

Course Title:	AS / A2 LEVEL OCR COMPUTER SCIENCE
Title of qualification to be gained (if any):	AS LEVEL (1YEAR) A2 LEVEL COURSE (2 YEARS)
Awarding Body (if any):	OCR BOARD
Essential materials: HODDER EDUCATION BOOK and interactive CD.	

Course Aims
To develop computational thinking, helping students to develop the skills of problem solving, designing systems and understanding the power and limits of human and machine intelligence.
Course Description: <i>The AS course will consist of two units, each externally assessed and weighted at 50% each.</i>
Unit 1 Computer Principles In this unit, students gain an understanding of the characteristics of contemporary processors, software and software development.
Unit 2 Algorithms and Problem Solving In this unit, students gain an understanding of the principles of computational thinking, problem solving, programming and algorithms.
<i>A2 LEVEL (TWO YEAR COURSE)</i>
<i>This A Level will consist of three units, two of which will be externally assessed exams making up 80% of the qualification. The other 20% will consist of a course work project which is internally assessed and externally moderated.</i>
Unit 1 Computer System In this unit, students learn about the components of a computer and their uses, types of software and the methodologies used to develop them.
Unit 2 Algorithms and Programming In this unit, students learn what is meant by computational thinking, how computers and programs are used to solve problems and the use of algorithms to describe problems.
Unit 3 Programming Project For the coursework component students analyse, design, develop, test, evaluate and document a program written in a suitable programming language.

Entry Requirements

Students require a minimum of 4 A*-C GCSE grades or equivalent, including Maths, to be accepted on this course.

Who is the course for?

Students with an interest in computer software and systems development.

Main topics covered

Hardware, Software and Logic
Programming
Trends in Computing

Learning Outcomes

By the end of the course learners will:

- Be able to think creatively, innovatively, analytically, logically and critically
- Have an understanding of the organisation of computer systems
- Be able to apply skills, knowledge and understanding of computing, including programming, in a range of contexts to solve problems
- Have an understanding of the consequences of using computers, an awareness of emerging technologies and an appreciation of their potential impact on society.

Teaching and learning methods used

Lectures, Group work, Active learning, in particular computer programming, designing and using interactive games and videos

How your work will be assessed

Regular Quizzes, 'Think Pair Share' Discussions, Tests and Exams, Class Written Activities based on class discussion, logic, understanding and research. Students will be regularly set online formative assessments.

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Suggested progression routes

This course is excellent preparation for students interested in designing or maintaining modern engineering systems. It is also good preparation for students looking to take computing studies at degree level.

Pre-course reading/preparation

Online programming courses such as those available on <http://www.codecademy.com/>