

PHYSICS (Advanced Higher)

This is a campus course. It will be taught in column D at Perth Grammar

Preferred Entry Level

Passes in Higher Physics and Higher Mathematics

Introduction

This course is designed to be attractive to pupils who wish to gain a greater insight into Physics at an advanced level, or plan to continue their studies at University in Physics or Engineering. Throughout the course there are references to recent advances, discoveries and applications of Physics which pupils will find interesting and stimulating and which will lead to the pupil being well-informed about some of the current aspects of Physics research.

One of the objectives of the course is to encourage and develop independence of thought and initiative. Formal teaching forms a significant part of the course, within which pupils will be expected to use their mathematical skills with confidence. A considerable amount of time is given to practical, experimental work. Each pupil undertakes a major investigation as part of their course assessment.

The Course

The course consists of 4 units:

- Rotational Motion and Astrophysics – Angular Motion, Gravitation, General Relativity, Stellar Physics
- Quanta and Waves – non-classical Physics including Wave theory, Simple Harmonic Motion, Quantum theory and Cosmic Radiation.
- Electromagnetism – Electric and Magnetic Fields, ac and dc circuits, Capacitors and Inductors.
- Investigating Physics – Students research, plan and carry out a research investigation of their choice.

Homework

Regular revision of current work, both theoretical and experimental, is invaluable. Pupils are encouraged to read ahead in their course work so that they may be acquainted with physics concepts and ideas prior to meeting them in class. A minimum review time of 30 minutes per lesson is recommended. Commitment, self-discipline and a keen interest in the subject is the ideal response to the challenge of Advanced Higher Physics!

Assessment

Each of the first three units is assessed in two ways: Outcome 1, which is a formal completion of an experiment, including appropriate 'write-up' of the experiment, and Outcome 2 which is a more traditional brief written test, where candidates can demonstrate their understanding of the material they have studied. These are marked internally, and are subject to SQA verification.

The fourth unit – Investigating Physics – is an extended piece of practical work lasting approximately 20 hours. This unit's assessment is based on both a formal report written by the pupil, and the process of generating this report (research, making notes, experimentation and write-up).

A complete course award in AH Physics will be accredited to the pupil only when the pupil has passed the external examination in addition to the unit assessments.

The student's final course grade (A to D) is determined by combining:

- A final, 3 hour examination.
- The report the student submits for the Investigating Physics unit. This is marked externally, and is worth 30 marks.