

Week	Date	Topic	Topic detail	Revised Y/N?
Half term	25/02/2019	Unit 3	<p><b>1.Data and Quality of Data</b></p> <p><b>Data and Information</b></p> <ul style="list-style-type: none"> <li>• Benefits of encoding data</li> <li>• Advantages and Disadvantages of storing data</li> <li>• information is data which has been processed by the computer</li> <li>• knowledge is derived from information by applying rules to it</li> </ul> <p><b>Validation and Verification</b></p> <p><u>Validation</u> Parity check, double keying, visual check. These are in addition to the list from Unit 1 (<i>list check, range check, drop down menu, input masks, format checks, presence checks and check digits</i>).</p> <p><u>Verification</u> Be able to identify batch totals and hash totals (<i>often in association with Payroll</i>).</p> <p>Understand the possible sources of errors that can exist Understand the techniques to overcome these errors (see above)</p>	
Week 1	04/03/2019		<p><b>2.Multimedia and Web Design</b></p> <p><b>Digital images</b></p> <p><u>Vectors</u> Know the definition of a Vector Understand when they are used and the advantages/disadvantages.</p> <p><u>Bitmaps</u> Know the definition of a Bitmap, understand when they are used and the advantages/disadvantages.</p> <p><b>Tools and techniques for manipulating images</b></p> <p><u>Standard tools</u> Zoom, selection, transforming, scaling and sizing, brush settings, distortion, moving, cloning, rotation, layering, toggling between layers.</p> <p><u>Advance tools</u> Colour effects, colour palettes, gradient tools, imaging effects (e.g. red eye removal, spiral), transparency effects, composite patterning (repeated patterns).</p> <p><u>Image file formats</u> Understand the use, advantages and potential disadvantages of: bmp, jpeg, gif, tiff, eps and other common formats.</p>	

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Week 2	11/03/19	Unit 3 <b>2.Multimedia and Web Design (contd.)</b>	<b>Tools and techniques for creating web pages (Web Authoring)</b> <u>Business website features</u> Login, intranet, house style, target audience, site map <u>Web software and features</u> Master pages, templates, home page, site navigation, golden triangle, hyperlinks, hotspots, rollover buttons, bookmarks/anchors, navigation bars, leader boards, banners, web icons (shopping cart, email envelope), HTML, plugins, cookies. <ul style="list-style-type: none"> <li>• Need to understand that websites are hosted, understand issues with upload and download speeds.</li> <li>• RGB colours and the use of hexadecimal codes to represent them in webpages.</li> </ul>	
Week 1	18/03/19		<b>Data Compression</b> Have knowledge that websites are hosted on a web server and factors affecting uploading times. Describe advantages and disadvantages of data compression techniques for images, movies, sound, pages and slides. <b>Presentation software</b> <u>Tools and techniques for creating slide presentations:</u> <ul style="list-style-type: none"> <li>• Design templates, animation, transitions and timings, video and sound, navigation bookmarks, hyperlinks and hotspots, narration and speaker notes, printing formats</li> <li>• Describe advantages and disadvantages of presentation software</li> </ul> <u>Current developments in the multimedia industry and their effects on:</u> <ul style="list-style-type: none"> <li>• Education</li> <li>• Entertainment</li> <li>• Business</li> <li>• Society</li> </ul>	

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Week 2	25/03/19	Unit 3 <b>2.Multimedia and Web Design (contd.)</b>	<b>Animations</b> <u>Understand and know what the following animation techniques are:</u> <ul style="list-style-type: none"> <li>• The concept of persistence of vision</li> <li>• Flip books</li> <li>• Stop Motion animation</li> <li>• Flash/Key frame animation</li> <li>• 3D animation.</li> </ul> <u>Tools for creating animations:</u> <ul style="list-style-type: none"> <li>• Changing frame rates</li> <li>• Rotoscoping</li> <li>• Onion skinning</li> <li>• Grouping</li> <li>• Cloning</li> <li>• Backdrops</li> <li>• Claymation and pixilation</li> <li>• File types – GIF, PNG, CGM, SWF</li> </ul> <u>Understand the use of animations in:</u> <ul style="list-style-type: none"> <li>• Film making and special effects industries</li> <li>• VLEs, educational websites, MOOCs</li> <li>• Animations for the web</li> <li>• Identification through logos</li> <li>• Standard banners for web pages/leader boards.</li> </ul>	
Week 1	01/04/19		<b>Sound and Music</b> <u>Hardware</u> <ul style="list-style-type: none"> <li>• Basic input devices and output devices used for sound editing and storage e.g. microphone, speakers, music workstations, sound cards. Also need to remember the purpose of a MIDI interface.</li> </ul> <u>Software</u> <ul style="list-style-type: none"> <li>• Notators, sound wave editors, samplers, sequencers, sound conversion (AC → DC, DC → AC).</li> <li>• Also need to know advantages and disadvantages of various sound file formats (wav, wma, mp3).</li> <li>• Also overlaps with laws i.e. Copyright, Designs and Patents Act.</li> <li>• Must be able to discuss process of downloading music plus advantages and disadvantages.</li> </ul>	

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Week 2	08/04/2019	Unit 3 <b>3.Networks</b>	<p><b>Topologies and Hardware</b></p> <p>Need to know advantages and disadvantages of each topology below:- Star, bus, ring, peer to peer, stand-alone computer</p> <p><u>Hardware</u>      Routers, switches, gateways, bridges, packet switching</p> <p><b>Business networks and Network types</b></p> <ul style="list-style-type: none"> <li>• LAN, WANS and how they are connected with bridges and gateways.</li> <li>• Definitions of Internet, intranet, extranet</li> <li>• Integrated POS - automated stock control</li> </ul>	
			<p><b>4. Social and Environmental Impact</b></p> <p><b>ICT Jobs and Employment Patterns</b></p> <p>Ability to discuss impact of ICT on people's lives</p> <ul style="list-style-type: none"> <li>• Social</li> <li>• Economic</li> <li>• Political</li> <li>• Legal</li> <li>• Ethical</li> <li>• Moral issues</li> <li>• Impact upon rich and poor countries</li> </ul> <p><u>Employment</u>                      working hours, retraining, changes in working methods, homeworking.</p> <p><u>Environmental impact</u>      recycling of technology, raw materials and dangerous components.</p> <p><b>Teleworking</b></p> <ul style="list-style-type: none"> <li>• Need to be able to give a definition of Teleworking</li> <li>• Highlight the technology required for Teleworking</li> <li>• Discuss advantages and disadvantages</li> </ul> <p><b>Videoconferencing</b></p> <ul style="list-style-type: none"> <li>• Need to be able to give a definition of Videoconferencing</li> <li>• Highlight the technology required for Videoconferencing</li> <li>• Discuss advantages and disadvantages</li> </ul>	

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Easter	15/04/2019	Unit 3 5.HCIs – Human Computer Interfaces	<b>Operating Systems</b> <ul style="list-style-type: none"> <li>• Definition of an operating system</li> <li>• Jobs performed by an operating system</li> <li>• Brand name examples of Operating Systems</li> </ul>	
			<b>Human Computer Interfaces</b> <p>Need to know features of each of the following plus adv. and disadv.</p> <ul style="list-style-type: none"> <li>• Command Line</li> <li>• GUI – WIMP, Online tutorials, Customised Desktop</li> <li>• Voice driven</li> <li>• Menu driven</li> <li>• Touch sensitive devices and their HCIs – smart phones, POS</li> <li>• Biometrics</li> </ul>	
Easter	22/04/2019	Unit 3 6.Organisations	<b>Banking</b> <p>Technology used in banking</p> <ul style="list-style-type: none"> <li>• Cheques – Information written on a cheque, information already encoded on a cheque with MICR.</li> <li>• Contactless payments and the advantages/disadvantages</li> <li>• ATM – The process of removing cash and the other services offered at the ATM</li> </ul>	
			<b>Retail</b> <p>Technology and automated processes used in shops</p> <ul style="list-style-type: none"> <li>• EPOS – input and output devices at the till</li> <li>• Automated stock control at the EPOS</li> <li>• Sensors and control around a supermarket – temperature sensors etc.</li> </ul>	
			<b>Payroll + Modern Postal Handling Methods</b> <p><i>Payroll (overlaps with Batch processing)</i></p> <ul style="list-style-type: none"> <li>• Master file – also must know the contents of this</li> <li>• Transaction file - also must know the contents of this</li> <li>• Similarities between Master and Transaction file</li> <li>• Data entry methods for Payroll</li> <li>• Validation methods</li> <li>• Contents of payslips</li> <li>• BACS – Banks Automate Clearing System – to pay staff</li> </ul>	

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			<u>Modern Mail Handling Methods</u> <ul style="list-style-type: none"> <li>• This may cover the use of OCR for reading postcodes to deliver letters more quickly.</li> <li>• However it may also cover Mailmerge.</li> </ul>	
Week 1	29/04/19	<b>Unit 3</b> <b>7.Simulation and Control</b>	<b>Control processes</b> <ul style="list-style-type: none"> <li>• Sensors</li> <li>• Using bits/binary to represent data from a sensor</li> <li>• Boolean data</li> <li>• How information from sensors can be used to control something else</li> <li>• Feedback loops</li> <li>• Basic flowcharts</li> </ul>	
			<b>Robotics and Bionics</b> <ul style="list-style-type: none"> <li>• Definition of what a robot is</li> <li>• Advantages and disadvantages of robots</li> <li>• Effects of using robots in the workplace</li> <li>• How to reprogram a robot</li> <li>• Bionics - understanding that robotics can be added to humans to help with injuries and illnesses</li> </ul>	
			<b>AI, Expert Systems and Simulations</b> <p><u>Artificial Intelligence</u></p> <ul style="list-style-type: none"> <li>• Definition of what AI is</li> <li>• Advantages and disadvantages of robots</li> <li>• Where AI can be used</li> <li>• Effects of AI on the workplace and society</li> </ul> <p><u>Expert Systems</u></p> <ul style="list-style-type: none"> <li>• Definition of what an Expert System is</li> <li>• Who is involved in creating an Expert System</li> <li>• Parts of an Expert System</li> <li>• In which industries can Expert Systems be used</li> <li>• Advantages and Disadvantages</li> </ul> <p><u>Simulations</u></p> <ul style="list-style-type: none"> <li>• Examples of simulations used in industry</li> <li>• Advantages and disadvantages</li> </ul>	

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		<b>Unit 3</b>	<p><b>Data protection methods</b></p> <ul style="list-style-type: none"> <li>• Know how to protect data from accidental destruction</li> <li>• How to protect data from deliberate damage caused by viruses and other types of malicious damage</li> <li>• How to protect stored or transmitted data from unauthorised access physical protection e.g. back ups</li> <li>• Restricted physical access e.g. biometric scans</li> <li>• Restricted access to data e.g. hierarchy of passwords and access rights, encryption, firewalls</li> <li>• Monitoring e.g. transaction logs.</li> </ul>	
Week 2	06/05/2019		<p><b>8. Legal and Health and Safety</b></p> <p><b>Data Protection Act 1998</b> Need to know the general purpose of the DPA:</p> <ul style="list-style-type: none"> <li>• 8 principles</li> <li>• People involved – data subjects, data users, data controllers, Information commissioner</li> <li>• Data subjects rights</li> <li>• Exemptions from the DPA</li> </ul> <p><b>Computer Misuse Act 1990</b> Need to know why the Computer Misuse Act is needed :</p> <ul style="list-style-type: none"> <li>• 3 levels of the law</li> <li>• How the law is associated with prevention of hacking, creation of viruses, phishing, fraud etc.</li> <li>• People involved – data subjects, data users, data controllers, Information commissioner</li> </ul> <p><b>Other ICT Related Laws and crimes</b> <u>Just need to know the main principles behind the following additional ICT related laws</u></p> <ul style="list-style-type: none"> <li>• Electronic communications Act 2000</li> <li>• Regulation of Investigatory Powers Act 2000</li> <li>• Freedom of Information Act 2000</li> <li>• Health and Safety Legislation (mainly methods of preventing injury)</li> </ul> <p><u>Other crimes and implications for computer users</u></p> <ul style="list-style-type: none"> <li>• Pharming</li> <li>• Phishing</li> <li>• Ransomware</li> </ul>	