



AS/A Level Computer Science Course Outline

Overview

Advances in computing are transforming the way we work and the Computer Science qualification from the AQA exam board offers an up-to-date syllabus that focuses on the knowledge, understanding and skills students need to progress to higher education or thrive in the workplace. This replaces older courses such as AS/A2 Computing. In addition to programming (using Python, or one of the other approved languages) and learning the fundamentals of computer systems and architecture, students are taught a systematic approach to problem solving. The course involves a strong mathematical element including the use of Boolean algebra.

Course Structure & Summary of Unit Content

The AS Level covers:

- 1 Fundamentals of programming
- 2 Fundamentals of data structures
- 3 Systematic approach to problem solving
- 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

Additionally the A Level covers:

- 10 Fundamentals of databases
- 11 Big Data
- 12 Fundamentals of functional programming
- 13 Fundamentals of algorithms
- 14 Non-exam assessment - the computing practical project

It is possible for the AS and A Level courses to be taught concurrently, and A Level students will be able to sit the AS exams after the first year's teaching if they do not wish to continue with the full A Level.

Assessment:

For AS Level:

Paper 1 - 1.75 hour on-screen exam, 50% of AS grade.

This paper tests a student's ability to program, as well as their theoretical knowledge of computer science from subject content 1-4 above. Students answer a series of short questions and write/adapt/extend programs in an Electronic Answer Document provided by the exam board.

Paper 2 - 1.5 hour written exam, 50% of AS grade.

This paper tests a student's ability to answer questions from subject content 5-9 above with a series of short-answer and extended-answer questions.

For A Level:

Paper 1 – 2.5 hour on-screen exam, 40% of A Level

This paper tests a student's ability to program, as well as their theoretical knowledge of computer science from subject content 1-4 and 13 above. Students answer a series of short questions and write/adapt/extend programs in an Electronic Answer Document provided by the exam board.

Paper 2 – 2.5 hour written exam, 40% of A Level

This paper tests a student's ability to answer questions from subject content 5-12 above with a series of short-answer and extended-answer questions.

Non-exam assessment ('coursework') – 20% of A Level

This assesses students' 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 subject content 3 above.

Entry Qualifications

Students will require a minimum of a grade 6 in GCSE Mathematics. Grade 6 or higher in GCSE Computing, or its equivalent, is also desirable.

Career Prospects

The analytical and problem solving skills developed through Computer Science AS and A Level make students highly employable both in and out of technology-related careers. Computer Science may lead to a job such as a software engineer, computer engineer or an Information Systems professional. AS and A Level Computer Science are acceptable as entry qualifications for the vast majority of college and university courses in just about any subject.