Computer Science A Level

Course Description:

The Computer Science course is a linear A Level qualification.

Computer Science qualifications will, above all else, be relevant to the modern and changing world of computing, and they will also be relevant to the higher education community.

You will explore the concepts that lie at the heart of Computer Science and the course will provide a good grounding for other subject areas that require computational thinking and analytical skills.

Qualifications Required:

Minimum entry requirements apply. Minimum Grade 5 in Maths and a Science and an interest in programming and computer science.

Aims of the Course:

Computer Science is a practical subject where students can apply the academic principles learned in the classroom to real-world systems. It is an intensely creative subject that combines invention and excitement, that can look at the natural world through a digital prism.

The Computer Science qualification will values computational thinking, helping students to develop the skills to solve problems, design systems and understand the power and limits of human and machine intelligence.

Future Prospects:

You can progress to study and/or work in areas such as:

Artificial Intelligence & Robotics Building Technology	Robotics
	Software Engineering
Business Information Systems	Computer Security & Forensics
Computer Games Development	Data Science
Computer Networking	Interactive Digital Technologies

Student Feedback:

'It is something that can be used every day.'
'It shows you how a basic concept can be transformed to make amazing things.'
'It helps you understand the science behind how things work.'

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A Level Units

01 Computer Systems (40%)
This component will be a traditionally marked and structured question paper with a mix of question types: short-answer, longer-answer, and levels of response mark-scheme-type questions. It will cover the characteristics of contemporary systems architecture and other areas including the following:
The characteristics of contemporary processors, input, output and storage devices
Software and software development
Exchanging data
Data types, data structures and algorithms
Legal, moral, cultural and ethical issues

02 Algorithms and Programming (40%)
This component will be a traditionally marked and structured question paper with two sections, both of which will include a mix of question types: short-answer, longer-answer, and levels of response mark-scheme-type questions.

SECTION A
Traditional questions concerning computational thinking:
Elements of computational thinking
Programming and problem solving
Pattern recognition, abstraction and decomposition
Algorithm design and efficiency
Standard algorithms
SECTION B
There will be a scenario/task contained in the paper, which could be an algorithm or a text page-based task, which will involve problem solving.

03 Programming Project (20%)
Students select their own user-driven problem of an appropriate size and complexity to solve. This will enable them to demonstrate the skills and knowledge necessary to meet the Assessment Objectives. Students will need to analyse the problem, design a solution, implement the solution and give a thorough evaluation.