



Aldercar High School

Post-16

Information & Communication Technology



BTEC Level 3 National Extended Certificate in Computing

Why choose BTEC Nationals?

Young people taking their first steps towards a new career need the right blend of technical and academic skills in order to become the highly skilled, work-ready individuals employers and universities look for.

BTEC Level 3 Nationals are vocational qualifications designed to help learners succeed. They have been developed in collaboration with over 5,000 universities, employers and professional bodies with employability at the heart, so learners can develop the skills and confidence they will need to step into their future.

There are three mandatory units, one internal and two external. Learners must complete and achieve at Near Pass grade or above in all mandatory external units and achieve a Pass or above in all mandatory internal units.

Learners will then complete one optional unit.



Course Content

Students will undertake three mandatory Units:

Unit 1: Principles of Computer Science

Problem solving is an essential skill in all areas of life. To be successful, professionals need to be able to analyse the needs of individuals and organisations, and to evaluate the suitability and effectiveness of current ways of working in order to develop solutions that improve or enhance processes and/or outcomes. 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 develop computational thinking skills to effectively analyse a problem, break it down into its component parts, and design and evaluate solutions. This unit is assessed through a written examination set and marked by Pearson.

Unit 2: Fundamentals of Computer Systems

Knowing how and why computer components, and the data they use, perform in certain ways has a significant impact on the work of all computing professionals. In technical support roles, understanding how different parts of a system integrate facilitates accurate identification of problems and efficient solutions. Professional programmers use their understanding of the way the computer operates to develop more efficient software solutions. 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. In this unit, you will apply the fundamental principles of computers to all areas of computing. This unit is assessed through a written examination set and marked by Pearson.

Unit 7: IT Systems Security and Encryption

Our increasing reliance on computer systems makes us vulnerable to a range of attacks from cyber criminals. On a global scale, some conflicts reveal that IT systems are now a target. As IT system security defences become more robust, attack methods become more sophisticated. IT professionals require a good understanding of current security threats and of how to apply appropriate protection methods for any given situation. They also need to comply with legal requirements at all times. 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. You will learn about the complexities of configuring and supporting these networks. You will also explore how encryption can be used to protect data. You will plan and apply suitable protection to an IT system and test it to ensure the protection is effective. You will configure an IT system's access control settings to control user access to various IT system resources, including files, folders and printers. Finally, you will review the protection that you have applied to an IT system and consider how effective it might be in defending the system from attack.

**For further information contact
ICT Department**



Aldercar High School
Daltons Close, Langley Mill, Nottingham NG16 4HL
Tel 01773 712477
E-mail info@aldercarhigh.co.uk