A Level Computer Science

Course: Computer Science H446
Awarding Body: OCR

Specification Link: https://www.ocr.org.uk/qualifications/as-and-a-level/computer-science-h046-h446-from-2015/specification-at-a-glance/

Examinations:

Students must take all three components to be awarded the OCR A Level in Computer Science:
2 Papers
1 Project (NEA)

Paper 1: Computer systems (01) The internal workings of the (CPU), data exchange, software development, data types and legal and ethical issues. Calculators not allowed.
Time: 2 Hours 30 Minutes. Written Exam, Theoretical knowledge

Paper 2: Algorithms and programming (02) Using computational thinking to solve problems. Calculators not allowed.
Time: 2 Hours 30 Mins; Written Exam, Programming and Theoretical knowledge

NEA: Programming project (03)
The non-exam assessment (NEA) is a computing practical project. Students will be expected to analyse a problem (10 marks), design (15 marks), develop and test (25 marks), and evaluate and document (20 marks) a program. The program to solve the problem must be written in a suitable programming language.

Content overview

Component 01: Computer systems
Students are introduced to the internal workings of the CPU, data exchange, software development, data types and legal and ethical issues. The resulting knowledge and understanding will underpin their work in component 03.

It covers:

- The characteristics of contemporary processors, input, output and storage devices
- Types of software and the different methodologies used to develop software
- Data exchange between different systems
- Data types, data structures and algorithms
- Legal, moral, cultural and ethical issues.

Component 02: Algorithms and programming
This builds on component 01 to include computational thinking and problem-solving.

It covers:

- What is meant by computational thinking (thinking abstractly, thinking ahead, thinking procedurally etc.)
- Problem solving and programming – how computers and programs can be used to solve problems
- Algorithms and how they can be used to describe and solve problems.

Component 03: Programming project

Students are expected to apply the principles of computational thinking to a practical coding programming project. They will analyse, design, develop, test, evaluate and document a program written in a suitable programming language. The project is designed to be independently chosen by the student and provides them with the flexibility to investigate projects within the diverse field of computer science. We support a wide and diverse range of languages.

Entry requirements

Grade 7, 8 or 9 in Maths and English GCSE

Whilst the A Level is a natural progression from GCSE Computer Science, it is not a pre-requisite to have taken Computer Science at the GCSE level.