

A Level Computer Science

AIMS OF THE COURSE

This course aims to encourage students to develop:

- the capacity to think creatively, innovatively, analytically, logically and critically;
- an understanding of the organisation of computer systems, including software, hardware, data communications and people;
- the ability to apply skills, knowledge and understanding of computing, including coding in Python, SQL and JavaScript, in a range of contexts to solve problems;
- skills in project and time management;
- the capacity to see relationships between different aspects of the subject and perceive their field of study in a broader perspective;
- an understanding of the consequences of using computers, including social, legal, ethical and other issues;
- an awareness of emerging technologies and an appreciation of their potential impact on society.

COURSE CONTENT

- Characteristics of contemporary processors
- Software and software development
- Programming
- Exchanging data
- Data types, structures and algorithms
- Legal, moral and ethical issues
- The principles of computational thinking
- Problem solving and programming
- Algorithms to solve problems and standard algorithms
- Computing Project covering:
 - Analysis
 - Design
 - Development of code
 - Evaluation

A LEVEL ASSESSMENT (OCR H446)

Unit 1: Computer systems
40% of the A Level
2hr30min written exam

Unit 2: Algorithms and Programming

40% of the A Level
2hr30min written paper

Unit 3: Programming Project

20% of the A Level
Coursework

CAREER OPPORTUNITIES

In today's workplace, those with knowledge and skills in computing have the opportunity to pursue new and exciting careers and to be instrumental in the conception of computer systems that increasingly shape work and leisure activities.

It is envisaged that students will utilise the skills and knowledge of computing in one of three ways. Firstly, to provide a general understanding of the use of computer technology and systems, which will inform their decisions and support their participation in an increasingly technologically dependent society. Secondly, to provide the necessary skills and knowledge to seek employment in areas that utilise computing, where they may develop their skills and knowledge further through practical experience and training. Thirdly, students may choose to continue to develop their knowledge and understanding of computing through entry to higher education, where this qualification will provide a useful foundation for further study of computing or more specialist aspects of computing.

PRIOR LEARNING

Students will have been assessed in IT skills at Key Stage 3 and many will have followed a course in IT and Key Stage 4. Whilst not assuming the full knowledge and understanding of the subject at Key Stage 4, this course assumes that all students will have a basic understanding and knowledge of both the hardware and software of a standard, stand-alone computer system.

COURSE ENTRY REQUIREMENTS

The minimum entry requirements for Level 3 academic study apply. In addition, applicants will need to have achieved at least Grade 6 in Maths.