Advanced Higher Computing Science (Course Code: C816 77)

SCQF Level 7 (32 Credit Points)

Why study Computing Science?

Computing science is vital to everyday life – on social, technological and economic levels. It shapes the world in which we live and its future. Computing is embedded in the world around us, from systems and devices in our homes to our places of work. It has also changed the way we learn, relax, travel and communicate.

Learning computing science will give you many benefits apart from learning about technology. You will learn valuable transferable work and life skills, such as being able to solve problems in a logical way, think creatively and handle information.

The skills you learn in this course are useful in lots of different job areas. These include science, communications, entertainment, education, business and industry.

Career Pathways

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

Computing and ICT

Transport and Distribution

Uniformed and Security Services

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 Computing Science**

What will I study?

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

Software design and development

You will:

- develop knowledge, understanding, and advanced practical problem-solving skills in software design and development, by using appropriate software development environments
- develop object-oriented programming and computational-thinking skills by analysing, designing, implementing, testing, and evaluating practical solutions and explaining how these modular programs

work
- use your knowledge of data types and constructs to create efficient programs to solve advanced problems.

Database design and development

You will:

- develop knowledge, understanding, and advanced practical problem-solving skills in database design and development, through a range of practical tasks, using SQL to create and query relational databases
- apply computational thinking skills to analyse, design, implement, test, and evaluate practical solutions, using a range of development tools
- apply interpretation skills to tasks involving some complex features in both familiar and new contexts.

Web design and development

You will:

- develop knowledge, understanding, and advanced practical problem-solving skills in web design and development, through a range of practical and investigative tasks
- apply computational-thinking skills to analyse, design, implement, test, and evaluate practical solutions to web-based problems, using a range of development tools including HTML, Cascading Style Sheets (CSS) and PHP.
- You will apply interpretation skills to tasks involving some complex features in both familiar and new contexts.

Computer Systems

This area will be integrated as part of the above three areas of study, and is not a stand alone unit.

You will develop your understanding of how data is stored in hexadecimal form and how flags are used during the fetch-execute cycle, and become aware of the environmental impact of data centres and the security risks of code injections.

How will I be assessed?

Course assessment

The course assessment consists of **two** components with a total of 160 marks:

- Component 1 — project (80 marks)
- Component 2 — question paper (80 marks).

For the project component you will be asked to design, develop, implement, test and evaluate a digital solution to a complex problem and demonstrate advanced skills in computer programming.

Both the question papers and the project are set and externally marked by the Scottish Qualifications Authority

(SQA).

The grade awarded is based on the total marks achieved across course assessment.

The course assessment is graded A-D.

Study Materials

SQA Past Papers Computing Science Advanced Higher
SQA Specimen Computing Science Advanced Higher Question Paper

What can I go on to next?

Further study, training or employment in:

- Computing and ICT
- Engineering
- Science and Mathematics