

## **Physics: CFE ADVANCED HIGHER**

### **Why Physics?**

The purpose of the Course is to build on the knowledge and skills developed by the learner in the Higher Physics Course and to use their mathematical knowledge and skills to analyse and solve problems in real-life contexts.

As our understanding of physics and its potential applications is constantly evolving, our success as an industrial society depends on the development of young people who are secure in their knowledge of physics and who are resilient, adaptable, creative and inventive.

The Course offers opportunities for collaborative and independent learning set within familiar and unfamiliar contexts, and seeks to illustrate and emphasise situations where the principles of physics are used and applied, thus promoting the candidate's awareness that physics involves interaction between theory and practice. An opportunity for engaging in some independent research is provided. The resulting elements of knowledge and understanding and skills form the basis of the Advanced Higher Physics Course.

The study of Advanced Higher Physics should also foster an interest in current developments in and applications of physics, the willingness to make critical and evaluative comment, and the acceptance that physics is a changing subject. Positive attitudes, such as being open-minded and willing to recognise alternative points of view, are promoted.

### **Entry to the course**

This is at the discretion of the school but you would normally be expected to have achieved the following

- Higher **Physics** at Grade C or above.

### **Course outline**

#### **Physics: Rotational Motion and Astrophysics (Advanced Higher)**

This Unit develops knowledge and understanding and skills in physics related to rotational motion and astrophysics. It provides opportunities to develop and apply concepts and principles in a wide variety of situations involving angular motion. An astronomical perspective is developed through a study of gravitation, leading to work on general relativity and stellar physics.

#### **Physics: Quanta and Waves (Advanced Higher)**

This Unit develops knowledge and understanding and skills in physics related to quanta and waves. It provides opportunities to develop and apply concepts and principles in a wide variety of situations involving quantum theory and waves. The Unit introduces non-classical physics and considers the origin and composition of cosmic radiation. Simple harmonic motion is introduced and work on wave theory is developed.

**Physics: Electromagnetism (Advanced Higher)** This Unit develops knowledge and understanding and skills in physics related to electromagnetism. It provides opportunities to develop and apply concepts and principles in a wide variety of situations involving electromagnetism. The Unit develops knowledge and understanding of electric and magnetic fields and capacitors and inductors used in d.c. and a.c. circuits.

### **Investigating Physics (Advanced Higher)**

In this Unit, learners will develop key investigative skills. The Unit offers opportunities for independent learning set within the context of experimental physics. Learners will identify, research, plan and carry out a physics investigation of their choice.

### **Assessment**

To gain the award you must complete the units which are internally assessed by your teacher/lecturer in accordance with SQA guidelines.

The course is assessed by an external examination, set and marked by the SQA. The investigation report is also externally assessed.

### **Course assessment structure**

Component 1 — question paper 100 marks

Component 2 — project 30 marks

**Total marks 130 marks**

### **Progression**

Successful completion of this course may lead to:

Education (HNC/HND/Degree) or

Employment in

- Health & Medicine
- Manufacturing Industries
- Science & Mathematics
- Engineering
- Medicine

**Further advice and information on these options is available from your Subject Teacher, Home Area Principal Teacher and Careers Adviser.**