National 4 Unit Specification

Practical Electronics: Circuit Construction (National 4)

SCQF: level 4 (6 SCQF credit points)

Unit code: H25M 74

Unit outline

The general aim of this Unit is to develop skills in assembling a range of simple electronic circuits, using permanent and non-permanent methods, to construct complete working devices. Learners will also develop skills in basic testing and fault-finding.

Learners who complete this Unit will be able to:

1 Plan the construction of simple electronic circuits
2 Construct simple working electronic circuits
3 Test simple electronic circuits

This Unit is a mandatory Unit of the Practical Electronics (National 4) Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provides advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given in *Unit Assessment Support*.

The *Added Value Unit Specification* for the Practical Electronics (National 4) Course gives further mandatory information on Course coverage for learners taking this Unit as part of the Practical Electronics (National 4) Course.

Recommended entry

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- Numeracy (SCQF level 3)

In terms of prior learning and experience, relevant experiences and outcomes may also provide an appropriate basis for doing this Unit.

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. For further information, please refer to the *Unit Support Notes.*

Standards

Outcomes and assessment standards

Outcome 1

The learner will:

1 Plan the construction of simple electronic circuits by:

1.1 Listing and sourcing the required components
1.2 Choosing, with guidance, a construction method
1.3 Interpreting a layout diagram

Outcome 2

The learner will:

2 Construct simple working electronic circuits by:

2.1 Inserting components on to prototype board to a given layout
2.2 Soldering components on to strip board or pre-printed PCB to a given layout
2.3 Applying a range of wiring techniques
2.4 Applying safe working practices

Outcome 3

The learner will:

3 Test simple electronic circuits by:

3.1 Following a testing checklist
3.2 Using multimeters and continuity testers
3.3 Measuring resistance, current and voltage

Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

For this Unit, learners will be required to demonstrate the ability to plan, construct and test simple electronic circuits, applying safe working practices. Evidence may be observational, obtained while the learner is carrying out appropriate practical tasks.

Exemplification of assessment is provided in *Unit Assessment Support*. Advice and guidance on possible approaches to assessment is provided in the *Unit Support Notes.*

Assessment standard thresholds

If a candidate successfully meets the requirements of the specified number of Assessment Standards they will be judged to have passed the Unit overall and no further re-assessment will be required.

The specific requirements for this Unit is as follows:

- 7 out of 10 Assessment Standards must be achieved.

It should be noted that there will still be the requirement for candidates to be given the opportunity to meet all Assessment Standards. The above threshold has been put in place to reduce the volume of re-assessment where that is required.

Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

2 Numeracy

2.3 Information handling

5 Thinking skills

5.2 Understanding
5.3 Applying

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work.* The level of these skills should be at the same SCQF level of the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes.*

Administrative information

Published: September 2018 (version 1.1)

Superclass: XL

History of changes to National Unit Specification

Version	Description of change	Authorised by	Date
1.1	Assessment standard threshold added.	Qualifications Manager	September 2018