Southend High School for Girls
Sixth FORM

Course outline

Head of subject:
Miss N Dillon

Minimum entry requirements:
Grade 7 in GCSE Physics or 7-7 in Combined Science and Grade 6 in GCSE Mathematics

Physics

What will you study in Year 12?

In Year 12, topics include studying ideas from the fundamental groundings of Newtonian mechanics and waves through to the fascinating world of particles and quantum phenomena, from behaviour of materials to the study of electricity. Student will also develop their practical, analytical and mathematical problem-solving skills throughout the course.

What will you study in Year 13?

In Year 13, students reinforce and broaden the content covered during Year 12, through the study of further mechanics and the practicalities of electric, magnetic and gravitational fields. We also introduce some of the fundamentals which underpin thermal physics and radioactive decay. The Engineering Physics module provides an ideal opportunity to review and apply key concepts from previous areas of the course to novel concepts such as rotational dynamics and thermodynamics in the context of engineering and technology.

How will you be assessed during the course?

Internal assessment:

Students will be assessed in class and for homework using practice examination style questions.

End of topic tests will also be used to contribute to termly assessment grades. Self-assessed independent work is completed and tracked via the Isaac Physics website.

External Assessment:

Assessment is by 3 written examinations

- Paper 1 (34%) 2 hours. (Measurements and errors; Particles and radiation; Waves; Mechanics and materials, Electricity; Periodic Motion)
- Paper 2 (34%) 2 hours. (Thermal Physics, Fields, Nuclear Physics, knowledge of Paper 1 topics)
- Paper 3 (32%) 2 hours. (Practical skills and data analysis; Engineering Physics topic)

Practical skills assessment:

As part of the A Level course, students must pass the practical endorsement element of the qualification. A range of experimental skills are assessed through a series of twelve practical tasks that take place throughout year 12 and 13 programmes of study. The emphasis is on good experimental physics procedures and the ability to critically analyse results, which could include the use of research and computer models to allow for rich and fulfilling class discussions.

Where will this course lead?

Physics is an essential A Level choice for a career in engineering and can be advantageous for a career in medicine. Around 20% of physics graduates enter a lucrative career in Finance – the mathematical demands of the course are ideal preparation for this career path. An A Level in physics will demonstrate you have acquired a wide variety of skills, from practical work to problem solving, and therefore forms the foundation for a path into many degree courses, including physics, mathematics and computer science.

Further information

Students will follow the AQA specification. This A Level course builds upon the skills that students will have acquired from their KS4 programme of study. Link to the AQA course specification:

https://www.aqa.org.uk/subjects/science/as-and-a-level/physics-7407-7408

Super Curricular Opportunities

The department also offers students the opportunity to visit the International Particle Research Centre at CERN, Switzerland, providing an excellent opportunity to visit an area where cutting-edge research into physics is taking place. We have long-standing connections with local engineering firms for work experience and further careers enrichment. Some of our sixth form Physicists take on leadership roles such as Physics Captain or leading our Robot Club for younger students.