Computing Science
National 4/5

Why take this course?
Computers are a fundamental part of our world. We all use Apps and Websites every day but we need people to design and build them.
Computing Science provides an understanding of the digital world and brings together elements of technology and science. During this course, you will learn some of the skills needed by programmers and web designers and be more informed of the IT industry.

To succeed in this course, you need…
- To be interested in learning more about computers and technology. This course includes theoretical content and practical activities;
- To be able to work autonomously during the tasks in order to develop your Computational thinking skills;
- To have developed good coding or mathematical skills in S3. In computing you will have to decompose problems in small steps and use arithmetic operators.

The knowledge and skills developed in S3 are a strong foundation for national 4/5 study in this subject.
It is possible for a motivated and hard-working student to study this course without previous background in this subject area; however, you need to be prepared to work hard in your own time.

Course structure and Content (Subject to change by SQA)
Software Design and Development
Around the world there are millions of people employed as programmers. As the electronics and computing industries continue to expand, many, many more will be needed.
- You will develop your programming and computational thinking skills by developing, implementing and testing programs and explaining how they work.
- You will learn a programming language called Python and use it to solve problems by writing and testing a variety of programs.

Computer Systems
You will learn about computer architecture (internal computer components), how computer systems store and process data using binary.
You will examine the security risks posed by networks, including the precautions we can take to protect our data against viruses, etc. You will see how biometrics and software protects our identities against hackers.
You will also study the impact of computer systems on the society, notably from an environmental point of view.

Database Design and Development **(not covered in 2020-21)**
From companies storing customer and stock data to e-commerce websites, databases are used extensively in computing.
Through a range of practical exercises, you will learn how to design, create and use SQL code to consult databases.

Web Design and Development
You will get creative and learn the skills needed to create your website in HTML. At National 5 level you will learn how to use CSS and Javascript to make your website more attractive and easier to manage.

Course Assessment (Subject to change by SQA)
Depending on your progress either:

Added Value Unit (National 4)
You apply the skills and knowledge from the other units to solve a Computing Science problem. This means creating a suitable program or website.

There is no exam at National 4.

    Or:

Course Assessment (National 5)

You apply the skills and knowledge from the other units to solve a Computer Science problem. This means creating a suitable program or app and keeping a record of progress. This is an assignment worth 50 marks marked externally.

You also sit a SQA exam worth 110 marks. The course will be graded A-D.

Essentials
No specific equipment is required; however, having access to a computer at home is recommended.

Where might this course take me?
Computing skills are required in hundreds of today's jobs and are highly value in Science and Engineering.

Computing specific jobs can be found in areas such as Software Engineering, Database Design and Administration, Telecommunications, Oil & Gas Industry, Computer Technical Support, Network Administration, Games Development, Teacher/Trainer.

Not only will you acquire knowledge and learn programming skills, Computing will also improve your ability to problem solve – an excellent attribute that all employers look for. This will be useful to you whatever direction you choose later.

The National 5 course prepares the way for College and Higher Computing Science courses.