COMPUTER SCIENCE - KS5

Year 12

Half Term 1

All about the processor: what it is, different types and how they work. Different input, output and storage technologies and an introduction to operating systems.
Computational thinking: how we solve problems and the tools available to us.
Programming concepts including an introduction to Visual Studio.

Half Term 2

More on operating systems, how they manage the computer system.
From program to application: how we generate applications. Computational methods: data structures and lots more programming, including assembly language in Little Man Computer.

Half Term 3

Software development and programming languages: an introduction to object oriented coding.
Standard algorithms: searching and sorting, measuring the efficiency of algorithms.

Half Term 4

Compression, encryption and hashing, networks. Coding up encryption and hashing algorithms. Developing an object oriented approach.

Half Term 5

Data type, floating point numbers, web technologies.
Data structures: graphs and trees. Traversal of graphs and trees.

Half Term 6

Moral, ethical and legal issues. Boolean logic. Tracing programs, debugging and recursive programs. An introduction to the major project.

Year 13

Half Term 1

Legal and ethical issues relating to computing: data protection laws, computer misuse, Copyright, Regulation of Investigatory Powers Act. Types of computer language: object orientated, pseudocode, polymorphism.
Project analysis: problem identification, research of solutions, creation of success criteria.

Half Term 2

Solution design: problem decomposition, algorithms, user interface design, data structure design and validation.

Half Term 3

Processor architecture, multicore and parallel systems, memory management by the operating system and the use of pipelining by the CPU and GPU.
Testing design, and creation of user interface and program code. Ongoing developmental testing and evidence collation.

Half Term 4

Continuing creation of program code for proposed solution, testing documentation and development evidence. Review and final testing of solution, and evaluation. Completion of final documentation.

Half Term 5

Revision of previous content, exam practice, modelling long form 'essay' style answers to optimize marks.
Revision of previous content, exam question practice, detailed step by step guide of modelling algorithm answers, writing and reading machine code and step by step analysis of code snippets with trace tables.

Half Term 6

Exam.

COURSE OUTLINE - ICT