COMPUTER SCIENCE

A LEVEL COURSE DESCRIPTION

This course is designed for students who have taken Computer Science or Information Communication Technology at GCSE level. This course is for you if you:

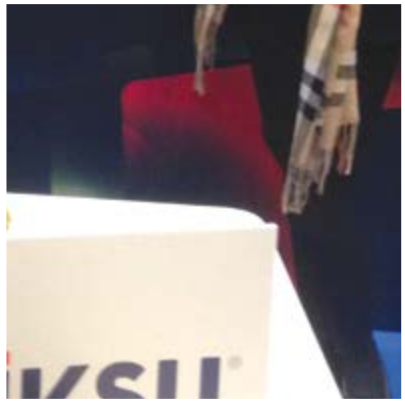
- are creative and interested in problem solving, design and programming
- are interested in Computer Science from a variety of aspects e.g. economic, understanding the social implication and the legal responsibilities of businesses. It also encompasses the social and economic implications of new computer-based technologies, such as privacy considerations on social networks
- are interested learning about modern technology required for the changing world of computing.

This course allows you to apply what you learn in the classroom to real world systems in an exciting and engaging manner.

The main focus of the course is on programming, building on GCSE Computing and emphasising the importance of computational thinking as a discipline. It also has computational thinking at its core, helping students to develop the skills needed to solve problems, design systems and understand human and machine intelligence.

ENTRY REQUIREMENTS

Students are expected to have a grade 6 or above at GCSE Computer Science. There is an expanded maths focus so students should also have a minimum grade 6 in GCSE Maths.



Progression

The Computer Science A Level is a course that was designed after consultation with members of BCS, CAS and top universities. It is an ideal qualification for those wishing to proceed into Higher Education and undertake a degree in the field of Computer Science.
Additionally, students could also use this qualification to gain employment in positions such as Software Engineering, Programmer. Web Designer, Game Designer, Computer Architect or Application Developer.

St Angela's
URSULINE SIXTH FORM
SERVIAM

COMPUTER SCIENCE

AS LEVEL

The course consists of two modules.

Module 1- Computing principles *(50% of AS)*

During this module you will study the characteristics of contemporary systems architecture and other areas including:

- The characteristics of contemporary processors, input, output and storage devices
- Software and software development
- Programming
- Exchanging data
- Data types, data structures and algorithms
- Legal, moral, ethical and cultural issues

This module is assessed in a written exam.

Module 2 - Algorithms and problem solving

(50% of AS)

During this module you will learn the problem solving skills needed to apply the knowledge and understanding encountered in the Computing principles module.

There'll be a short scenario/task contained in the paper, which could be an algorithm or a text page-based task, which will involve problem solving.

Other areas covered include the following:

- Elements of computational thinking
- Problem solving and programming
- Algorithms

A LEVEL

The A Level course consists of three units of work, including:

Module 1 - Computer systems *(40% of A Level)*

It will cover the characteristics of contemporary systems architecture and other areas including the following:

- The characteristics of contemporary processors, input, output and storage devices
- Software and software development
- Exchanging data
- Data types, data structures and algorithms
- Legal, moral, cultural and ethical issues

Module 2 - Algorithms and programming

(40% of A Level)

Section A - Traditional questions concerning computational thinking:

- Elements of computational thinking
- Programming and problem solving
- Pattern recognition, abstraction and decomposition
- Algorithm design and efficiency
- Standard algorithms

Section B - There'll be a scenario/task contained in the paper, which could be an algorithm or a text page-based task, which will involve problem solving.

Module 3 - Programming project

(20% of A Level)

During this module you will choose a computing problem to work through. You will analyse the problem, design a solution, implement the solution and give a thorough evaluation. This will enable you to demonstrate your skills and knowledge.

Routes for Success - Technology, Languages and Communication

The Routes to Success Programme is designed for ALL students in Year 12 at St Angela's Ursuline 6th Form. The TECHNOLOGY, LANGUAGES AND COMMUNICATION programme aims to offer students opportunities to work with both industry and universities, opportunities will include links with; The National Film Theatre, BFI Library, McKinsey, Arcadia, City University, Greenwich, London Met, Warwick and SOAS. Summer school opportunities will include links with; SOAS Languages, Sutton Trust US Summer Schools and Leicester University.

Please note- All Year 12 students will select one main 'Route for Success' from these in order to experience a specialist enrichment and learning support programme. It will, of course, be possible to select a subject/subjects from another route on your timetable. We base our Routes to Success Programme on the university curriculum structure and university links are not exclusive to one route, so can be accessed by all students.