

# Subject: Computer Science

## Level: A Level



### What is computing?

The qualification gives an insight into a range of computing systems, including an understanding of the principles of programming and the solving of problems. It includes more computer science than traditional ICT and gives students the capacity to think creatively, innovatively, analytically and logically. It also provides students with the ability to understand the consequences of using computers, an awareness of emerging technologies and an appreciation of their potential impact on society.

### How is the course structured?

#### Advanced Level

Computer systems  
Algorithms and programming  
Computing project (coursework)

### You will learn

- 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.

### You will learn

- Hardware
- Software
- Data: its presentation, structure and management
- Data transmission and networking
- Systems development life cycle
- Characteristics of information systems
- Implications of computer use
- Designing solutions to problems
- The structure of procedural programs
- Data types and data structures
- Common facilities of procedural languages
- Writing maintainable programs
- Testing and running a solution

- The function of operating systems
- The function and purpose of translators
- Computer architectures
- Data representation
- Data structures and data manipulation
- High-level language programming paradigms
- Programming techniques
- Low-level languages
- Databases

### This course will appeal to you if you:

Are considering taking Computer Studies at degree level, or for anyone considering any kind of career in computing.

### Assessment:

#### Advanced Level

##### Advanced Computing Theory

- Computing Systems (exam)  
Time 2hrs 30mins  
40% of total A Level
- Algorithms and Programming (exam)  
Time – 2hrs 30mins  
40% of total A Level

##### Computing Project

- 20% of the total Advanced GCE marks
- Coursework 70 marks