Advanced Higher Unit Specification

Physics: Rotational Motion and Astrophysics (Advanced Higher) Unit

SCQF: level 7 (8 SCQF credit points)

Unit code: H7XD 77

Unit outline

The general aim of this Unit is to develop skills of scientific inquiry, investigation and analytical thinking, along with knowledge and understanding of rotational motion and astrophysics. Learners will use these skills when considering how the applications of rotational motion and astrophysics can have impacts on our lives, as well on the environment/society. This application and development of skills can be achieved using a variety of approaches, including investigation and problem solving.

The Unit will cover the key areas of kinematic relationships, angular motion, rotational dynamics, gravitation, general relativity, and stellar physics.

Learners will research issues, apply scientific skills and communicate information related to their findings, which will develop skills of scientific literacy.

Learners who complete this Unit will be able to:

1 Apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment/practical investigation

2 Draw on knowledge and understanding of the key areas of this Unit and apply scientific skills

This Unit is a mandatory Unit of the Advanced 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 *Unit Assessment Support.*

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

- Higher Physics 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.*

Standards

Outcomes and Assessment Standards

Outcome 1

The learner will:

1 Apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment/practical investigation by:

1.1 Planning/designing an experiment/practical investigation
1.2 Following procedures safely
1.3 Making and recording observations/measurements correctly
1.4 Analysing and presenting results in an appropriate format
1.5 Drawing valid conclusions and giving explanations supported by evidence
1.6 Evaluating experimental procedures with justification

Outcome 2

The learner will:

2 Draw on knowledge and understanding of the key areas of this Unit and apply scientific skills by:

2.1 Making accurate statements and giving clear descriptions/explanations
2.2 Solving problems

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.

Evidence for Assessment Standard 2.1:
Candidates must be provided with the opportunity to make responses related to each key area. The number of responses should be appropriate to the size of the key area. At least half of the responses should be correct across the key areas.

Evidence for Assessment Standard 2.2:
Candidates must be provided with the opportunity to respond to each problem solving type - making predictions, processing information including calculations, as appropriate and analysing information. At least one correct response is required for each problem solving type.

Transfer of evidence:

- Outcome 1 in this Unit can be used as evidence of the achievement of Outcome 1 in the *Physics: Electromagnetism* and *Physics: Quanta and Waves* Units of this Course.
- Outcome 1 in the *Investigating Physics* Unit of this Course can be used as evidence of the achievement of Outcome 1 in the *Physics: Rotational Motion and Astrophysics*, *Physics: Quanta and Waves* and *Physics: Electromagnetism* Units of this Course.
- Assessment Standards 2.2 in this Unit can be used as evidence of the achievement of Assessment Standards 2.2 in the *Physics: Electromagnetism* and *Physics: Quanta and Waves* Units of this Course.

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

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.

1 Literacy

1.1 Reading
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 as 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: April 2015 (version 2.0)

Superclass: RC

History of changes to National Unit Specification

Version	Description of change	Authorised by	Date
2.0	Significant changes to Outcomes and Assessment Standards. Significant changes to Evidence Requirements.	Qualifications Development Manager	April 2015