COMPUTER SCIENCE

Exam Board: AQA

AS Course Outline
Who should study this course?
The most important aspect of computer science is problem solving, an essential skill for life. Students study the design, development and analysis of software and hardware used to solve problems in a variety of business, scientific and social contexts. Because computers solve problems to serve people, there is a significant human side to computer science as well. It would complement subjects including; Maths, Further Maths and Physics.

What does the course aim to do?
Computer science will outline the study of the theory, experimentation, and engineering that form the basis for the design and use of computers. It will show the scientific and practical approach to computation and its applications. Through the systematic study of the feasibility, structure, expression, and algorithms that underlie the attainment, representation, processing, storage, communication of information. Throughout the two years on the course you will develop an understanding of the Python programming language.

Which topics will I study?
In **AS** (first year) the topics are as followed:
Fundamentals of programming, Fundamentals of data structures, Systematic approach to problem solving, Theory of computation, Fundamentals of data representation, Fundamentals of computer systems, Fundamentals of computer organisation and architecture, Consequences of uses of computing, Fundamentals of communication and networking.

Paper 1	Paper 2
What's assessed This paper tests a student's ability to program, as well as their theoretical knowledge of computer science from subject content 1–4 above. (refer to AQA website)	**What's assessed** This paper tests a student's ability to answer questions from subject content 5–9 above. (refer to AQA website)
Assessed • On-screen exam: 1 hour 30 minutes • 50% of AS	**Assessed** • Written exam: 1 hour 30 minutes • 50% of AS
Questions Students answer a series of short questions and write/adapt/extend	Questions A series of short-answer and extended-answer questions.

programs in an electronic answer document provided by AQA. They will issue preliminary material, a skeleton program (available in each of the programming languages) and, where appropriate, test data, for use in the exam.	

In **A2** (second year) the topics are as followed:
Fundamentals of algorithms, Fundamentals of databases, Big Data, Fundamentals of functional programming, Non-exam assessment – the computing practical project.

Paper 1	Paper 2	Non-exam assessment
What's assessed This paper tests a student's ability to program, as well as their theoretical knowledge of computer science from subject content 10–13 above and the skills required from section 22 above. (refer to AQA website)	**What's assessed** This paper tests a student's ability to answer questions from subject content 14–21 above. (refer to AQA website)	**What's assessed** The non-exam assessment assesses student's ability to use the knowledge and skills gained through the course to solve or investigate a practical problem. Students will be expected to follow a systematic approach to problem solving, as shown in section 22 above.
Assessed • On-screen exam: 2 hours 30 minutes • 40% of A-level	**Assessed** • Written exam: 2 hours 30 minutes • 40% of A-level	**Assessed** • 75 marks • 20% of A-level
Questions Students answer a series of short questions and write/ adapt/extend programs in an electronic answer document provided by us. We will issue preliminary material, a skeleton program (available in each of the programming languages) and, where appropriate, test data, for use in the exam.	**Questions** Compulsory short-answer and extended-answer questions.	

What Skills Will I Develop?
IT - The ability to conceive, design and write correct working computer programs using pseudocode and Python. **Mathematical** - To construct and manipulate mathematical models, use model-checking and modelling packages. **Analytical and Research** - The ability to research, acquire, use and critically evaluate complex data. **Problem solving** - The ability to solve problems by using mathematical and I.T. knowledge and **Creativity -** Able to show creativity and innovation in solving unfamiliar problems.

Structure of the Course
This course will be taught for 6 lessons per week (4.5 hours). Homework will be once a week and deadlines must be adhered to.