

Name:

BTEC AAQ IT Extended Certificate – Unit 1 Content and Revision List



A) Explore the concepts and implications of the use of, and relationships among devices that form IT systems

A1 Functions and use of digital devices, and the notation used to represent the design of IT systems

Students should apply their knowledge and understanding of the features and uses of digital devices in IT systems to meet the needs of individuals and organisations. Students should apply their knowledge of notation used in designing IT systems and flowcharts. This knowledge is essential for the effective use of technology in both personal and professional settings.

Content		Revised	Mastered
	Features of digital devices that form part or all of IT systems:		
	personal computers		
	multifunctional devices		
	mobile devices		
	servers		
	▪ file		
	▪ application		
	▪ web		
	entertainment systems		
	digital cameras		
	▪ still		
	▪ video		
	navigation systems		
	communication devices and systems		
	embedded systems		
	▪ sensors		
	▪ Internet of Things (IoT)		
	Function and use of the above digital devices for:		
	▪ personal		
	▪ education and training		
	▪ social		
	▪ retail		
	▪ manufacturing		
	▪ healthcare		
	▪ creative tasks		
	▪ automation and robotics		
	Forms of notation used to design IT systems:		
	▪ system diagrams		
	▪ flowcharts		

A2 Peripheral Devices and Media

Students should apply their knowledge and understanding of the features and uses of peripheral devices and media in IT systems to meet the needs of individuals and organisations.

Content		Revised	Mastered
	Features and uses of peripheral devices used with other digital devices to form part of an IT system:		
	Input devices		
	Output devices		
	Storage devices		
	Assistive technologies:		
	Adaptive Keyboards		
	Screen readers		
	Braille displays		
	Screen magnifiers		
	Head pointers		
	Single switch entry devices		
	Foot switches		
	Sip-and-puff switches		
	Eye-tracking software		
	Text-to-speech software		
	Characteristics and implications of storage media used to form part of an IT system:		
	Capacity		
	Cost		
	Speed		
	Compatibility		
	Data processing		
	Manual		
	Automatic		

A3 Computer Software in an IT System

Students should know and understand the concepts, implications and impact on individuals and organisations of the use of, and relationships between hardware and software.

Content		Revised	Mastered
	Types of operating systems:		
	Batch		
	Distributed		
	Multitasking		
	Network OS		
	Real-time OS		
	Mobile OS		
	Single use		
	Multi-user		
	Role of the operating system in managing:		
	Networking		
	Security		
	Memory management		
	Multi-tasking		
	Device drivers		
	User accounts		
	Types, uses and features of software:		
	Utility		
	Application		
	Factors impacting the choice and use of operating system and application Software:		
	Cost		
	Security		
	Hardware and software compatibility		
	Features		
	Business and/or user needs		
	Performance		
	Types of user interface and factors affecting the choice of user interface:		
	Command line		
	Menu-driven		
	Graphical user		
	Touchscreen graphical user		
	Principles and implications of open source and proprietary software		
	Operating systems		
	Application software		
	Features of common file types and formats used for:		
	Images		
	Audio		
	Videos		
	Application Software		

A4 Choosing IT Systems

Students should know and understand how the features of an IT system can affect its performance and the factors impacting on the choice.

Content		Revised	Mastered
	Factors affecting the choice of IT systems:		
	User needs		
	Specifications		
	Compatibility		
	Connectivity		
	Cost		
	Efficiency		
	Implementation		
	▪ Timescales		
	▪ Testing		
	▪ Migration to new system(s)		
	▪ Downtime		
	Productivity		
	Security		
	Features and implications of IT systems used by organisations for:		
	Stock control		
	Data logging		
	Data analysis		
	General office tasks		
	Creative tasks		
	Advertising		
	Manufacturing		
	Security		
	Automation		
	Impact and implications for organisations of IT systems in terms of:		
	User experience		
	▪ Ease of use		
	▪ Performance		
	▪ Availability		
	▪ Accessibility		
	Employee and customer needs		
	Cost		
	Implementation		
	▪ Timescales		
	▪ Testing		
	▪ Migration to new system(s)		
	▪ Downtime		
	Replacement or integration with current systems		
	Productivity		
	Working practices		
	Staff training needs		
	▪ Initial		

		▪ Ongoing		
		User support		
		Security		

A5 Emerging Technologies

Students should understand how emerging technologies can be used by individuals and organisations.

Content		Revised	Mastered
	The concepts and implications of how emerging technologies affect the performance of IT systems.		
	Implications of emerging technologies on the personal use of IT systems.		
	Implications of emerging technologies on the use of IT systems in organisations.		

B) Transmitting data

The essential content topics require understanding of the concepts, processes and implications of transmitting data within and between IT systems.

B1 Connectivity			
Content		Revised	Mastered
	Wireless and wired methods of connecting devices and transmitting data within and between IT systems:		
	Bluetooth		
	USB		
	Wi-Fi		
	Ethernet		
	How the features of connection types can meet the needs of individuals and organisations.		
	Implications of selecting and using different connection types.		
	Impact of connection types on the performance of an IT system.		

B2 Networks			
<i>Students should know the concepts and implications for individuals and organisations of connecting devices to and from a network.</i>			
Content		Revised	Mastered
	Network topologies:		
	Star		
	Ring		
	Bus		
	Virtual private network (VPN)		
	Types of networks:		
	Personal Area Network (PAN)		
	Local Area Networks (LAN)		
	Wide Area Network (WAN)		
	Virtual Private Network (VPN)		
	Factors affecting the choice of network:		
	User needs		
	Specifications		
	Connectivity		
	Cost		
	Efficiency		
	Compatibility		
	Implementation		
	▪ Timescales		
	▪ Testing		
	▪ Downtime		
	Productivity		
	Security		
	How the features of a network and its component parts affect the performance of an IT system		

B3 Issues relating to transmission of data

Students should know and understand how the features and processes of data transmission affect the use and performance of IT systems.

Content		Revised	Mastered
	Protocols used to govern and control data transmission for common tasks:		
	Email		
	▪ SMTP		
	▪ POP		
	▪ IMAP		
	Voice and video calls over the Internet		
	Webpages		
	▪ HTTP		
	▪ HTTPS		
	Secure payment systems		
	Security issues and considerations when transmitting data over different connection types and networks.		
	Factors affecting and implications of bandwidth and latency.		
	Implications of common file types and formats used for:		
	Images		
	Audio		
	Videos		
	Application Software		
	Factors affecting the choice of compression types		
	Lossy		
	Lossless		
	Use and implications of codecs when using and transmitting audio and video in digital format.		

C) Operating online

The essential content topics require understanding of the implications for individuals and organisations of using online IT systems.

C1 Online systems			
<i>Students should know and understand the features, impact and implications of the use of online IT systems to store data and perform tasks.</i>			
Content		Revised	Mastered
	Cloud computing models:		
	Private cloud		
	Public cloud		
	Hybrid cloud		
	Infrastructure as a Service (IaaS)		
	Software as a Service (SaaS)		
	Platform as a Service (PaaS)		
	Impact and implications of using cloud computing for individuals and organisations		
	Systems that enable and support remote working		
	VPNs		
	Remote desktop technologies		
	The way factors affect the use and selection of online systems:		
	Security		
	Cost		
	Ease of Use		
	Features		
	Connectivity		
	Scalability		

C2 Online Communities			
<i>Students should know and understand the features of online communities and the implications of their widespread use for individuals and organisations.</i>			
Content		Revised	Mastered
	Ways of communicating and interacting with online communities:		
	Social media		
	Blog/vlog		
	Wiki		
	Chatrooms		
	Instant messaging		
	Podcasts		
	Forums		
	Considerations for individuals and organisations of using and accessing online communities:		
	User experience		
	▪ Ease of use		
	▪ Performance		
	▪ Availability		
	▪ Accessibility		

		Meeting needs		
		Cost		
		Privacy		
		Security		
		Downtime		
		Training		
		Integration with Current Systems		
		Productivity		
		Working Practices and Company Policies		

D) Protecting data and information

The essential content topics require understanding of the issues and implications of storing and transmitting information in digital form.

D1 Threats to data, information and systems			
<i>Students should know and understand the types of accidental and malicious threats to the security and integration of data, held in and used by IT systems.</i>			
Content		Revised	Mastered
	Types of external threats to data:		
	Viruses and other malware		
	Unauthorised access - hackers		
	Accidental damage		
	Social engineering		
	Natural disasters		
	Types of internal threats to data:		
	Access to inappropriate websites		
	Accidental disclosure of data		
	Stealing/leaking information		
	Use of portable devices		
	Impact on individuals and organisations from threats to data, information and systems:		
	Loss of data		
	Financial loss due to legal action		
	Loss of customers due to public image		

D2 Protecting data			
<i>Students should know the uses and implications of systems and procedures used to protect the data of individuals and organisations.</i>			
Content		Revised	Mastered
	Techniques used to protect data and systems:		
	File permissions		
	Access levels		
	Backup and recovery procedures		
	Passwords/multi-factor authentication		
	Biometrics		
	Physical access control		
	Digital certificates.		
	Features and functions of using antivirus software to protect data.		
	Features and functions of using firewalls to protect data.		
	Features and functions of encryption methods to protect:		
	Stored data		
	Data during transmission		
	Data in secure websites (HTTPS)		

E) Impact of IT systems

The essential content topics require understanding of the uses, issues and implications of IT systems and their impact on individuals and organisations.

E1 Online Services			
<i>Understand how the features of online services are used to meet the needs of individuals and organisations.</i>			
	Content	Revised	Mastered
	The features and implications of using online services to support:		
	Retail		
	Financial services		
	Education and training		
	News and information		
	Entertainment and leisure		
	Booking systems		
	The uses, impact and implications for individuals and organisations of:		
	Transactional data		
	Targeted marketing		
	Collaborative working		
	Remote working		

E2 Using and manipulating data			
<i>Understand the uses, processes and implications for individuals and organisations of accessing and using data and information in digital form.</i>			
	Content	Revised	Mastered
	Sources of data:		
	Primary		
	Secondary		
	Methods of ensuring reliability of information.		
	Methods of collecting data and opinions:		
	Survey		
	Questionnaire		
	Focus groups		
	Interview		
	Reasons for ensuring data accuracy		
	Methods of ensuring data accuracy:		
	Verification		
	Validation		
	Characteristics and considerations of user interfaces for data collection and processing systems:		
	Ease of use		
	Accessibility		
	Error reduction		
	Functional		
	Performance		
	Compatibility		

F) Issues

The essential content topics require understanding of the concepts, impacts, and implications of moral, ethical and legal issues relating to the use of IT systems.

F1 Moral and ethical issues			
<i>Understand the moral and ethical factors and implications of using information technology for individuals and organisations.</i>			
Content			Revised
			Mastered
	The moral and ethical factors of the use of information technology:		
		Privacy	
		Environmental impact	
		Unequal access to information technology	
		Access to assistive technology	
		Online behaviour and netiquette	
		Acceptable use policies	

F2 Legal Issues			
<i>Understand the legal issues relating to the use of IT systems, and the implications for individuals and organisations.</i>			
Content			Revised
			Mastered
	Role and impact of current legislation in protecting IT systems, users and their data from attack and misuse:		
		Computer misuse legislation	
		Copyright, designs and patents legislation	
		Copyright regulations (computer programs)	
		Health and safety and display screen equipment regulations	
		Data protection legislation	