IGCSE Options 2016

Computer Science

Computer science is the study of the foundational principles and practices of computation and computational thinking and their application in the design and development of computer systems. Learning computational thinking involves learning to program, that is to write computer code, because this is the means by which computational thinking is expressed.

Cambridge IGCSE Computer Science enables learners to develop an interest in computing and to gain confidence in computational thinking and programming. They develop their understanding of the main principles of problem-solving using computers.

Learners apply their understanding to develop computer-based solutions to problems using algorithms and a high-level programming language. They also develop a range of technical skills, as well as the ability to test effectively and to evaluate computing solutions.

The syllabus covers the following areas under each strand:

Theory: Data Representation, Communication technologies, Data security, Logic gates, Internet principles, Devices, Operating systems, Programming languages, Security, Ethics, Fetch execute cycle, Computer memory, Data transmission

Practical: Algorithm design, Pseudocode, Flowcharting, Databases, Programming concepts, Data structures, Data arrays, Problem solving

Assessment

Paper 1: Theory, 1hr 45mins, 60% of final grade
Short answer questions

Paper 2: Problem solving, 1hr 45mins, 40% of final grade
Questions related to the creation of a program to solve a given solution to the pre-release materials

IGCSE Options 2016

Digital Literacy/STEM

STEM (Science, Technology, Engineering and Mathematics)

STEM will provide students with the opportunity to apply their skills in an engaging and creative environment in the fields of robotics, game design and 3D modelling. STEM will promote the use of high order thinking skills, team work and problem solving which will prove increasingly advantageous as the embark on study beyond IGCSE.

Digital Literacy

Digital literacy aims to develop student learning of how to effectively find, use, summarize, evaluate, create, and communicate information while using a range of digital technologies, not just being literate at using a computer. Students will enhance their ability to present information in a variety of formats to communicate with different audiences while understanding the need for originality to prevent plagiarism. Digital Literacy will provide student with a foundation for future academic work beyond IGCSE with a direct link to future independent study in the form of essays; internal assessment, extended essays and dissertations.