

Draft National Unit Specification



Unit title: Physics: Electricity (Higher)

SCQF: level 6 (3 SCQF credit points)

Unit code: to be advised

Unit outline

The general aim of this Unit is to develop skills of scientific inquiry and the ability to draw on knowledge and understanding in the context of the physics of electricity. This can be done by using a variety of approaches, including investigation and problem solving. The Unit will allow learners to study aspects of electricity involving the study of electrical circuits and semiconductors. Learners will apply scientific skills when considering the impact of features or applications on the environment or society and will develop skills in scientific literacy.

Learners who complete this Unit will be able to:

- 1 Draw on knowledge, understanding and skills to investigate, through experimentation, a topic/process from this Unit
- 2 Draw on knowledge, understanding and skills to explain concepts and investigate applications from this Unit

This Unit is a mandatory Unit of the Higher Physics Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes* which provide 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 the *National Assessment Resource*.

The Course Assessment Specification for the Higher Physics Course gives further mandatory information on Course coverage for learners taking this Unit as part of the Higher Physics 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:

- ◆ Physics (National 5) Course or relevant component Units

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*.

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Standards

Outcomes and assessment standards

Outcome 1

The learner will:

- 1 Draw on knowledge, understanding and skills to investigate, through experimentation, a topic/process from this Unit by:**
 - 1.1 Identifying an aim and planning/designing an investigation, including safety measures, to test a hypothesis
 - 1.2 Carrying out an investigation safely, recording observations and accurate results
 - 1.3 Processing and presenting relevant information, using calculations and units where appropriate
 - 1.4 Making a prediction, based on evidence/information, with justification
 - 1.5 Evaluating an investigation and describing an improvement
 - 1.6 Drawing a valid conclusion and communicating the findings

Outcome 2

The learner will:

- 2 Draw on knowledge, understanding and skills to explain concepts and investigate applications from this Unit by:**
 - 2.1 Explaining physics concepts
 - 2.2 Applying physics knowledge and understanding to solve problems
 - 2.3 Explaining a physics process/topic and its application
 - 2.4 Explaining the impact of a physics issue on the environment/society, with justification

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.

Evidence can be drawn from a variety of sources and presented in a variety of formats.

Evidence may be presented for individual Outcomes or gathered for the Unit as a whole, by combining assessment holistically in a single activity. If the latter approach is used, it must be clear how the evidence covers each Outcome.

Transfer of evidence: Outcome 1 in this Unit may be used as evidence of the achievement of Outcome 1 in the *Particles and Waves* and *Our Dynamic Universe* Units of this Course.

The concepts to be covered in the Unit are electrical circuits and semiconductors.

In these concepts, evidence will be drawn from:

- ◆ current, voltage, power, resistance, capacitors
- ◆ conductors, semiconductors, insulators, p-n junctions

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

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

(Note: The information given below reflects the initial thinking on significant opportunities for development of skills for learning, skills for life and skills for work. These may be subject to change as the development process progresses.)

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.

1 Literacy

1.2 Writing

2 Numeracy

2.1 Number processes

2.2 Money, time and measurement

2.3 Information handling

5 Thinking skills

5.3 Applying

5.4 Analysing and evaluating

5.5 Creating

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



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Superclass: to be advised

History of changes

Version	Description of change	Authorised by	Date

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Note: readers are advised to check SQA's website: www.sqa.org.uk to ensure they are using the most up-to-date version of the Unit Specification.