A Level Computing
AQA Specification 2007

AQA Syllabus 5511 and 6511

This course will appeal to you if you are interested in how computers work and how they can be programmed. It is a valuable taster course if you are considering further study and/or a career in computing.

You should choose Computing if you want to know:
- how computers work
- how they store and process data
- how they communicate with each other
- how to write computer programs and test your skills by completing a piece of coursework

The course involves a mixture of theoretical and practical work. The theory covers the operation of hardware, software design, networks and more general background topics. The practical aspects deal with programming, database design and the development of information systems. Assessment includes a practical project.

Aims
This A and AS specification enables candidates to:
a. develop an understanding of the main principles of solving problems using computers;
b. develop an understanding of the range of applications of computers and the effects of their use;
c. develop an understanding of the organisation of computer systems including software, data, hardware, communications and people;
d. acquire the skills necessary to apply this understanding to developing computer-based solutions to problems.

In addition, the A Level enables candidates to:
e. develop an understanding of the main principles of systems analysis and design, methods of problem formulation and planning of solutions using computers, and systematic methods of implementation, testing and documentation;
f. develop their capacity for critical thinking, see relationships between different aspects of the subject and perceive their field of study in a broader perspective;
g. develop their project management skills and understanding of the need for team working.

Skills and interests: You should be very good at understanding logical processes and solving mathematical problems. The following are also quite important in this subject: communicating effectively in speech and writing and planning your own learning.

What does the course lead to?
Many students go on to careers connected with computing, becoming for example software or internet engineers, analysts, programmers, system or database administrators.
You could train or teach others to use computer systems, or provide user support. You could work as a technical consultant. You could go into research or management, or into sales of hardware or software.

Course Content and Assessment
Year 1: AS
Module 1: Computer Systems, Programming and Networking Concepts
Includes the theory of how computers work; programming in Pascal; information and data representation; communication and networking. Assessed through a written paper of 1 hour 30 mins; 33% of the AS mark, 16.66% of the A Level mark.
Module 2 - Principles of Hardware, Software and Applications
Files and databases, operating systems, hardware devices, the design and organisation of information systems. Assessed through a written paper of 1 hour 30 mins; 33% of the AS mark, 16.66% of the A Level mark
Module 3 Practical task: system design and development

Analyse and design a data processing system. Each year the examination board sets a coursework topic, usually a database problem where there is a need to include programming. Past problems include loan tracking systems for hospital equipment, and a postal service system for monitoring shipments of parcels. This module also includes a written paper of 1 hour 30 mins 33% of the AS mark, 16.66% of the A Level mark

Year 2: A2

Module 4 Processing and Programming Techniques

Includes more advanced material about how computers work; programming concepts; PROLOG, Assembly Language and Visual Basic; operating systems. Assessed through a written paper of 1 hour 30 mins; 16.66% of the A Level mark

Module 5 Advanced System Development

Includes further details on: applications and effects; files and databases; systems development; hardware devices. Assessed through a written paper of 1 hour 30 mins; 16.66% of the A Level mark

Module 6: Practical Project

You will devise your own coursework problem with guidance from teachers. This will normally be a large program to solve a specific problem. Previous topics have included holiday booking systems, insurance claims systems and driving theory quiz programs.

16.66% of the A Level mark.

Past coursework projects have included:

- an estimation and invoicing system for a builder
- stock control and an ordering system for a shop
- results and league recording system for a football club
- appointment systems for a chiropodist and a nurse