



A level Physics

You will already have come across some of the concepts of A-level Physics at GCSE: forces, energy, waves, radioactivity, electricity, magnetism

At A-level, you will start to see how these ideas work together, and begin to grasp the universal principles that apply to everything from the smallest atoms to the largest galaxies.

Who is this course for?

A-level Physics would be an ideal preparation for further study in the Physical Sciences or in any kind of Engineering. If you are interested in applying for a Degree Course in these areas of study, you will find most Universities also require Mathematics at A-level. Apart from Maths, other subjects that would complement Physics include Chemistry, Biology, ICT, Electronics, Music Technology, Graphics and Geography. You could consider Physics alongside contrasting subjects (eg Music, Art, History), but if you are only studying one science subject, we would recommend that it should be Applied Science.

What are the entry criteria?

Most students aiming to start A-level Physics will achieve B grades in GCSE Science, Maths and English.

The Physics department at Wyke Sixth Form College

The department has one well equipped laboratory, close to the other science labs on the ground floor of the Ash building. There is also an open access computer area adjacent to the laboratory and a demonstration classroom shared with the rest of the Science department.

Students are provided with a textbook written by the Chief Examiner for the AS and A2 specifications. A Revision Guide is also supplied, along with a variety of supportive printed notes.

The Physics staff team is:

- ✿ Kevin Appleyard (Head of Department)
- ✿ Richard Roberts

Course Details

At Wyke we use the OCR (A) specification. This consists of 6 units:

AS (Y12)

G481 *Mechanics*

This unit builds on work you will have covered at GCSE. It includes topics such as Forces, Energy and Kinematics. Some of this work is taught in the context of 'vehicle safety'.

G481 is taught in the Autumn term and examined in the January of your first year (1 hour exam – 30% of AS course).

G482 *Electrons, Waves and Photons*

As well as covering basic electricity and electrical circuits, this unit looks at the behaviour of all types of waves (eg sound, light). As your ideas about waves develop, you will begin to delve into the strange world of Quantum Physics.

G482 is taught in the Spring term and examined in the June of your first year (1 hour 45 min exam – 50% of AS course)

G483 *Assessment of Practical Skills*

G483 is assessed in by practical examination (like an ISA at GCSE), in the lab, during the Autumn and Spring terms (20% of AS course).

A2 (Y13)

G484 *Newtonian World*

This unit looks at Classical Physics, including Momentum, Circular Motion, Simple Harmonic Motion and Thermal Physics.

G484 is taught in the Autumn term and examined in the January of your second year (1 hour 15 min exam – 20% of A2 course).

G485 *Fields, Particles and Frontiers of Physics*

Electric, Gravitational and Magnetic Fields are studied, along with their similarities and differences. There is also some Cosmology, Nuclear and Atomic Physics, and Medical Physics.

G485 is taught in the Spring term and examined in the June of your second year (2 hour exam – 50% of A2 course)

G486 *Assessment of Practical Skills*

G486 is assessed in by practical examination (like an ISA at GCSE), in the lab, at the end of the Summer term of your first year and in the Autumn term of your second year (20% of A2 course).

The complete specification, together with past exam papers, can be seen on the OCR website www.ocr.org.uk

Departmental Enrichment

The department offers lunchtime support sessions as well as additional help between lessons and by email.

This year, Wyke Physics students took part in an Energy Challenge competition involving all the area's sixth-form colleges. As part of the preparation for the competition, the students visited the Vivergo plant at Saltend, a Wind Farm in Lincolnshire and the Drax Power Station. The task for the competition was to see how to maximise the energy output of a pair of photo-voltaic arrays. The Wyke team of Keelan Garbutt and Ryan Godfrey was successful in getting a higher output than any other team.



Student success

Robert Rouse

Former School:
Kelvin

A level Physics result:
Grade A*

Where is he now?
Imperial College
studying Mathematics

Xingchang Rong

Former School:
Pickering

A level Physics result:
Grade A

Where is she now?
Durham University
studying Mathematics

*'I only took Physics as an extra to my other A levels, but I have enjoyed it so much that I am now wanting to study it at University. It is so wide ranging that I think of it as the study of 'everything'.
(2nd year Physics student)*

What does this course lead to?

Physicists play a vital role in many technology-based industries, such as optoelectronics, nanotechnology, computing and renewable energy. Others work in investigating the universe; searching for extra-solar planets or looking for the remnants of the big bang. Some might apply their knowledge in healthcare (medical physics), studying the processes of the Earth (geophysics) or the climate (meteorology).

The knowledge and skills that studying Physics develops are important in other areas as well. Predicting future market behaviour is vital in finance, and so a physicist's ability to model complex systems is particularly valued in this sector, whilst logical thinking and an analytical approach is useful in Law.

Physics provides a broad training in skills that are valued by all employers; - an ability to grasp concepts quickly, a determination to find coherent answers, along with problem-solving, analytical, mathematical and ICT skills.

What can I do now that would help prepare me for this course?

The jump from GCSE to A-level is a challenge, but with a good start, it is one which you can make successfully. Look out for details about Wyke Start, which is open to all students aiming to start at Wyke in September. This event will take place just as school GCSEs are finishing.

At Wyke Start, you will have the opportunity to experience actual lessons in a range of subjects, including Physics. We will try to show you exactly what studying Physics will be like. We will also set you some preparatory tasks for completion over the Summer. As you tackle these, you will be helping to ensure a confident start to your A-level Physics course in September.