Computer Science (Linear)

AQA: Course Code 7516/7517
Contact: Mr J Spencer

Course Outline:

Students should be able to:

- demonstrate knowledge and understanding of the principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- apply knowledge and understanding of the principles and concepts of computer science, including analysing problems in computational terms.
- design, program and evaluate computer systems that solve problems, making reasoned judgements about these and presenting conclusions

The majority of marks in the AQA A-level (56% of them) are allocated directly to the program code that the student writes. The AQA NEA places a much greater emphasis on assessing students' technical skills rather than their ability to write documentation.

Topics covered

1. Fundamentals of programming
2. Fundamentals of data structures
3. Fundamentals of algorithms
4. Theory of computation
5. Fundamentals of data representation
6. Fundamentals of computer systems
7. Fundamentals of computer organisation and architecture
8. Consequences of uses of computing
9. Fundamentals of communication and networking
10. Fundamentals of databases
11. Big Data
12. Fundamentals of functional programming
13. Systematic approach to problem solving
14. Non-exam assessment - the computing practical project

Assessment Framework:

Paper One 40% - On-screen exam: 2 hours 30 minutes. This paper tests a student's ability to program, as well as their theoretical knowledge of Computer Science from subject content 1-4 and the skills required from section 13.

Assessment
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.

Paper Two 40% - Written exam: 2 hours 30 minutes. This paper tests a student's ability to answer questions from subject content 4-12.

Assessment
Questions: Compulsory short-answer and extended-answer questions.

Project 20%
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 13.

Course Entry Requirements:

GCSE Computing grade 6 and
GCSE Maths grade 6

Why Study A-level Computing?

The skills you will learn in logic and problem solving will be useful for life as well as in higher education and your future careers.

Be The Best You Can Be