/side cutters
- ◆ screwdrivers (crosshead and electrical)
- ◆ tape measure/rule/square
- ◆ wire stripper

Candidates must be able to recognise and use all the basic materials and components below in accordance with relevant legislation and procedures:

- ◆ cable and flex (ie flat twin and CPC)
- ◆ ceiling rose and lamp holders
- ◆ conduit (plastic and steel)
- ◆ consumer unit
- ◆ CPC sleeving
- ◆ fixing devices, ie various screws, rawlplugs, and cavity fixings
- ◆ light switch plates (ie single, integral or multiple with back boxes)
- ◆ plug tops
- ◆ protective devices — ie fuses MCB, RCD, RCBO)
- ◆ switched socket outlets (single and double with back boxes)
- ◆ trunking (plastic and steel)
- ◆ various fixings (ie clips and cleats)

Candidates must work safely and demonstrate that they know all of the following: how to identify and report any potential workshop hazards; how to reduce risks for workshop activities; the correct use of personal protective equipment for basic electrical practical applications; the dangers and risks associated with electrical installation operations; the relevant health and safety practices throughout the task. Candidates must complete a reflective account of work undertaken similar to a professional log or report.

National Unit specification: statement of standards (cont)

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Outcome 2

Candidates must be able to identify three relevant requirements for all of the following: interpret typical drawings and specifications related to basic practical applications; measure accurately and record the requirements for the installation.

Candidates must carry out basic electrical installation operations including all of the following: assemble a simple one-way electrical lighting circuit; correctly wire a three pin plug (BS 1361 13A plug top); insert a simple switch mechanism into the completed ring main circuit; safely test for continuity the completed wiring circuits.

Candidates must work safely and demonstrate that they know all of the following: how to identify and report any potential workshop hazards; how to reduce risks for workshop activities; the correct use of personal protective equipment for basic electrical practical applications; the dangers and risks associated with electrical installation operations; the relevant health and safety practices throughout the task.

Candidates must leave the work area in a safe condition after completion of the task and do all of the following: ensure the area is left clean and tidy; dispose of any waste materials; return excess materials; return tools and equipment

Candidates must complete a reflective account of work undertaken similar to a professional log or report.

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)*.

National Unit specification: support notes

Unit title: Building Services Engineering: Basic Electrical Installation Operations (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

The content and context of this Unit is at a basic, introductory but industrially meaningful level. The main purpose of the Unit is to make candidates aware of, and prepare for employment within the Electrical Installation industry. There is a strong emphasis on safety throughout the Unit.

Outcome 1 ensures that the candidate develops an understanding of the range of hand tools, materials and components likely to be required when undertaking, or preparing to undertake, basic electrical installation operations.

Outcome 2 ensures that the candidate develops an understanding (at the appropriate level) of the practical aspects of electrical installation activity and recognises the responsibility to self and others during and on completion.

Guidance on learning and teaching approaches for this Unit

Candidates should be given opportunities to work towards Outcomes in an integrated way whenever possible.

Practical activities should be teacher/lecturer-led in that all equipment, techniques and processes should be explained, demonstrated and thoroughly understood before (candidate) commencement. Demonstrations should be clear, logically sequenced and reflect current safe working practices to ensure candidate understanding.

An integrated approach to learning and teaching across the Outcomes in this Unit, and relevant others, is suggested.

Opportunities for developing Core Skills

Throughout this Unit there may be opportunities for candidates to develop Core Skills in:

- ◆ Communication
- ◆ Numeracy
- ◆ Problem Solving
- ◆ Working with Others

National Unit specification: support notes (cont)

Unit title: Building Services Engineering: Basic Electrical Installation Operations (SCQF level 5)

Guidance on approaches to assessment for this Unit

An integrated approach to assessment across the Outcomes in this Unit is suggested. If this is being delivered as part of the National Progression Award the use of holistic assessment with other applicable Units is suggested. In addition, the project-based approach may be used to gather evidence of candidate achievement.

Candidates could carry out practical exercises according to a given brief. In doing this, they could gather their findings in a folio which will be used as the basis for a discussion between the assessor and the candidate.

The practical exercises could include:

- ◆ assemble a simple one-way electrical lighting circuit with battery supply
- ◆ correctly wire a three pin plug (BS 1361 13A plug top)
- ◆ insert a simple switch mechanism into the completed wiring circuit
- ◆ safely test for continuity completed wiring circuit

The assessment evidence could be the completed signed assessor checklist which details the essential steps in the process as expressed in the Performance Criteria.

An assessor checklist identifying the critical aspects of the candidate performance could be completed and retained for each candidate.

Relevant written and oral evidence could also be captured and retained.

Opportunities for the use of e-assessment

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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

History of changes to Unit

Version	Description of change	Date
02	Outcome 2 amended to include the production of a reflective account.	26/04/2016

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