

Course Content

The AS Physics course is a 1 year course worth a maximum 20 UCAS points.

The course contains 5 topics each of which contain practical skills assessments that must be passed to gain the qualification.

AS

Measurements and their errors

This unit will draw upon your previous higher tier mathematics and therefore it is important that you have an understanding of maths to be able to understand this unit.

Particles and Radiation

You will learn about particles and antiparticles, quarks, baryons, antineutrons, mesons pions and Kaons. You will then start to look at the photoelectric effect, photon emission and wave-particle duality.

Waves

This unit looks at progressive, longitudinal, transverse and stationary waves as well as exploring refraction and diffraction.

Mechanics and materials

The materials section looks at topics such as elastic limits, strain and tensile strength. This is an ideal unit for budding engineers.

Electricity

This part of the topic covers resistance, voltage, current and then leads on to the more challenging concepts of potential dividers and electromotive force.

A-level

All AS Physics topics (1-5) plus:

Higher Mechanics

Further study of mechanics will enhance your knowledge on circular and simple harmonic motions. Other topics will include thermal properties of materials, the properties and nature of ideal gases, and the molecular kinetic theory.

Fields and their consequences

This topic covers the great unifying ideas in physics and will develop the ideas of gravitation, electrostatics and magnetic field theory. Practical applications include planetary and satellite orbits, capacitance and capacitors, their charge and discharge through resistors and electromagnetic induction.

Nuclear Physics

This section builds on the work of particles and radiation to link the properties of the nucleus to the production of nuclear power through the characteristics of the nucleus, the properties of unstable nuclei, and the link between energy and mass.

Option Topic

The final topic studied is chosen from a list of 5. Students will be able to discuss with their teacher which topic they would like to study based on their interests. The topics are **Astrophysics, Medical Physics, Engineering Physics,**

Skills and Qualifications Required: The skills you will need to develop and extend will include practical lab skills, report writing and research techniques. There will be an expectation that after each practical you will write up the investigation in full during your private study time as well as analysing and presenting data and being able to draw conclusions based on your evidence.

Due to the technical nature of this subject entry requirements are grades **66 in your GCSE Sciences**, one of which must be Physics if you took the triple award and a **6 for GCSE Mathematics**.

Assessment : The course will be assessed at the end of the year with two 90 minutes exam papers. Paper 1 is made up of 70 marks of short and long answer questions on the 5 topics below. Paper 2 will be made up of 20 marks testing your practical skills and data analysis, 20 marks testing any of the content from the AS and 30 further marks of multiple choice questions. In addition at least 40% of the questions will test your practical skills.

A Pathway To...

A physics background can lead to a huge range of careers ranging from a pyrotechnician, particle physicist, computer games designer, structural engineer and renewable energy scientist. The sky really is the limit.



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