

BTEC National IT – Key Stage 5 Statement of Intent

“Sometimes it is the people no one can imagine anything of who do the things no one can imagine.”
Alan Turing

BTEC National IT is a Sixth Form option available from the 2021-22 academic year.

We align to the school vision of ‘Living well together with dignity, faith and hope.’ Students are taught to live well together by exploring cyber security issues, exploring laws and ethics behind IT. Students are afforded dignity by the provision of a laptop free of charge. Students demonstrate faith as they develop their A-Level projects, overcoming syntax and logical errors to develop a fully functional programme.

SEND students are supported in understanding abstract concepts through visual demonstrations. For example, when teaching Databases, teachers practically demonstrate skills before giving students tasks based on a different scenario but demonstrate the same skills.

Pupil Premium students are provided with a free laptop to ensure that they do not fall behind their peers academically through lack of resources. These are used in Computer Science lessons and across the school for homework and to allow students to review taught content when completing tasks.

High Attaining students are challenged to merge multiple concepts together (e.g. selection and iteration in programming). Extended project work is available for students to achieve higher levels of work (e.g. the creation of a game).

Year 12

Substantive Knowledge

In the Unit 2: Databases unit, students study the specification areas of:

A1 Relational Database Management Systems

A2 Manipulating data structures and data in relational databases.

A3 Normalisation

B1 Relational Database Design

B2 Design Documentation (including queries and reports)

C1 Producing a database solution (including database validation)

C2 Testing and refining the database solution

D1 Database design evaluation

D2 Evaluation of database testing

D3 Evaluation of the database.

In the Unit 3 Social Media Unit, students learn about the specification areas:

A1 Social media sites.

A2 Business use of social media.

A3 Risks and issues.

B1 Social Media Planning

B2 Business requirements

B3 Content planning and publishing

B4 Developing an online community

B5 Developing a Social Media policy

B6 Reviewing and refining plans

C1 Creating accounts and profiles.

C2 Content creation and publication

C3 Implementation of online community building

C4 Data gathering and analysis

C5 Skills, knowledge and behaviours.

Disciplinary Knowledge

While studying Unit 2 (Databases), students will explore the key skills behind creating a relational database. Students will be able to carry out normalisation, create tables with correct data types, and linked through relationships. Students will be able to add validation, queries, reports and forms. Students will understand the testing and evaluation stages.

While studying Unit 3 (Social Media), students will gain experience of using techniques to plan and post social media posts. They will be able to add interactive features to raise the number of likes, shares and comments on their posts.

Year 13

Substantive Knowledge

Unit 1

Learners will develop their understanding of the relationships between IT systems hardware and software, the way systems work individually and together, the relationship between the user and the system, use of IT systems issues and their impact on organisations and individuals. Within this unit, students study the specification areas of:

A Digital devices in IT systems - The concepts and implications of the use of, and relationships among, the devices that form IT systems.

A1 Digital devices, their functions and use

A2 Peripheral devices and media

A3 Computer software in an IT system

A4 Emerging technologies

A5 Choosing IT systems

B Transmitting data - The concepts, process and implications of transferring data within and between IT systems.

B1 Connectivity

B2 Networks

B3 Issues relating to transmission of data

C Operating online - The implications for individuals and organisations of using online IT systems.

C1 Online systems

C2 Online communities

D Protecting data and information - The issues and implications of storing and transmitting information in digital form.

D1 Threats to data, information and systems

D2 Protecting data

E Impact of IT systems - The uses, issues and implications of IT systems and their impact on individuals and organisations.

E1 Online services

E2 Impact on organisations

E3 Using and manipulating data

F Issues - The concepts, impacts and implications of issues resulting from the use of IT systems.

F1 Moral and ethical issues

F2 Legal issues

Unit 6

Learners will review existing websites – commenting on their overall design and effectiveness. They will use scripting languages such as Hypertext Markup Language (HTML), Cascading Style Sheets (CSS) and JavaScript and a simple text editor. Finally, they will reflect on the website design and functionality using a testing and review process.

A1 Purpose and principles of website products

A2 Factors affecting website performance

B1 Website design

B2 Common tools and techniques used to produce websites

C1 Client-side scripting languages

C2 Website development

C3 Website review

C4 Website optimisation

C5 Skills, knowledge and behaviours

Disciplinary Knowledge

Unit 1

Students will learn how to evaluate the strengths and weaknesses of digital and peripheral devices with respect to the needs of an individual or organisation. Students will consider the implications of, and the relationships between the hardware and software deployed in IT systems. Students will research emerging technologies and the impact these will have upon individuals and organisations. This knowledge will be utilised holistically to evaluate the impact of particular features of an IT system upon the larger system's performance.

Students will learn to select appropriate methods of connecting devices according to the needs of an individual or organisation.

Students will research the impact and implications of the use of online systems, such as cloud storage, and online communities, such as social media, for individuals and businesses through a series of case studies.

Students will learn to assess a range of security threats to IT systems and the information they store. This will inform their ability to recommend appropriate protective measures.

Students will research the impact and implications of online services, such as targeted marketing and collaborative working through a series of case studies. Students will evaluate the impact of IT systems on organisations in terms of features such as UX, cost, productivity and security.

Students will study the moral and ethical implications resulting from the use of IT systems, evaluating their benefits against considerations such as their environmental impact, privacy and freedom of speech. Students will investigate the role of current legislation designed to protect users, their data and accessibility.

Unit 6

Students must research and understand the principles of website design such as usability and white space, media, and SEO. These principals must then be considered according to the specified requirements and target audience. Students consider how server-side and client-side factors will affect the performance of their websites. Students will design and develop a website to meet the needs of a specified client, evaluating and employing appropriate tools and techniques.