



## National Unit Specification: general information

**UNIT** Electrical Wiring Skills SCQF (level 5)

**CODE** F5HP 11

### SUMMARY

This Unit is designed for candidates with little or no prior electrical wiring skills but who wish to develop these practical skills. The Unit is suitable for those candidates training to be an electrical craftsperson or technician. The Unit is also suitable for candidates whose primary trade is not electrical work but who require knowledge and skills in electrical installation.

On successful completion of this Unit, candidates will be able to apply electrical hand skills to install and terminate Poly Vinyl Chloride (PVC) sheathed cables. They will also be able to mount electrical accessories and wire up simple electrical installations in accordance with the latest version of the BS7671 Wiring Regulations.

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

### OUTCOMES

- 1 Select appropriate tools and accessories to install simple electrical installations.
- 2 Terminate PVC sheathed cables in electrical installation work.
- 3 Install, inspect and test a simple electrical wiring system.

### RECOMMENDED ENTRY

Entry is at the discretion of the centre.

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#### Administrative Information

**Superclass:** XJ

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## **National Unit Specification: general information (cont)**

**UNIT**        Electrical Wiring Skills SCQF (level 5)

### **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.

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

- ◆ Problem Solving (SCQF level 5)
- ◆ Numeracy (SCQF level 5)

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

## **National Unit Specification: statement of standards**

### **UNIT       Electrical Wiring Skills (SCQF level 5)**

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**

Select appropriate tools and accessories to install simple electrical installations.

##### **Performance Criteria**

- (a) Select correctly electrical hand tools.
- (b) Select correctly electrical accessories.

#### **OUTCOME 2**

Terminate PVC sheathed cables in electrical installation work.

##### **Performance Criteria**

- (a) Prepare terminations and multi-core PVC cables correctly.
- (b) Connect multi-core PVC cables correctly.
- (c) Fix multi-core PVC cables correctly.

#### **OUTCOME 3**

Install, inspect and test a simple electrical wiring system.

##### **Performance Criteria**

- (a) Mount accessories correctly in accordance with the layout diagram.
- (b) Complete wiring in accordance with the current version of the BS7671 Wiring Regulations.
- (c) Inspect and test completed installation to ensure its safety and functionality.
- (d) Undertake all electrical work in a safe manner.

### **EVIDENCE REQUIREMENTS FOR THIS UNIT**

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

Product and performance evidence should be produced to demonstrate that the candidate has achieved all the Outcomes and Performance Criteria.

Assessors must use a checklist(s) to record achievements as candidates demonstrate the knowledge and skills to meet the Performance Criteria in the three Outcomes.

## National Unit Specification: statement of standards (cont)

### UNIT Electrical Wiring Skills (SCQF level 5)

Outcomes may be assessed on an individual basis or as a single holistic assessment covering all Outcomes and Performance Criteria. Assessment(s) should be conducted under controlled, supervised conditions in a practical electrical environment throughout the course of the Unit.

With regard to Outcome 1:

- ◆ a minimum of eight tools should be correctly selected from the following list: pliers, screwdrivers, wire strippers, hammers, knives, crimping tools, side cutters, rule, hand drills, spirit level, plumb line and hacksaw
- ◆ a minimum of eight accessories should be correctly selected from the following list: switch boxes, joint boxes, ceiling rose, lamp holders, socket outlets, switched fuse outlets, consumer Unit, fuses, circuit breakers, RCD and switches

With regard to Outcome 2:

- ◆ all wires must be terminated correctly, securely and safely

With regard to Outcome 3:

- ◆ candidates should be provided with a layout diagram and a wiring diagram for the electrical installation they are going to install

The circuits to be mounted and wired in Outcome 3 must have as a minimum the following:

- ◆ a one-way light control (either loop-in or joint box method may be used)
- ◆ a two-way light control (either loop-in or joint box method may be used)
- ◆ a ring final circuit incorporating at least one non-fused and one fused spur

Tests should be limited to continuity, polarity and insulation resistance.

The Assessment Support Pack for this Unit provides sample assessment material. Centres wishing to develop their own assessments should refer to the Assessment Support Pack to ensure a comparable standard.

## National Unit Specification: support notes

### UNIT Electrical Wiring Skills (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 a restricted core Unit within the National Certificate in Electrical Engineering at SCQF level 5 and an optional Unit within the National Certificate in Electrical Engineering at SCQF level 6. This Unit can also be delivered on a free-standing basis.

The aim of the Unit is to allow candidates to develop the knowledge, skills and confidence to apply electrical hand skills to install and terminate PVC sheathed cables. Candidates will also learn techniques for mounting electrical accessories and wiring up simple electrical installations in accordance with the latest version of the BS 7671 Wiring Regulations.

Centres may wish to provide candidates with an induction session at the start of the Unit into safe working practices associated with electrical work. However, safety should be emphasised throughout the delivery of the Unit. It is strongly advised that the lecturer checks and energises the circuits. Candidates must wear appropriate Personal Protective Equipment (PPE) while working in practical electrical environments. It is recommended that a safe working voltage be used.

#### **GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT**

This Unit should be delivered in a practical electrical environment. Lecturers should demonstrate the various practical skills covered in the Unit and then allow candidates sufficient time to practise these skills so that they can become competent in them.

#### **OPPORTUNITIES FOR CORE SKILL DEVELOPMENT**

Candidates will develop skills in *Problem Solving*, that is in critical thinking, planning and organising, reviewing and evaluating. They have to examine and take account of all issues affecting practical electrical wiring work. They will fully consider health and safety requirements, decide on suitable techniques and identify and select appropriate tools and accessories. They will then mount electrical accessories and wire simple electrical installations while complying with current regulations and requirements. Review and evaluation of achievement with assessor support and guidance should be a naturally occurring process in formative and summative work. Formative group discussion of case studies centred on safety issues could also be used to enhance problem solving skills in a work related context.

Candidates will also develop *Numeracy* skills through identification of information and calculation using numerical and graphical data, applied in the creation of product evidence.

## **National Unit Specification: support notes (cont)**

### **UNIT       Electrical Wiring Skills (SCQF level 5)**

#### **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)*.

Formative assessment exercises involving candidates terminating PVC cables, mounting accessories and wiring up simple electrical installations should be used to reinforce candidate learning.

The suggested approach to assessment in this Unit is as follows:

- ◆ Outcome 1 — recognition of tools and accessories on tool and accessories identification panels
- ◆ Outcome 2 — practical exercises
- ◆ Outcome 3 — practical exercise (for lighting circuits either loop-in or joint box method may be used)

##### **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](http://www.sqa.org.uk/assessmentarrangements)**