Midhurst Rother College
The best in everyone™
Part of United Learning

COMPUTER SCIENCE

Computer Science

Exam Board: OCR A-Level

Contact teacher: Mr Daniel Downie

Why study Computer Science?

The overall aim of the Computer Science course is to encourage candidates to develop an understanding of the principles of problem solving, using computers to apply this understanding to develop computer-based solutions to problems. Candidates develop an understanding of systems analysis and design, development methods, testing, implementation, and documentation.

5 reasons to study at Midhurst Rother College

1. Industry experienced teaching staff
2. Innovative teaching and learning
3. Excellent links to industry
4. Dedicated course related computer rooms and systems
5. Free industry standard software for students

Course details

Candidates develop their knowledge and understanding of computer systems, the principles of computing (including programming) and how these are applied to the solution of problems. Candidates gain an understanding of systematic methods – such as the use of algorithms and test strategies, the maintenance of computer systems, and the skills associated with documenting solutions – and further develops skills associated with applying this knowledge and understanding to producing computer-based solutions to real problems.

The aim of Computer Science is to encourage candidates 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 programming, 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.

How is the course taught and assessed?

Computer Science A-level by OCR is a course that started in 2015 with less ICT and instead more programming, algorithms, problem solving and thinking skills and more maths. There are 3 units to the A Level:

01 Computer systems

assessed by examination
40% of the marks

- Computer systems architecture
- Software and its development
- Types of programming languages
- Data types, representation and structures
- Exchanging data and web technologies
- Following algorithms
- Using Boolean algebra
- Legal, moral and ethical issues.

02 Algorithms and Programming

assessed by examination
40% of the marks

- Elements of computational thinking
- Programming and problem solving
- Standard algorithms
- Pattern recognition, abstraction and decomposition
- Algorithm design and efficiency

03 Programming project

coursework unit
20% of the marks

With guidance students select their own user-driven problem of an appropriate size and complexity. Students analyse the problem, design a solution, implement the solution and give a thorough evaluation.

Entry requirements

Students must meet the College entry requirements. We would like you to have obtained five GCSE subjects at Grade 4 or above. Ideally with a Grade 5 or above in Mathematics. The Mathematics grade is particularly important because of the logical, mathematical, and problem-solving skills in Computer Science.

Ideally, a Grade 5 or above in GCSE Computer Science is desirable and students will need to demonstrate a high level of programming at application. Students that do well in Mathematics and Physics are also likely to be successful at A-Level Computer Science.

Career routes and popular combinations

This course is suitable for anybody wishing to pursue a career in either the IT or Computing industry, seeking a University place or an apprenticeship. Computer Science is a highly desirable subject which leads to careers in industry looking for skilled individuals with highly developed problem-solving capabilities.

Please visit https://nationalcareers.service.gov.uk/job-categories/computing-technology-and-digital to find out more about roles in the computing and technologies industry.