



Adv Higher Computing

What are the aims of this course?

The aims of this course are to extend:

- knowledge and understanding of computer concepts
- apply skills and knowledge in analysis, design, development, implementation and evaluation to a range of digital solutions with increasingly complex aspects
- apply creative problem solving skills across a range of computing concepts
- awareness of the professional, social, ethical and legal implications of computing
- ability to communicate computing concepts clearly and concisely using appropriate terminology
- the necessary skills of the pupils to allow them to become ICT tool designers of the future

What are the recommended entry levels for this course?

Higher Computing at Grade A or B is preferred or the informed opinion of the Principal Teacher of Computing.

What content is included in this course?

There are 4 sections in the Higher Computing Science course

- **Software Design and Development**

Continue developing the skills involved in designing, coding, testing and debugging computer programs through using more advanced constructs e.g. arrays, records, file handling and some common problem solving algorithms.

- **Database Design and Development**

Learn the practical problem solving skills involved in designing, implementing and evaluating databases. This will involve using SQL operations for pre-populated relational databases with 3 or more linked tables.

- **Web Design and Development**

Learn how to design and create more complex web sites with multimedia content taking into account effective user interface design and consistent navigation. This will involve deepening your working knowledge and understanding of CSS, HTML and javascript.

- **Computer Systems**

This covers the following areas – data representation, computer structure – the Fetch/execute cycle, computer security – DoS attacks, tracing cookies, digital certificates, environmental issues and legal implications.

What skills will I develop?

This course acts as a bridge towards further study in higher education. This course consolidates and extends learning, provides opportunity for independent and investigative work, while encouraging teamwork, and requires candidates to undertake and report on a significant software development project.

What learning and teaching approaches will I experience?

A wide variety of learning and teaching approaches will be adopted – each suited to the individual part of the course being studied. These approaches will include teacher-led lessons and demonstrations, working in pairs and groups, whole class discussions, making use of the Interactive white board, teaching to your peers and individual research.

How will I be assessed?

The Course assessment for Computing at Advanced Higher level will consist of two components:

- Question Paper (40%)
- A project involving a significant computing problem which the candidate has to analyse, design and implement a solution for (60%)

The purpose of the question paper is to assess the candidate's competence to integrate and retain knowledge and understanding and demonstrate higher order cognitive abilities across the contents of all the Units, and in varied contexts, and to demonstrate the ability to communicate computing concepts clearly.

The project provides candidates with the opportunity to demonstrate and integrate the practical skills, knowledge and understanding from the Units, and apply these in a more complex practical context.

What are the homework requirements?

Homework will be issued regularly and will include the following activities:

- answering written questions
- learning necessary facts and reading over notes
- working independently on individual software development projects

Pupils will be expected to produce homework of a very high standard and to hand it in punctually.

What are the possible progression routes?

The course is designed to provide progression to degree courses in Computer Science and related subjects.