COMPUTER SCIENCE A LEVEL

Course Information

- The Computer Science qualification is relevant to the modern and changing world of Computing.

  - It puts computational thinking at its core, helping students to develop the skills to solve problems, design systems and understand human and machine intelligence.
  - It also applies all the academic principles learned in the classroom to real world systems.

Year 1

- **01 Computing principles -** This component will be a structured question paper with a mix of question types. It will cover the characteristics of contemporary systems architecture, and other areas including the following:
  - Operating systems
  - Introduction to programming
  - Data types, structures and algorithms
  - Exchanging data and web technologies
  - Using Boolean algebra
  - Legal and ethical issues

- **02 Algorithms and Problem solving –** This component will be a structured question paper with a mix of question types. It will cover the characteristics of contemporary systems architecture and other areas including:
  - Elements of computational thinking
  - Programming techniques
  - Software development methodologies
  - Algorithms

Year 2

- **01 Computer systems -** This component considers the characteristics of contemporary systems architecture:
  - Software and its development
  - Types of programming languages
  - Data types, representation and structures
  - Exchanging data and web technologies
  - Following algorithms
  - Using Boolean algebra
  - Legal, moral and ethical issues

- **02 Algorithms and Programming -** This component will feature:
  - Traditional questions concerning computational thinking
  - Elements of computational thinking
  - Programming and problem solving
  - Pattern recognition, abstraction and decomposition
  - There will be a scenario/task contained in the paper, which could be an algorithm or a text page-based task, which will involve problem solving
  - Algorithm design and efficiency
  - Standard algorithms

- **03 Programming project –** Students can select their own user-driven problem of an appropriate size and complexity to solve. This will enable them to demonstrate the skills and knowledge necessary to meet the Assessment Objectives. Students analyse the problem, design a solution, implement the solution and give a thorough evaluation.

Entry Requirements

GCE Computer Science A Level is a natural progression from the GCSE Computing course. Computer Science will require students, in most cases, to achieve 30 points from their top 6 subjects to study A Level courses. Where subjects have not moved to a numerical system, the following points will be awarded: A* = 8.5, A=7, B = 5.5, C=4. Students are expected to have at least a Level 6 in Mathematics.

Progression

This course gives students a wide choice of progression into higher education, further study, apprenticeship or relevant employment. Students who successfully complete this qualification will be well equipped to move onto degrees and BTEC Higher National Diplomas in related subjects such as ICT, Computer Science, Information Systems, Multimedia, Software Engineering, Computer Networking, cyber security, e-Business and Information Management.

Career Pathway

Jobs directly related to your degree include: Database Administrator, Information Systems Manager, IT consultant, IT technical support officer, Multimedia programmer, Network engineer, Systems analyst, Cyber Security and Systems developer.

Should you like to receive any additional information on this course, please contact Mr Sanjeeva Karunaratne – Head of Department.