carmel college

Inspiring minds.
Shaping futures.

COMPUTER SCIENCE

BTEC COMPUTING

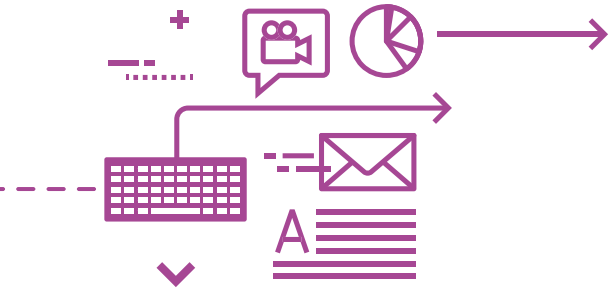
COURSE GUIDE 2018

Everybody in this country should learn how to program a computer, because it teaches you how to think.

STEVE JOBS, CO-FOUNDER OF APPLE

COMPUTER SCIENCE

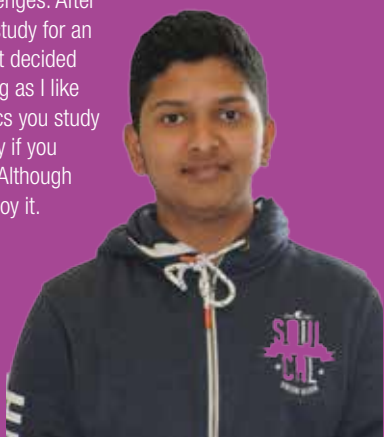
Linear A Level
Exam Board: OCR



OUR STUDENTS SAY...

There is a strong sense of community in this college and I feel that I can rely on my teachers whenever I need help.

Computer Science is particularly interesting, more than the other subjects I study, because I can develop my problem solving skills which can be applied to any subject or area of my life. This becomes handy when asked to solve real world problems in my Tomorrow's Engineers (Enrichment) challenges. After leaving Carmel, I hope to go to university to study for an Engineering based degree. Although I haven't decided yet, I think I would enjoy Software Engineering as I like coding. Unlike the sciences, most of the topics you study at A Level can be useful in later life especially if you intend using lots of technology in the future. Although Computer science is challenging, you will enjoy it.



Divin Domy St Gregory's
Studying: Computer Science, Maths, Physics

Why choose Computer Science at Carmel?

A Level Computer Science is a traditional course for those interested in following a career in Computer Programming, Systems Analysis, Network Engineering or any other Computer Science related career path. During the course you will gain an in-depth understanding of how the computer works and what it can do. It is suited to those who want to extend perhaps their personal interest in computers, or to develop skills such as programming. Computer Science is an intensely creative subject that combines invention and excitement, and can look at the natural world through a digital prism.

The Computer Science Department promises to provide you with a high standard of teaching and extra support to ensure you are successful. We want you to enjoy your studies and be part of our excellent achievements.

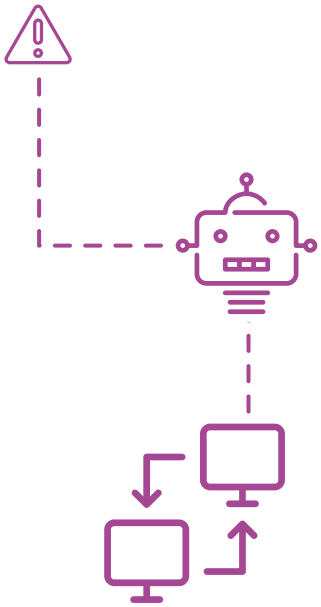
What will I study?

The A Level specification introduces students to the internal workings of the Central Processing Unit (CPU), how data is exchanged, how to develop software and the legal and ethical issues associated with the use of computer systems. Students will be encouraged to use computational thinking and utilise algorithms to solve problems. The specification will provide insight into, and experience of how computer science works, stimulating your curiosity.

How will I be assessed?

You will be assessed through two exams and a piece of coursework. The exams will be sat at the end of the two year course.

- Unit 1 Computer Systems (exam) – 40% of total A Level
- Unit 2 Algorithms and Programming (exam) – 40% of total A Level
- Unit 3 Programming Project (coursework) – 20% of total A Level



BTEC COMPUTING

BTEC Level 3
Exam Board: PEARSON

OUR STUDENTS SAY...

I enjoy studying Computer Science because it is interesting to learn about the ways a computer works and how they affect our daily lives.

The programming aspect of the course has helped me by developing my ability in a new programming language, as well as teaching me vital problem solving skills. It is always rewarding when you complete a program and get it to work.

Carmel has given me the opportunity to further my studies in the subjects I enjoy. The teachers are always available to help which creates a very welcoming environment for all students.

After Carmel, I hope to go onto university to study either Product Design or Games Design.

Vickie Davi St Edmund Arrowsmith, Ashton
Studying: Computer Science, Maths, Graphic Design

What is BTEC Computing?

The BTEC Level 3 National Extended Certificate in Computing is a two year course equivalent to one A Level. There are four units in total; two are assessed via examination and two via coursework:-

Principles of Computer Science

In this unit, you will explore the logical and structured ways that computer systems process data to develop programs, processes and systems that solve specific problems. You will examine the features of effective computer programming and apply accepted computing and programming paradigms. You will analyse, develop and evaluate algorithms and computer code, and propose and apply solutions to ensure that computer systems are fit for purpose. In this unit, you will draw on your learning from across your programme to complete assessment tasks. (Examination)

Fundamentals of Computer Systems

In this unit, you will explore the relationship between hardware and software as part of a computer system. You will examine the way computer components work both individually and together to store and process data, and the way in which data is transmitted and used in computer systems. You will explore the impact that computing systems have on organisations and individuals. **(Examination)**

IT Systems Security and Encryption

In this unit, you will investigate the many different types of security attack, the vulnerabilities that exist and techniques that can be used to defend the IT systems of organisations. Many organisations run complex IT networks and need them to be secure while providing a safe environment for their employees to work, sharing some data and keeping other data private. You will learn about the complexities of configuring and supporting these networks. (Coursework)

Website Development

In this unit, you will review existing websites – commenting on their overall design and effectiveness. You will use scripting languages such as Hypertext Markup Language (HTML), Cascading Style Sheets (CSS) and JavaScript® and a simple text editor, or rapid application development tools. Finally, you will reflect on the website design and functionality using a testing and review process. (Coursework)

Student Voice

"The parts of the course that I like the most are learning how to write sections of code and the mathematical type aspects of the course such as the use of binary arithmetic."

"The environment in the class is fantastic. I feel free to voice my opinion and get help from the teachers or my peers around me. Computer programming in my opinion is a team effort and I appreciate the environment I am in which enables me to do that."

"The content of the course is extremely interesting, regular mini-tests and mock papers help improve exam technique and encourage revision for topics."

OUR STUDENTS SAY...

I enjoy studying at Carmel because I am able to study subjects I enjoy and am able to gain a better understanding through the excellent teaching.

I enjoy studying Computer Science. The thing I most enjoy about the subject is the programming aspect, as I find it is the most abstract unit, it makes you think of the bigger picture. Carmel is very welcoming; the teachers are always willing to give you help with your work or give advice. I would strongly recommend this subject to anyone, even if you're not thinking about studying it in the future. I hope to go on to study Maths and Computer Science at university.

Shaun Gaze Lord Derby Academy
Studying: Computer Science, Maths, Statistics

Frequently Asked Questions

What are the entry requirements for these courses?

For A Level Computer Science: **GCSE grade 6 in Mathematics, grade 4 in English Language** and a **grade 5 in Computer Science** (if studied).
For BTEC Computing: **GCSE grade 4 in ICT** or **pass in equivalent ICT qualification** (if studied) plus **GCSE grade 4** in both **English Language** and **Mathematics.**

What is Computer Science/BTEC Computing?

Computer Science/Computing students fundamentally learn how to design and create software whereas IT students learn how to use software.

Can I study Computer Science/BTEC Computing if I have not taken it at GCSE?

Yes, we will deliver all the skills and knowledge required for these courses.

What support will I receive?

All students receive extra support via individual and group tutorials throughout the academic year as required. Revision classes are scheduled prior to modular examinations.

What is the department like?

There are 6 dedicated computer suites with wireless internet connection, printing facilities, interactive whiteboards and multi-media projectors. In addition to these we also have a theory classroom.

How successful are Carmel's students?

Summer 2017 Examination Results:
A Level Computer Science Pass Rate, 78% A*-C

Meet the Tutors

Kay Arrowsmith
Head of Department

Philip Gorman
Subject Tutor

carmel college

Prescot Road, St Helens
Merseyside WA10 3AG

www.carmel.ac.uk

More Information

You can get a detailed course specification from the exam board websites: **www.ocr.org.uk, www.qualifications.pearson.com**

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