Computer Science

Examination Board: OCR
A Level in Computing Science: H446

Why Study Computer Science?

Computer Science is a fast-paced and constantly evolving subject with potentially far reaching social consequences. Study of the subject places an individual at the forefront of the technology curve, opening the door to numerous career and educational possibilities.

What will I learn?

Students learn about the fundamental principles of operation of a computer from the perspective of hardware, software and networks. Students look at aspects of network security and data handling as well as ethical, moral and legal aspects. In addition to theory, students improve their knowledge of programming. This is useful in itself, but also develops a number of transferable skills, such as

- The capacity to think creatively, innovatively, and laterally
- Logical Reasoning
- Critical analysis
- Innovation
- Abstraction and Decomposition
- Pattern Recognition
- Design skills
- Solution Modelling
- Problem Solving
- How the real world can be modelled on a computer

Progression

The study of Computer Science opens the door to many career possibilities and areas of further study. These include AI, Robotics, Machine Learning, Augmented Reality, Cyber Security, Network Engineering, Games Design, Computer Animation, Web and App Development, Visual Effects, Software Development, Data Management, Hardware Engineering, Research, Systems Analysis and Project Management.

What is the structure of the course?

Assessment is through two exams, 'computer systems' and 'algorithms and programming', one theoretical based and one programming based. Students also complete a software based development project which accounts for 20% of the qualification. The following topics are studied:

- The Processor
- Input, output and storage
- Systems Software
- Applications Generation
- Software Development
- Types of Programming Language
- Compression, Encryption and Hashing
- Databases
- Networks
- Web Technologies
- Data Types and Structures
- Boolean Algebra
- Computing related legislation
- Moral and ethical Issues
- Thinking logically
- Programming techniques
- Computational methods

Assessment

- **Paper 1** - 40% of the course, written theoretical exam, 150 mins
- **Paper 2** - 40% of the course, written practical exam (programming based) 150 mins
- **Programming Project**, 20% of the course