Advanced Higher Engineering Science (Course Code: C823 77)

SCQF Level 7 (32 Credit Points)

Why study Engineering Science?

Engineering is vital to everyday life; it shapes the world in which we live and its future. Engineers play key roles in meeting the needs of society in fields which include climate change, medicine, IT and transport. Our society needs more engineers, and more young people with an informed view of engineering.

In this course you will develop and extend knowledge and understanding of key engineering concepts and processes, and learn to apply these to a variety of problems. On completing the course you will learn skills in: analysis and problem solving, engineering design, the use of equipment and materials, and evaluation.

The skills you learn from this course are valuable for a wide range of career areas and industries. This includes Engineering, Electronics, Oil, Renewable Energy Production, Science, Mechanics, Construction and the Built Environment.

Career Pathways

To see what career areas this subject could lead to and the routes to get there, download and view these career pathways:

Art and Design

Computing and ICT

Construction

Engineering

Garage Services

Health and Medicine

Teaching and Classroom Support

Transport and Distribution

What do I need to get in?

This is at the discretion of the school/college but you would normally be expected to have attained one of the following:

- **Higher Engineering Science**
- **Higher Mathematics**

What will I study?

The course comprises **three** areas of study.

Electronics and Control

You will:

- explore a range of key concepts and devices related to electronic control systems
- develop mathematical techniques, problem solving and evaluating skills through simulation and practical projects
- choose and investigate an aspect of engineering related to electronic, electrical or control engineering, and apply this in practical situations.

Mechanisms and Structures

You will:

- develop a deep mathematical understanding of mechanisms and structures
- develop problem solving and evaluating skills through simulation, practical projects and investigative tasks in a range of contexts
- choose and investigate an aspect of engineering related to mechanical or civil engineering, and apply this in practical situations.

Engineering Project Management

You will:

- develop knowledge and skills of project management, as it applies to an engineering project
- investigate a real-world engineering project, and consider its environmental, social and ethical impact
- select an appropriately challenging engineering problem
- carry out research in relation to the problem, and develop a proposal for a solution to the problem.

How will I be assessed?

The course assessment consists of **two** components **totalling 150 marks**:

- Component 1: question paper - worth 75 marks (consisting of 2 sections: section 1 worth 35 marks, and section 2 worth 40 marks)
- Component 2: project (worth 75 marks).

For the project component, you will apply engineering science skills and knowledge acquired to complete a problem solving task involving research and analysis, production and maintenance of project plan, mathematical modelling and analysis, constructing and/or simulating a problem, evaluation and presentation.

The question paper is set and externally marked by the Scottish Qualifications Authority (SQA).

The grade awarded is based on the total marks achieved across course assessment. The project is an open assessment task set by SQA and internally assessed in line with SQA's marking instructions.

The course assessment is graded A-D.

Study Materials

- SQA Past Papers Engineering Science Advanced Higher
- SQA Specimen Engineering Science Advanced Higher Question Paper
- Ushare Study Resources

What can I go on to next?

Further study, training or employment in:

- Art and Design
- Computing and ICT
- Construction
- Engineering
- Garage Services
- Health and Medicine
- Teaching and Classroom Support
- Transport and Distribution