

A-Level Physics

Physics is firmly at the foundation of Science, dealing directly with the simple rules that appear to govern a clockwork universe, but also allowing students to explore more abstract concepts such as wave particle duality, quantum and particle Physics and cosmology.



The course builds further on, and explores more deeply, many of the already familiar classical ideas and theories encountered at GCSE. As students progress through the course, they will build on their knowledge of the laws of physics, developing analytical and problem solving skills by applying these concepts to a variety of practical situations.

To be successful and to enjoy this Physics course, you should have enjoyed your GCSE Science lessons and are very likely to have a genuine interest in Science and its broader applications. This may be evident through your enjoyment of Science programmes such as Horizon, reading magazines such as New Scientist, or pursuing your own research through any number of excellent internet sites. You should enjoy logical or analytical thinking, problem solving and puzzles, but also abstract thinking using imagination and vision.

Careers

Physics A-level supports a very wide range of studies. There are clear areas of overlap with other A-level subjects, particularly Mathematics and Chemistry, however many students in a typical A-level group of up to twenty students will also be taking arts subjects, music or languages.

Physics is recognised by Universities and employers alike as a discipline which demonstrates an ability to apply mental processes to a wide range of situations and diverse problems. As such you are not limited to a reliance on the curriculum content when making career decisions. Employers love physicists' numeracy and analytical skills and Physicists are always in demand, across all sectors. Their problem solving skills, their mathematical skills, their ability to think critically- these transferable skills are useful in a huge range of areas.

University courses taken by students who studied A-level Physics with us in recent years have included:

Accounting and Financial management
Architecture
Art
Astrophysics
Biochemistry
Biomedical Engineering
Cancer Biology and Immunology
Civil Engineering
Clinical Science with professional training
Engineering Design
English
French and Chinese
Japanese

Industrial Design and Technology
Information Systems Management and Innovation
Law, Mathematics
Mechanical Engineering
Mechanical engineering with Advanced Design and Innovation
Medicine
Nursing
Physics
Physics with Philosophy
Psychology

Entry Requirements

Prior Level of Attainment

It is expected that all students will have studied either Combined Science or separate Physics GCSE, obtaining high grades in any Physics papers.

A high grade or above in Mathematics at GCSE is also required and you must feel confident about basic skills such as algebra. Although it is not essential to take A-level Mathematics to achieve an excellent grade in A-level Physics, many find it very helpful.

Examination Board: OCR Physics A - H556

A summary of the content for the A-level course is as follows:

Module 1 – Development of practical skills in physics

- Practical skills assessed in a written examination
- Practical skills assessed in practical endorsement

Module 2 – Foundations of physics

- Physical quantities and units
- Measurements
- Scalars and vectors

Module 3 – Forces and motion

- Motion
- Forces in action
- Work, energy and power
- Materials
- Momentum

Module 4 – Electrons, waves and photons

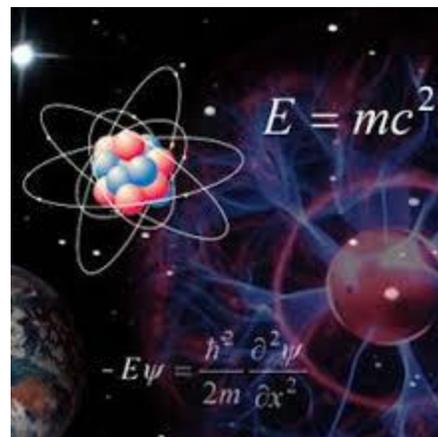
- Charge and current
- Energy, power and resistance
- Electrical circuits
- Waves
- Quantum physics

Module 5 – Newtonian world and astrophysics

- Thermal physics
- Circular motion
- Oscillations
- Gravitational fields
- Astrophysics and cosmology

Module 6 – Particles and medical physics

- Capacitors
- Electric fields
- Magnetic fields and electromagnetism
- Nuclear and particle physics
- Medical imaging



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