COMPUTER SCIENCE

Examination Board Specification: **OCR** H046/H446 (from 2015)

Why Study Computer Science?

The course is designed to develop the ability to solve problems through critical analysis and will teach students core ideas in Computer Science enabling them to use a wide range of computer programming languages, including our course languages Java, JavaScript and C++ (for extension only).
The course would suit students with a strong mathematical background and a scientific and logical way of thinking.

Content

This modern qualification gives students a general grounding in computing, including an understanding of computer systems, the principles of programming and problem solving. Through computing, students can develop:

• The capacity to think creatively, innovatively, analytically, logically and critically
• An understanding of the organisation of computer systems
• The ability to apply skills, knowledge and understanding of computing, including programming, in a range of contexts to solve problems
• The capacity to see relationships between different aspects of the subject
• An understanding of the consequences of using computers, an awareness of emerging technologies and an appreciation of their potential impact on society.

Advanced Level

Computer systems. This component will introduce students to the internal workings of the Central Processing Unit (CPU) and the exchanging of data, and also looks at software development, data types and legal and ethical issues. It is expected that students will draw on this underpinning content when studying computational thinking, developing programming techniques and devising their own programming approach in the Programming project component.

Algorithms and programming. This component will incorporate and build on the knowledge and understanding gained in the Computer systems component (01). In addition, learners will understand what is meant by computational thinking, learn the benefits of applying computational thinking to solving a wide variety of problems and understand the principles of solving problems by computational methods.

Programming Project. Students will be expected to analyse, design, develop, test, evaluate and document a program written in a suitable programming language. The underlying approach to the project is to apply the principles of computational thinking to a practical coding problem. Students are expected to apply appropriate principles from an agile development approach to the project development.

Content and Assessment of the Course:

A-level examinations	% of A-level
1 (H446/01) Computer systems	40
2 (H446/02) Algorithms and programming	40
3 (H446/03) Programming project	20

Additional Information: This subject is listed as a 'Useful' A-level by the Russell Group of Universities for Medicine, Engineering, Mathematics and Science related University courses.

Entrance Requirements: There is no requirement, but a grade A in GCSE Electronics or grade 7 Computing would show a suitable standard.