**Subject name** **Physics**
**Subject code** PHY
**Subject type** General
**Subject fee** $20
**Prerequisites** Minimum C+ Year 10 Semester 2 General Science
AND
Minimum C+ Year 10 Semester 2 Taster General Maths, Maths Methods and General English, Literature

## Course overview

Students develop appreciation of the contribution physics makes to society: understanding that diverse natural phenomena may be explained, analysed and predicted using concepts, models and theories that provide a reliable basis for action; and that matter and energy interact in physical systems across a range of scales. They understand how models and theories are refined, and new ones developed in physics; investigate phenomena and solve problems; collect and analyse data; and interpret evidence. Students use accurate and precise measurement, valid and reliable evidence, and scepticism and intellectual rigour to evaluate claims; and communicate physics understanding, findings, arguments and conclusions using appropriate representations, modes and genres.

## Course outline

| Unit 1 | Unit 2 | Unit 3 | Unit 4 |
|---|---|---|---|
| **Thermal, nuclear and electrical physics**<br>• Heating processes<br>• Ionising radiation and nuclear reactions<br>• Electrical circuits | **Linear motion and waves**<br>• Linear motion and force<br>• Waves | **Gravity and electromagnetism**<br>• Gravity and motion<br>• Electromagnetism | **Revolutions in modern physics**<br>• Special relativity<br>• Quantum theory<br>• The Standard Model |

## Assessment

In Units 1 and 2 students complete a Data Test, Student Experiment, Research Investigation and Exam. Units 1 and 2 are devised to replicate instruments used in Units 3 and 4. Assessments in Unit 1 and 2 are formative. In Units 3 and 4 students complete four summative assessments. The results from each of the assessments are added together to provide a subject score out of 100. Students will also receive an overall exit subject result from QCAA that is A-E.

## Summative assessments

<table>
<tr><th colspan="2">Unit 3</th><th colspan="2">Unit 4</th></tr>
<tr><td>Summative internal assessment 1:<br>• Data test</td><td>10%</td><td rowspan="2">Summative internal assessment 3:<br>• Research investigation</td><td rowspan="2">20%</td></tr>
<tr><td>Summative internal assessment 2:<br>• Student experiment</td><td>20%</td></tr>
<tr><td colspan="4">Summative external assessment: 50%<br>• Examination</td></tr>
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## Career opportunities

A course of study in Physics can establish a basis for further education and employment in the fields of science, engineering, medicine and technology.

## Special subject requirements

Students are expected to do homework regularly to follow up class activities and to prepare for the next class. Activities would include set work, practical records, reading, making summaries and learning work. Total homework time over a period of one week should be in the vicinity of 2½ hours. Appropriate footwear is to be worn in the laboratory, i.e. shoes with impervious uppers.