A-Level Computer Science

Why this subject?

Computer Science is a practical subject where students can apply the academic principles learned in the classroom to real-world systems. It's an intensely creative subject that combines invention and excitement, and can look at the natural world through a digital prism. Computer Science will above all else be relevant to the modern and changing world of computing.

Students will develop computational thinking, helping learners to develop the skills to solve problems, design systems and understand the power and limits of human and machine intelligence, through thorough analysis, critical evaluation and decision making. The flexible project approach is also a vital component of 'post-school' life and is of particular relevance to both higher education and the workplace, that this qualification is designed to fully prepare students for.

Course Outline

Component 01: Content of Computer systems

1.1 The characteristics of contemporary processors, input, output and storage devices

1.2 Software and software development

1.3 Exchanging data

1.4 Data types, data structures and algorithms

1.5 Legal, moral, cultural and ethical issues

Component 02: Content of Algorithms and programming

2.1 Elements of computational thinking

2.2 Problem solving and programming

2.3 Algorithms

Component 03 or 04: Programming project NEA

Learners will be expected to analyse, design, develop, test, evaluate and document a program written in a suitable programming language, and apply the principles of computational thinking to a practical coding problem.

3.1. Analysis of the problem (10 marks)

3.2 Design of the solution (15 marks)

3.3 Developing the solution (25 marks)

Key Information

Exam Board	OCR
Qualification Type	A-Level (Level 3)
Entry Requirements	Level 6 & above in Computer Science
Head of Department	Mr Hall

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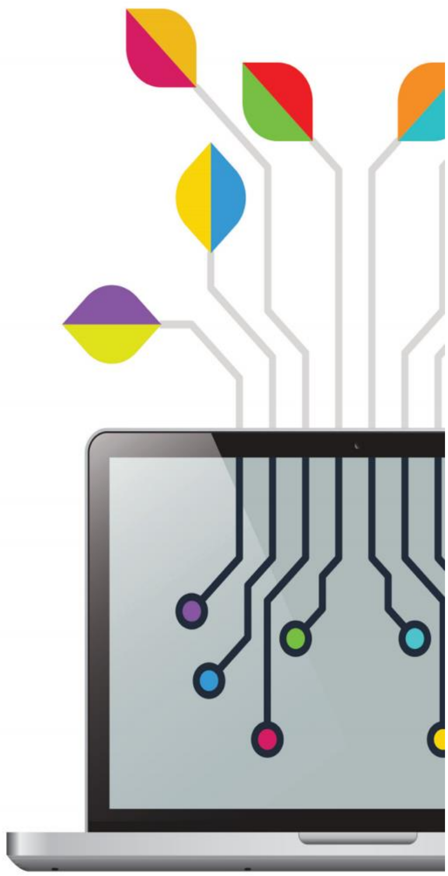
Assessment Outline

Content Overview	Assessment Overview	
• 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	Computer systems (01) 140 marks 2 hours and 30 minutes written paper (no calculators allowed)	**40%** of total A level
• Elements of computational thinking • Problem solving and programming • Algorithms to solve problems and standard algorithms	Algorithms and programming (02*) 140 marks 2 hours and 30 minutes written paper (no calculators allowed)	**40%** of total A level
The learner will choose a computing problem to work through according to the guidance in the specification. • Analysis of the problem • Design of the solution • Developing the solution • Evaluation	Programming project 03* – Moderated upload or 04* – Moderated postal or 80 – Carry forward (2018 onwards)* 70 marks Non-exam assessment	**20%** of total A level



Careers and next steps

In the modern world, computers are an essential component of virtually every job on the market. Having a good understanding of computer science and the ability to demonstrate a vast range of skills to use computers and systems effectively will undoubtedly open many doors to career opportunities, that often people haven't considered or even heard of. Programmers, game designers, web developers, graphic designers, systems analysts, computer technicians, CAD designers, cyber security and business leaders are just a few. Students will develop the confidence, skills and knowledge that are valued by employers and become extremely employable.

6IXTH FORM