Computer Science (with Programming)

A level Computer Science will provide students with the ability to apply the fundamental principles and concepts of computer science, including: abstraction, decomposition, logic, algorithms and data representation.

The ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs to do so.

The capacity to think creatively, innovatively, analytically, logically and critically.

The capacity to see relationships between different aspects of computer science.

A Level
56 UCAS points available

Student Profile

A successful student will need:

Grade 6 in both GCSE Computer Science and GCSE Mathematics.

Be interested in developing a deep understanding of computers, software development and how the Internet works.

Be enthusiastic about programming. Students will develop Object Orientated software and apply logical methods to break problems down into component parts.

Be passionate about technology and its power to make the world a better place.

Course Content (OCR)

Assessment 1 - Computer Systems exam worth 40% on:
Characteristics of processors, input, output and storage devices
Software and software development, Exchanging data
Data types, data structures and algorithms
Legal, moral, cultural and ethical issues

Assessment 2 - Algorithms and Programming exam worth 40% on:
Elements of computational thinking
Problem solving and programming
Algorithms to solve problems and standard algorithms

Assessment 3 - Programming Project worth 20%
You will choose a computing problem to work through by analysing the problem, designing and developing a solution and testing & evaluating the end product.

Skills Gained

Students will become proficient programmers who will be confident and comfortable with a wide range of programming concepts and methodologies. Including: Python, OOP techniques, Assembly, SQL and web (HTML, CSS and JavaScript)

Programming tasks will be tackled using logical abstraction & decomposition and documented using analysis, design, implementation, testing and evaluation phases.

Trips / Cultural Experiences

Bletchley Park, Milton Keynes - home of the World War Two Codebreakers

Museum of Computing, Swindon

The Future - What Next?

After studying Computer Science at A level, university options are vast, with many different pathways of Computer Science to study along with Cyber Security, maths, physics and many others all being logical pathways from an A level in Computer Science.
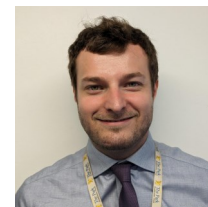
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