BTEC Tech in Digital Information Technology

These are all topic areas you need to learn and revise for your external examination in May.

Learning Aim A- Modern Technologies

In this unit you need to be aware of the current and modern technologies that are having an impact on organisations and their stakeholders. You will need to know how organisations and the people involved/associated in these organisations use modern technologies to exchange information, communication and complete work-related tasks.

You need to learn and revise the following topics:

A1- Modern technologies

	Revision technique I have used			
Topic Area	Revision clock	Cue cards	Mindmap	Other
Communication technologies				
• Setting up ad hoc networks (open Wi-Fi, tethering/personal hotspots)				
• Security issues with open networks				
• Performance issues with ad hoc networks				
• Issues affecting network availability (rural vs city locations, developed vs developing countries, mobile network coverage, blackspots)				
Features and use of cloud storage				
• Setting and sharing of access rights				
• Availably (24/7)				
• Scalability (getting more by renting/freeing to save money)				
Features and use of cloud storage				
• On-line applications				
• Collaboration tools/features				
How the selection of platforms and services impact on the use of cloud technologies				
• Paid for versus free				
• Interface design (layout, accessibility, mobile vs desktop)				
How cloud and 'traditional systems are used together				
• Online/offline working				
• Notifications				
Implications for organisations when choosing cloud technologies				
• Considerations of disaster recovery policies				
• Compatibility				
• Maintenance (software updates, downtime, staff expertise)				

A2 - Impact of Modern Technology

	Revision techniques I have used			
Topic Area	Revision clock	Cue cards	Mindmap	Other
Changes to modern teams facilitated my modern technologies				
• World teams (not bound by geographical restrictions, diversity)				
• Multicultural				
• Inclusivity (facilitation of members' needs)				
• 24/7/365 (no set work hours, team members in different time zones)				
• Flexibility (remote working vs office based, permanent vs casual staff)				
How modern technologies can be used to manage modern teams				
• Collaboration tools				
• Communication tools				
• Scheduling and planning tools				
How organisations use modern technologies to communicate with stakeholders				
• Communication platforms (website, social media, email, voice communication)				
• Selection of appropriate communication channels (private/direct message, public status update) for sharing information, data and media.				
How modern technologies aid inclusivity and accessibility				
• Accessibility features (screen reader support, alt text, adjustable typeface/font size, text to speech)				
• Flexibility of work hours and locations				
Positive and negative impacts of modern technologies on organisation in terms of:				
• Demand on infrastructure of chosen tools/platform				
• Availability of infrastructure				
• 24/7 access				
• Security of distributes/disbursed data				
• Collaboration				
• Inclusivity (age, health, additional needs, multicultural)				
• Accessibility (meeting legal obligations, provision requirements)				
• Remote working				
Positive and negative impacts of modern technologies on individuals				
• Flexibility (home/remote working)				
• Working styles (choice of time, device, location)				
• Impact of individual mental wellbeing				

Learning Aim B - Cyber Security

In this unit you need to be aware of the range of challenges and dangers that are present to organisations that use so much data and rely on digital systems to be able to hold that information. You will need to understand the nature of that threat to digital systems and ways that they can be mitigated through organisation policies, procedures and the actions of individuals.

You need to revise the following topics:

B1- Threats to data

	Revision technique I have used			
Topic Area	Revision clock	Cue cards	Mindmap	Other
Why systems are attacked:				
• Fun/challenge				
• Industrial Espionage				
• Financial gain				
• Personal attack				
• Disruption				
• Data/information theft				
External threats (threats outside the organisation) to digital systems and data security				
• Unauthorised access/hacking (black hat)				
• Malware (virus, worms, bonet, rootkit, Trojan, ransomware, spyware)				
• Denial of attacks				
• Phishing (e-mails, texts, phone calls)				
• Pharming				
• Social engineering				
• Shoulder Surfing				
• 'Man-in-the-middle' attacks				
Internal threats (threats within the organisation) to digital systems and data security				
• Unintentional disclosure of data				
• Intentional stealing or leaking of information				
• Users overriding security controls				
• Downloading from the Internet				
Impact of security breach				
• Data loss				
• Damage to public image				
• Financial Loss				
• Reduction in productivity				
• Downtime				
• Legal action				

B2 – Prevention and management of threats to data

	Revision technique I have used			
Topic Area	Revision clock	Cue cards	Mindmap	Other
User access restrictions				
• Physical Security measures (locks)				
• Using correct settings and levels of permitted access				
• Biometrics				
• Two-factor authentication (who you are, what you know, what you have)				
Data level protection				
• Firewall (hardware and software)				
• Software/interface design (obscuring data entry, autocomplete, 'stay logged in')				
• Anti-virus software				
• Device hardening				
• Procedures for backing up and recovery				
• Encryption of stored data				
• Encryption of transmitted data				
Finding weaknesses and improving system security				
• Ethical hacking				
• Penetration testing				
• Analyse system data				

B3 – Policy

	Revision technique I have used			
Topic Area	Revision clock	Cue cards	Mindmap	Other
Defining responsibilities				
• Who is responsible for what				
• How to report concerns				
• Reporting to staff/employees				
Defining security parameters				
• Password policy				
• Acceptable software/installation/usage policy				
Disaster Recover Policy				
• Who is responsible for what				
• Dos and don'ts for staff				
• Defining the back-up process				
• Timeline for data recovery				
• Location alternative provision				
Action to take after an attack				
• Investigate (establish severity and nature)				
• Respond (inform/update stakeholders and appropriate authorities)				
• Manage (containment, procedures appropriate to nature and severity)				
• Recover (Implement disaster recovery plan, remedial action)				
• Analyse (update policy and procedures)				

Learning Aim C - The wider implications of digital systems

In this unit you need to be aware of the wider implications of digital systems and their use. You should understand the laws covering the data protection, computer crime and how intellectual property has an impact on the way that organisations and individuals use digital and data. You should understand the procedures that an organisation must follow in order to ensure they are meeting the legal requirements.

You need to revise the following topics:

C1- Responsible Use

	Revision technique I have used			
Topic Area	Revision clock	Cue cards	Mindmap	Other
Share data (location based data, transactional data, cookies, data exchange between services)				
• Benefits of using shared data				
• Drawbacks of using shared data				
• Responsible use (legal considerations, privacy, ethical use)				
Environmental				
• Impacts of manufacturing, use, and disposal of it systems (energy, waste, rare materials)				
• Considerations when upgrading or replacing digital systems				
• Usage and settings policies (auto power off, power-saving settings, hard copy Vs electronic distribution)				

C2 – Legal and ethical

	Revision technique I have used			
Topic Area	Revision clock	Cue cards	Mindmap	Other
Importance of providing equal access to services and information				
• Benefits to organisations, individuals and society				
• Legal requirements				
• Professional guideline/accepted standards				
The purpose and use of acceptance use policies				
• Scope – who does the document apply to				
• Asset – the equipment, documents and knowledge covered by the policy				
• Acceptable – behaviour that are expected/required by an organisation				
• Unacceptable – behaviours that are not allowed by an organisation				
• Monitoring – description of how behaviour is monitored by an organisation				
• Sanctions – defining the process and potential sanctions of unacceptable behaviour occurs				
• Agreement – acknowledge (sign, click) that individuals agrees to abide by the policy				

Blurring of social and business boundaries				
• Use of social media				
• Impact of personal use of digital systems (social media, web) on professional life				
Data protection principles				
• Lawful processing				
• Collection for only specific purpose				
• Only needed information is collected				
• Should be accurate				
• Kept only as long as is necessary				
• Data subject rights				
• Protected				
• Not transferred to countries with less protection				
Data and use of the internet				
• The right to be forgotten				
• Appropriate and legal use of cookies and other transactional data				
Dealing with intellectual property				
• The importance of intellectual property in organisations				
• Methods of identifying/protecting intellectual property (trademarks, patents copyright)				
• Legal and ethical use of intellectual property (permissions, licencing, attribution)				
The criminal use of computer systems				
• Unauthorised access				
• Unauthorised modification of materials				
• Creation of malware				
• Intentional spreading of malware				

Learning Aim D – Planning and communication is digital systems

In this unit you need to understand how individuals in the digital sector plan solutions and communicate meaning and intentions. You need to understand the different forms of written and diagrammatical communications that can be used to express understanding and demonstrate the flow of data and information.

You need to revise the following topics:

D1 – Forms of notion

	Revision technique I have used			
Topic Area	Revision clock	Cue cards	Mindmap	Other
Understand how organisations use different forms of notions to explain systems, data and information				
• Data flow diagrams				
• Flow charts				
• Systems diagrams				
• Tables				
• Written information				
Be able to present knowledge and understanding using different forms of notation				