

Subject: Computer Science	Awarding Body: OCR
Head of Dept: Mr Sneary	Teachers: Mr Sneary

Preferred entry requirements: Grade 6 or above in GCSE Computer Science

Specification Content

AS	A level
<p>01 COMPUTING PRINCIPLES Computing principles will cover the characteristics of contemporary processors, input, output and storage devices • Software development • Programming • Exchanging data • Data types, data structures and algorithms • Legal, moral, ethical and cultural issues.</p> <p>02 ALGORITHMS AND PROBLEM SOLVING This component will be a traditionally marked and structured question paper and will include a mix of question types: short-answer, longer-answer, and levels of response mark-scheme-type questions. There will be a short scenario/task contained in the paper, which could be an algorithm or a text page-based task, which will involve problem solving. Other areas covered include the following: Elements of computational thinking • Problem solving and programming • Algorithms.</p>	<p>01 COMPUTER SYSTEMS Computer Systems will cover the characteristics of contemporary systems architecture and other areas including the following: The characteristics of contemporary processors, input, output and storage devices • Software development • Exchanging data • Data types, data structures and algorithms • Legal, moral, cultural and ethical issues.</p> <p>02 ALGORITHMS AND PROGRAMMING Elements of computational thinking • Programming and problem solving • Pattern recognition, abstraction and decomposition • Algorithm design and efficiency • Standard algorithms.</p> <p>03 PROGRAMMING PROJECT Students and/or centres select their own user-driven problem of an appropriate size and complexity to solve. Students will need to analyse the problem, design a solution, implement the solution and give a thorough evaluation.</p>

Structure of the course:

	Component	Assessment	Weighting	Marks and duration
AS Level	01 Computing principles	Externally marked question paper	50%	70 marks / 1 hr 15 mins
	02 Algorithms and problem solving	Externally marked question paper	50%	70 marks / 1 hr 15 mins

	Component	Assessment	Weighting	Marks and duration
A2 Level	01 Computer systems	Externally marked question paper	40%	140 marks / 2 hr 30 mins
	02 Algorithms and programming	Externally marked question paper	40%	140 marks / 2 hr 30 mins
	03 Programming project	Externally moderated	20%	70 Marks

Methodology:

This course will be relevant to the modern and changing world of computing. It will focus on programming, building on GCSE Computing and emphasising the importance of computational thinking as a discipline. It will have an expanded maths focus, much of which will be embedded within the course. Students will be able to apply the academic principles learned in the classroom to real world systems in an exciting and engaging manner.

Strengths/Skills developed through studying this subject:

Students will gain an understanding and ability to apply the fundamental principles and concepts of computer science, including: abstraction, decomposition, logic, algorithms and data representation. They will have the ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs to do so.

What students do with this qualification:

In addition to their other A level subjects, students completing A Level Computer Science will then have access to Computer Science/ Computing or IT related degrees at University. Typical careers for computer scientists include IT Consultant, Software Developer and Multimedia Programmer to name but a few.