Fettes College

# PHYSICS AT FETTES

## IGCSE DUAL AWARD

**Overview of content:**

- Forces and motion
- Electricity
- Waves
- Energy resources and energy transfer
- Solids, liquids and gases
- Magnetism and electromagnetism
- Radioactivity and particles

**Overview of assessment:**

The paper is assessed through a 2-hour examination paper set and marked by Edexcel.

## IGCSE SEPARATE AWARD

**Overview of content**

The syllabus follows the same topics as the Dual Award, but covers each in much greater breadth and depth.

**Overview of Assessment**

In addition to the 2-hour paper sat by Dual Award candidates, Separate Award candidates will sit a further extension paper of 1 hour in length.

# A LEVEL

A Level Physics (OCR) is both a challenging and rewarding course, covering a range of topics form Newtonian Physics to Nuclear Physics. Students considering A Level Physics should have obtained a high grade in IGCSE Physics and must also be studying A Level Mathematics.

## AS Level

| Mandatory/Optional? | Unit title and description | Assessment method and weighting |
|---|---|---|
| Mandatory | **G481: Mechanics**<br>• Motion<br>• Forces in action<br>• Work and energy | 1 hour written exam<br>AS Level – 30%<br>A Level – 15% |
| Mandatory | **G482: Electrons, Waves and Photons**<br>• Electric current<br>• Resistance<br>• DC Circuits<br>• Waves<br>• Quantum Physics | 1 hour 45 mins written exam<br>AS Level – 50%<br>A Level – 25% |
| Mandatory | **G483: Practical Skills in Physics 1**<br>Internal assessment of practical skills. | Internal Assessment<br>AS Level – 20%<br>A Level – 10% |

## A2 Level

| Mandatory/Optional? | Unit title and description | Assessment method and weighting |
|---|---|---|
| Mandatory | **G484: Newtonian World**<br>• Newton's laws and momentum<br>• Circular motion and oscillations<br>• Thermal Physics | 1 hour written exam<br>A Level – 15% |
| Mandatory | **G485: Fields, Particles and Frontiers of Physics**<br>• Electric and magnetic fields<br>• Capacitors and exponential decay<br>• Nuclear Physics<br>• Medical imaging<br>• Modelling the Universe | 1 hour 45 mins written exam<br>A Level – 25% |
| Mandatory | **G486: Practical Skills in Physics 2**<br>Internal assessment of practical skills. | Internal Assessment<br>A Level – 10% |

# IB

Physics students at Standard Level (SL) and Higher Level (HL) undertake a common core syllabus, a common internal assessment (IA) scheme and have some overlapping elements in the options studied. The Internal Assessment makes up 24% of the final grade in both HL and SL.

Again, as at IGCSE, much use is made in lessons of practical work and demonstrations, with students expected to take increasing autonomy over their own interpretations of experiments in terms of analysis and links with theory.

## Higher Level

Students at HL are required to study some topics in greater depth, to study additional topics and to study extension material of a more demanding nature in the common options.

The syllabus content goes beyond A Level in some areas to include both Thermodynamics and Relativity. It is a well structured but demanding course and should only be considered by students who have gained a top grade at GCSE, and have a high level of mathematical ability.

| Component | Overall weighting (%) | Duration (hours) | Format and syllabus coverage |
|---|---|---|---|
| **Paper 1** | 20 | 1 | 40 multiple-choice questions (±15 common to SL plus about five more on the core and about 20 more on the AHL) |
| **Paper 2** | 36 | 2¼ | Section A: one data-based question and several short-answer questions on the core and the AHL (all compulsory)<br>Section B: two extended-response questions on the core and the AHL (from a choice of four) |
| **Paper 3** | 20 | 1¼ | Several short-answer questions and one extended-response question in each of the two options studied (all compulsory) |

## Standard Level

At SL the theory content is a sub-set of the Higher Level course, covering a wide range of physics but omitting the more challenging conceptual and mathematical topics. A grade B at GCSE should be a suitable minimum background. The distinction between SL and HL is one of breadth and depth.

| Component | Overall weighting (%) | Duration (hours) | Format and syllabus coverage |
|---|---|---|---|
| **Paper 1** | 20 | ¾ | 30 multiple-choice questions on the core |
| **Paper 2** | 32 | 1¼ | Section A: one data-based question and several short-answer questions on the core (all compulsory)<br>Section B: one extended-response question on the core (from a choice of three) |
| **Paper 3** | 24 | 1 | Several short-answer questions in each of the two options studied (all compulsory) |