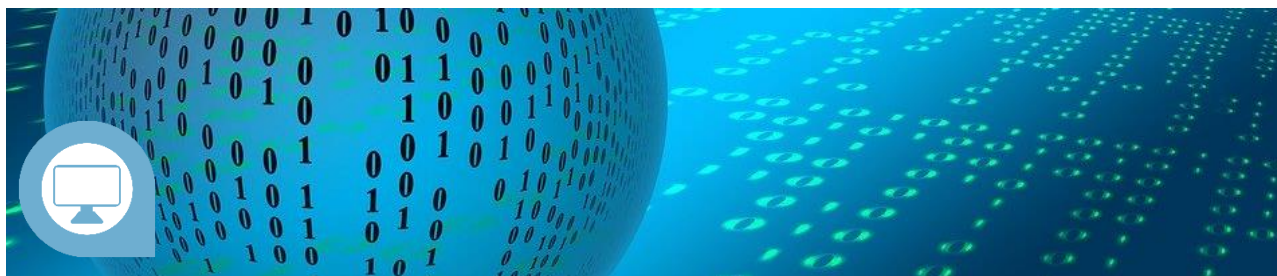


# COMPUTER SCIENCE

GCSE



**Examination Board:** OCR  
**Subject Leader(s):** Dr. A. R. Middleton



## Course Structure

Unit	Topics/Unit Title	Assessment	Weighting(%)
1	Principles of Computer Science	1 hour 30 minutes written paper, set and marked by the exam board (no calculators allowed)	50% 75 marks
2	Application of Computational Thinking	2 hour On Screen Examination, Tests your ability to read, write, refine and evaluate programs in Python (no calculators allowed)	50%

## What does the course involve?

This option is classed as a science GCSE and covers five core areas, in addition to teaching you how to program within the Python language. All five areas are assessed in the first paper and your programming in the second paper.

1. Computational Thinking – Understanding algorithms, what they are for and how they work and the ability to follow them and construct truth tables.
2. Data – Understanding binary, data representation, data storage and compression
3. Computers – Understanding hardware and software components of computer systems and the characteristics of programming languages.
4. Networks – Understanding computer networks and network security
5. Issues and Impact – Awareness of emerging trends in computer technology, and the impact on individuals, society and the environment, including ethical, legal and ownership issues.

The first paper will have five questions (one per topic). The longer second paper has six questions and will test their ability to program in Python on a computer in an examination environment – all their code is graded externally.

## Further Study/Employment Prospects

The late Steve Jobs remarked, that everyone should learn how to program because it teaches them how to think. The Computer Science Industry was born in England & the first programmer was an English girl. We are heading into an uncertain economic future, with the combined effects of Brexit and a pandemic yet, most of the top ten in demand job currently require computer science skills. Computer Science is a massively in-demand skill in this area, with Barclays at Radbrook Hall, the BBC at Media City and GCHQ moving into Warrington (to name just a few). This technical, academic and highly mathematical GCSE course is the perfect grounding to our GCE course in Computer Science..

## Skills you will develop

You will develop the following skills:

- take a systematic approach to problem solving including the use of decomposition and abstraction, and make use of conventions including pseudo code and flowcharts
- design, write, test and refine programs, using one or more high-level programming language with a textual program definition, either to a specification or to solve a problem
- use appropriate security techniques, including validation and authentication
- evaluate the fitness for purpose of algorithms in meeting requirements efficiently using logical reasoning and test data.
- use abstraction effectively
- to model selected aspects of the external world in a program
- to appropriately structure programs into modular parts with clear, well documented interfaces
- apply computing-related mathematics

# BTEC TECH AWARD

## IN DIGITAL INFORMATION TECHNOLOGY



**Examination Board:** Pearson  
**Subject Leader(s):** Dr A. R. Middleton



### Course Structure

Unit	Topics/Unit Title	Assessment	Weighting(%)
1	Exploring user interface design principles and project planning techniques	Internally assessed assignment	30%
2	Collecting, presenting and interpreting data	Internally assessed assignment	30%
3	Effective digital working practices	1 hour 30 minutes scenario-based written paper, set and marked by the exam board	40%

### What does the course involve?

The digital sector is a major source of employment in the UK, with 1.46 million people working in digital companies and around 45,000 digital jobs advertised at any one time. Digital skills span all industries; almost all jobs in the UK today require employees to have a good level of digital literacy. The UK has positioned itself to be the 'digital capital of Europe' as it continues to invest billions every year in digital skills and commerce. The modern world expects digital skills to be as important as English and Maths.

In BTEC in Digital Information Technology (DIT), you will explore user interface design and development principles by investigating how to use project planning techniques to manage a digital project. You will then learn how to develop and review a digital user interface.

Data is a valuable resource and you will look at how data impacts on individuals and organisations, then how conclusions are drawn from data and used to make recommendations on data intelligence. From here you will develop a dashboard using data manipulation tools.

Modern technologies are evolving and along with that comes the increasing threat of cybercrime. You will develop an understanding of what cyber security is and how to safeguard against threats. You will look at virtual working environments and how cloud technologies improve remote working but with this comes the need to consider legal and ethical issues in data and information sharing.

The skills, knowledge and understanding you will develop through this qualification are very relevant to both work and further study.

## Further Study/Employment Prospects

**Its future proof.** So when new technologies come on stream you'll know how to adapt and be able to learn about them and ditch anything that's past its sell-by date.

**You'll have a head start.** You'll be building on stuff you already know – a bit like taking a GCSE in a life-long interest.

**It's relevant.** Whatever you choose to do later, the skills you learn will help you; at university, at work, in managing your money and operating online. ICT cover so many different careers paths, in fact it covers all career paths. There are so few jobs today that don't use ICT in some shape or form. Having a qualification in it can show any employer that you have the skills and potential to help move their business into the 21st century.

## Skills you will develop

- Key skills that prove your aptitude in digital information technology, such as project planning, designing and creating user interfaces, creating dashboards to present and interpret data
- Effective ways of working in digital information technology, such as project planning, the iterative design process, cyber security, virtual teams, legal and ethical codes of conduct
- Attitudes that are considered most important in digital information technology, including personal management and communication
- Knowledge that supports the effective use of skills, processes and attitudes in the sector such as how different user interfaces meet user needs, how organisations collect and use data to make decisions, virtual workplaces, cyber security and legal and ethical issue.