GCSE Computer Science
OCR

Overview

If you are full of curiosity and imagination; you are flexible; creative; possess strong work ethics (make an effort in math and science), possess good communication skills in order to tackle challenges with others; are tenacious and diligent; have attention to details and good problem solving skills, GCSE Computer science is an apt choice.

A GCSE in Computer Science gives you an excellent opportunity to investigate how computers work and how they are used. It helps develop computer programming and problem-solving skills. It aims to give you as a learner a real, in-depth understanding of how computer technology works and develop critical thinking, analysis and problem-solving skills. You will also do some in-depth research and practical work. For instance, some of the current investigations look at JavaScript, encryption and assembly language programming. The course enables you to develop critical thinking skills that facilitates problem solving; understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition and logic, algorithms, and data representation. You will be able to analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs. It develops your ability to think creatively, innovatively, analytically, logically and critically. You are able to understand the components that make up digital systems and how they communicate with one another and with other systems as well as the impacts of digital technology to the individual and to wider society.

Assessment

The course comprises of three components; two externally examined components (01 and 02) and a programming project (problem solving based). Examined components consist of a 1 hour 30 minute exam paper.

Component 1: Computer Systems 40%
Unit 1 introduces learners to the Central Processing Unit (CPU), computer memory and storage, wired and wireless networks, network topologies, system security and system software. The expectation is that learners will become familiar with the impact of Computer Science in a global context through the study of the ethical, legal, cultural and environmental concerns associated with Computer Science. This unit is externally through an exam.

Component 2: Computational Thinking 40%
Learners are introduced to algorithms and programming, learning about programming techniques, how to produce robust programs, computational logic, translators and facilities of computing languages and data representation. It allows learners to become familiar with computing related mathematics.

Programming Project 20%
The Programming Project provides an opportunity to demonstrate your practical ability in the skills outlined in the specification. It requires you to use skills from Component 01 and Component 02 to create a solution to a set problem. Learners code their solution in a suitable programming language; the solution must be tested to ensure they solve the stated problem. The code and test results suitably annotated describing the process and an evaluation of their solution based on evidence given. Using suitable high-level text-based programming language.

Progression Pathways
The increasing importance of Computer Science means that there will be a growing demand for professionals who are qualified in this field. The course is also an excellent preparation if you want to study or work in areas that rely on the skills you will develop, especially when they are applied to technical problems. These areas include Engineering, Financial and Resource Management, Science and Medicine.

Careers
Pursuing the course leads to a broad range of exciting and creative specialisms such as Software developers, Database administrators, Computer System Analysts, Network Architects, Web Developers, Information Security Analysts, Computer Programmers, Project Managers among others.