COMPUTING CURRICULUM MAP

Intent: The Computing department at UTC Heathrow aims to equip students to participate in a rapidly changing world through challenging and engaging topics. Students will develop an understanding and application in the fundamental principles of computer science, Information Technologies (IT), and Cybersecurity by having the opportunity to write programs design webpages, apply technical skills gained in cybersecurity and produce professional digital products.   Some of the critical skills include project management, systems analysis, design, and cybersecurity.

Computing and IT skills are a significant factor in enabling children to be confident, creative and independent learners, and we intend that students have every opportunity available to allow them to achieve this.

The national curriculum for Computing aims to ensure that all pupils:

• can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms, and data representation

• can analyse problems in computational terms, and have repeated the practical experience of writing computer programs to solve such problems

• can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems

• are responsible, competent, confident, and creative information and communication technology, users.

In Computer Science, we are dedicated to ensuring our students leave with the skills to embrace a future of rapidly advancing computer technology fully. Apart from the academic curriculum, students will gain key industry skills through

We intend to develop key skills in IT and cybersecurity, which include:

• IT management for business

• Digital technology solutions

• Computer networks and security

• Business computing and entrepreneurship

Year 12 BTech IT Level 3 – Extended Certificate (360 GLH (475 TQT))					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Unit 1 **Information Technology Systems** **Digital devices in IT systems** Learn the concepts and implications of the use of, and relationships among, the devices that form IT systems. **Transmitting data** Learn the implications for individuals and organisations using online IT systems.	**Unit 1** **Information Technology Systems** **Operating online** Learn the implications for individuals and organisations using online IT systems. **Cisco Networking Academy courses, Palo Alto Academy Cybersecurity courses**	**Unit 1** **Information Technology Systems** **Protecting data and information** The issues and implications of storing and transmitting information in digital form. **Cisco Networking Academy courses, Palo Alto Academy Cybersecurity courses**	**Unit 1** **Information Technology Systems** **Impact of IT systems** The uses, issues and implications of IT systems and their impact on individuals and organisations **Cisco Networking Academy courses, Palo Alto Academy Cybersecurity courses**	**Unit 1** **Information Technology Systems** **Issues** The concepts, impacts and implications of issues resulting from the use of IT systems **External exam**	**Year 13 units start**
Unit 2 **Creating Systems to Manage Information** The purpose and structure of relational database management systems Standard methods and techniques to design relational database solutions	**Unit 2** **Creating Systems to Manage Information** Standard methods and techniques to design relational database solutions Creating a relational database structure	**Unit 2** **Creating Systems to Manage Information** Standard methods and techniques to design relational database solutions Creating a relational database structure	**Unit 2** **Creating Systems to Manage Information** Evaluating a database development project The characteristics, concepts, impact and implications of testing methodologies to monitor and evaluate database design, the database created, testing processes and success of the solution. **Mock exam for units 1 and 2**	**Unit 2** **Creating Systems to Manage Information** **Exam revision** **Final Unit exam**	**Year 13 units start**
Unit 3 **Using Social Media in Business** Explore the impact of social media on the ways in which businesses promote their products and services	**Unit 3** **Using social media in Business** Develop a plan to use social media in a business to meet requirements	**Unit 3** **Using social media in Business** Implement the use of social media in a business. **Assignment A**	**Unit 3** **Using social media in Business** Selection and use of appropriate social media website tools and techniques to implement a plan **Assignment B and C resubmission**	**Unit 3** **Using social media in Business** **Assignment B and C resubmission**	**Year 13 units start**
Unit 6 **Website Development** Develop a data model to meet client requirements. Common tools and techniques used to produce websites. **Cisco Networking Academy courses, Palo Alto Academy Cybersecurity courses**	**Unit 6** **Website Development** Develop a data model to meet client requirements. Common tools and techniques used to produce websites. **Assignment A**	**Unit 6** **Website Development** Common tools and techniques used to produce websites.	**Unit 6** **Website Development** Develop a website to meet client requirements. **Assignment B&C**	**Unit 6** **Website Development** **Assignment BC resubmission**	**Year 13 units start**

Year 12 BTech IT Level 3 – Extended Diploma/Diploma (360 GLH (475 TQT))					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Unit 4 Programming Examine the computational thinking skills and principles of computer programming	**Unit 4 Programming** Design a software solution to meet client requirements Programming development **Assignment A**	**Unit 4 Programming** Develop a software solution to meet client requirements Programming development	**Unit 4 Programming** Improvement, refinement and optimisation of software applications	**Unit 4 Programming** **Assignment BC resubmission**	**Year 13 units start**

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Programming development			Programming development **Assignment BC**		
Unit 11 Cyber Security and Incident Management Cyber security threats System vulnerabilities Legal responsibilities Physical security measures	**Unit 11 Cyber Security and Incident Management** Use of networking architectures and principles for security Cyber security protection plan	**Unit 11 Cyber Security and Incident Management** Cyber security documentation Forensic procedures **Exam practice**	**Unit 11 Cyber Security and Incident Management** **Exam revision**	**Unit 11 Cyber Security and Incident Management** **Unit external exam**	**Year 13 units start**
Unit 14: IT Service Delivery Contextual factors driving IT needs and services in organisations (IT service life cycle, Purpose and functions of organisations and Service identification)	**Unit 14: IT Service Delivery** IT service delivery design (Defining IT service delivery requirements, Designing an IT solution and Considerations when designing an IT service delivery solution)	**Unit 14: IT Service Delivery** Information and data requirements of organisations (Information in an organisation, Data in an organisation)	**Unit 14: IT Service Delivery** Facilitating IT service delivery (Software and Hardware service options, Managing IT service delivery solutions and the implications of change) **Exam practice**	**Unit 14: IT Service Delivery** **Exam revision** **Unit external exam**	**Year 13 Units start**
Unit 16 Cloud Storage and Collaboration Tools Explore the use of cloud technologies and tools in organisations	**Unit 16 Cloud Storage and Collaboration Tools** Design and deploy a cloud-based collaboration service to meet a client's needs **Assignment A**	**Unit 16 Cloud Storage and Collaboration Tools** Manage and review a cloud-based collaboration service to meet a client's needs	**Unit 16 Cloud Storage and Collaboration Tools** **Assignment BC**	**Unit 16 Cloud Storage and Collaboration Tools** **Assignment BC resubmission**	**Year 13 units start**

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Year 13 BTech IT Level 3 – Extended Certificate/Diploma (360 GLH (475 TQT))					
Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Unit 6 Website Development Develop a data model to meet client requirements. Common tools and techniques used to produce websites.	**Unit 6 Website Development** Develop a data model to meet client requirements. Common tools and techniques used to produce websites. **Assignment A**	**Unit 6 Website Development** Common tools and techniques used to produce websites.	**Unit 6 Website Development** Develop a website to meet client requirements. **Assignment B&C**	**Unit 6 Website Development** **Assignment BC resubmission**	
Unit 4 Programming Examine the computational thinking skills and principles of computer programming Programming development	**Unit 4 Programming** Design a software solution to meet client requirements Programming development **Assignment A**	**Unit 4 Programming** Develop a software solution to meet client requirements Programming development	**Unit 4 Programming** Improvement, refinement, and optimisation of software applications Programming development **Assignment BC**	**Unit 4 Programming** **Assignment BC resubmission**	
Unit 11 Cyber Security and Incident Management Cyber security threats System vulnerabilities Legal responsibilities Physical security measures	**Unit 11 Cyber Security and Incident Management** Use of networking architectures and principles for security Cyber security protection plan	**Unit 11 Cyber Security and Incident Management** Cyber security documentation Forensic procedures Exam practice	**Unit 11 Cyber Security and Incident Management** **Exam revision**	**Unit 11 Cyber Security and Incident Management** **Unit external exam**	
Unit 19 The Internet of Things Examine systems and services that form part of the Internet of Things	**Unit 19 The Internet of Things** Develop a design for an Internet of Things system or device to solve a problem **Assignment A**	**Unit 19 The Internet of Things** Carry out the prototyping of an integrated Internet of Things system or device to solve a problem	**Unit 19 The Internet of Things** **Assignment BC**	**Unit 19 The Internet of Things** **Assignment BC resubmission**	

Impact: To ensure that all students make significant progress, through continual formative and summative assessments. The assessments will feed into the tracker and teaching and interventions will be affected accordingly to enhance knowledge and understanding. Progress is tracked through central records and classroom teachers will adapt their teaching accordingly.

Pupil engagement in homework, end of topic tests and intervention is also closely monitored with parents/guardians kept up to date through regular contact. Through the curriculum, we aim to develop in our students' an appreciation of computing, IT and cybersecurity and a sense of enjoyment and curiosity for the subject. The success of this will be monitored at the end of Year 11, Year 13 with the external exams and internal assessments in IT. On successful completion of these studies at KS5, hope to have developed confident students who will be able to partake relevant apprenticeships or university.

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