

Cambridge **TECHNICALS LEVEL 3**

**IT**

Unit 1 – Fundamentals of IT  
**DELIVERY GUIDE**

Version 1

Cambridge  
**TECHNICALS**  
**2016**

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# INTRODUCTION

This Delivery Guide has been developed to provide practitioners with a variety of creative and practical ideas to support the delivery of this qualification. The Guide is a collection of lesson ideas with associated activities, which you may find helpful as you plan your lessons.

OCR has collaborated with current practitioners to ensure that the ideas put forward in this Delivery Guide are practical, realistic and dynamic. The Guide is structured by learning outcome so you can see how each activity helps you cover the requirements of this unit.

We appreciate that practitioners are knowledgeable in relation to what works for them and their learners. Therefore, the resources we have produced should not restrict or impact on practitioners' creativity to deliver excellent learning opportunities.

Whether you are an experienced practitioner or new to the sector, we hope you find something in this guide which will help you to deliver excellent learning opportunities.

If you have any feedback on this Delivery Guide or suggestions for other resources you would like OCR to develop, please email [resources.feedback@ocr.org.uk](mailto:resources.feedback@ocr.org.uk).

## OPPORTUNITIES FOR ENGLISH AND MATHS SKILLS DEVELOPMENT AND WORK EXPERIENCE

We believe that being able to make good progress in English and maths is essential to learners in both of these contexts and on a range of learning programmes. To help you enable your learners to progress in these subjects, we have signposted opportunities for English and maths skills practice within this resource. We have also identified any potential work experience opportunities within the activities. These suggestions are for guidance only. They are not designed to replace your own subject knowledge and expertise in deciding what is most appropriate for your learners.



English



Maths



Work

### Please note

The timings for the suggested activities in this Delivery Guide **DO NOT** relate to the Guided Learning Hours (GLHs) for each unit.

Assessment guidance can be found within the Unit document available from [www.ocr.org.uk](http://www.ocr.org.uk).

The latest version of this Delivery Guide can be downloaded from the OCR website.

## UNIT AIM

A sound understanding of IT technologies and practices is essential for IT professionals. Information learnt in this unit will provide a solid foundation in the fundamentals of hardware, networks, software, the ethical use of computers and how business uses IT.

After completing this unit, the knowledge, skills and understanding you have developed will underpin your study for the additional units.

Knowledge gained in the study of this unit will also help prepare you for relevant industry qualifications such as CompTIA A+, CompTIA Mobility+ and Cisco IT Essentials.

### Unit 1 Fundamentals of IT

LO1	Understand computer hardware
LO2	Understand computer software
LO3	Understand business IT systems
LO4	Understand employability and communication skills used within an IT environment
LO5	Understand ethical and operational issues and threats to computer systems

To find out more about this qualification please go to: <http://www.ocr.org.uk/qualifications/cambridge-technicals-it-level-3-certificate-extended-certificate-introductory-diploma-foundation-diploma-diploma-05838-05842-2016-suite>

Cambridge  
TECHNICALS  
2016

### 2016 Suite

- New suite for first teaching September 2016
- Externally assessed content
- Eligible for Key Stage 5 performance points from 2018
- Designed to meet the DfE technical guidance

# RELATED ACTIVITIES

The Suggested Activities in this Delivery Guide listed below have also been related to other Cambridge Technicals in IT units/Learning Outcomes (LOs). This could help with delivery planning and enable learners to cover multiple parts of units.

This unit (Unit 1)	Title of suggested activity	Other units/LOs	
<b>LO1</b>	Computer hardware, components and connectivity methods Types of computer system Communications hardware Hardware troubleshooting Units of measurement Number systems Number conversion	Unit 1 Fundamentals of IT	LO2 Understand computer software
		Unit 4 Computer networks	LO1 Understand the concept of networks LO2 Be able to plan computer networks to meet client requirements LO3 Be able to present network solutions to clients LO4 Be able to plan maintenance activities for computer networks
		Unit 17 Internet of Everything	LO1 Understand what is meant by the Internet of Everything (IoE) LO2 Be able to repurpose technologies to extend the scope of the IoE LO3 Be able to present concept ideas for repurposed developments
		Unit 18 Computer systems – hardware	LO1 Understand the components of a computer system
		Unit 20 IT technical support	LO1 Understand the role of technical support LO2 Be able to diagnose faults and solutions for computer systems LO3 Be able to provide advice and guidance to specific customers
		Unit 21 Web design and prototyping	LO1 Understand the fundamentals of web design LO4 Be able to present the interactive website concept to an identified client
		Unit 22 Big Data analytics	LO1 Understand the scope of Big Data LO2 Be able to process Big Data for business purposes LO3 Be able to provide information resulting from processing Big Data
<b>LO2</b>	Types of software Application software, utility software and operating systems Communication methods Software troubleshooting Protocols	Unit 1 Fundamentals of IT	LO4 Understand employability and communication skills used in an IT environment
		Unit 4 Computer networks	LO1 Understand the concept of networks LO2 Be able to plan computer networks to meet client requirements LO3 Be able to present network solutions to clients LO4 Be able to plan maintenance activities for computer networks
		Unit 19 Computer systems – software	LO1 Understand different software installations and their purpose LO2 Be able to implement software installations and upgrades to meet specified user requirements LO3 Be able to conduct system maintenance using utility software
		Unit 20 IT technical support	LO1 Understand the role of technical support LO2 Be able to diagnose faults and solutions for computer systems LO3 Be able to provide advice and guidance to specific customers
		Unit 22 Big Data analytics	LO1 Understand the scope of Big Data LO2 Be able to process Big Data for business purposes LO3 Be able to provide information resulting from processing Big Data

This unit (Unit 1)	Title of suggested activity	Other units/LOs	
<b>LO3</b>	Types of servers Virtualisation Network characteristics Connectivity methods Business systems	Unit 4 Computer networks	LO1 Understand the concept of networks LO2 Be able to plan computer networks to meet client requirements LO3 Be able to present network solutions to clients LO4 Be able to plan maintenance activities for computer networks
		Unit 20 IT technical support	LO1 Understand the role of technical support LO2 Be able to diagnose faults and solutions for computer systems LO3 Be able to provide advice and guidance to specific customers
		Unit 22 Big Data analytics	LO1 Understand the scope of Big Data LO2 Be able to process Big Data for business purposes LO3 Be able to provide information resulting from processing Big Data
<b>LO4</b>	Communication skills Communication technology Personal attributes and job roles Ready for work Professional bodies Industry certification	Unit 4 Computer networks	LO1 Understand the concept of networks LO2 Be able to plan computer networks to meet client requirements LO3 Be able to present network solutions to clients LO4 Be able to plan maintenance activities for computer networks
		Unit 20 IT technical support	LO1 Understand the role of technical support LO2 Be able to diagnose faults and solutions for computer systems LO3 Be able to provide advice and guidance to specific customers
		Unit 21 Web design and prototyping	LO1 Understand the fundamentals of web design LO4 Be able to present the interactive website concept to an identified client
		Unit 22 Big Data analytics	LO1 Understand the scope of Big Data LO2 Be able to process Big Data for business purposes LO3 Be able to provide information resulting from processing Big Data
<b>LO5</b>	Ethical issues Operational issues Threats Digital security Safe disposal of data and computer equipment	Unit 2 Global information	LO4 Understand the legal and regulatory framework governing the storage and use of global information LO5 Understand the process flow of information
		Unit 3 Cyber security	LO3 Understand measures used to protect against cyber security incidents
		Unit 11 Systems analysis and design	LO2 Be able to use investigative techniques to establish requirements for business systems
		Unit 20 IT technical support	LO1 Understand the role of technical support LO2 Be able to diagnose faults and solutions for computer systems LO3 Be able to provide advice and guidance to specific customers
		Unit 22 Big Data analytics	LO1 Understand the scope of Big Data LO2 Be able to process Big Data for business purposes LO3 Be able to provide information resulting from processing Big Data

# KEY TERMS

## UNIT 1 – FUNDAMENTALS OF IT





### Explanations of the key terms used within this unit, in the context of this unit

Key term	Explanation
<b>Change management</b>	Change management is a systematic approach to dealing with change, both from the perspective of an organisation and on the individual level. <a href="http://searchcio.techtarget.com/definition/change-management">http://searchcio.techtarget.com/definition/change-management</a>
<b>Hybrid cloud</b>	Hybrid cloud is a cloud computing environment which uses a mix of on-premises, private cloud and public cloud services with orchestration between the two platforms. By allowing workloads to move between private and public clouds as computing needs and costs change, hybrid cloud gives businesses greater flexibility and more data deployment options. <a href="http://whatis.techtarget.com/definitions/H/page/7">http://whatis.techtarget.com/definitions/H/page/7</a>
<b>Hypervisor</b>	A hypervisor is a hardware virtualisation technique that allows multiple guest operating systems (OS) to run on a single host system at the same time. The guest OS shares the hardware of the host computer, such that each OS appears to have its own processor, memory and other hardware resources. A hypervisor is also known as a Virtual Machine Manager (VMM). <a href="http://www.techopedia.com/definition/4790/hypervisor">http://www.techopedia.com/definition/4790/hypervisor</a>
<b>Internet of Things</b>	The Internet of Things (IoT) is a computing concept that describes a future where everyday physical objects will be connected to the Internet and be able to identify themselves to other devices. <a href="http://www.techopedia.com/definition/28247/internet-of-things-iot">http://www.techopedia.com/definition/28247/internet-of-things-iot</a>
<b>Privacy filter</b>	A privacy filter is a panel or filter that is placed over a display to make it difficult or impossible for someone to see the screen without being directly in front of the display. <a href="http://www.computerhope.com/jargon/p/privfilt.htm">http://www.computerhope.com/jargon/p/privfilt.htm</a>
<b>RFID</b>	Radio-Frequency Identification (RFID) is a system used to track objects, people, or animals using tags that respond to radio waves. RFID tags are integrated circuits that include a small antenna. They are typically small enough that they are not easily noticeable and therefore can be placed on many types of objects. <a href="http://techterms.com/definition/rfid">http://techterms.com/definition/rfid</a>
<b>Social engineering</b>	Social engineering is a non-technical method of intrusion used by hackers that relies heavily on human interaction and often involves tricking people into breaking normal security procedures. <a href="http://searchsecurity.techtarget.com/definition/social-engineering">http://searchsecurity.techtarget.com/definition/social-engineering</a>
<b>VoIP</b>	Voice over Internet Protocol (VoIP) is a technology that allows telephone calls to be made over computer networks like the Internet. <a href="http://compnetworking.about.com/cs/voicefaxoverip/g/bldef_voip.htm">http://compnetworking.about.com/cs/voicefaxoverip/g/bldef_voip.htm</a>



# MISCONCEPTIONS

Some common misconceptions and guidance on how they could be overcome		
What is the misconception?	How can this be overcome?	Resources which could help
<b>Incorrect definitions of computer terms</b>	Look up definitions using Free On-line Dictionary Of Computing.	<a href="http://foldoc.org/">http://foldoc.org/</a>
<b>Computer hardware</b>	Computer hardware is the physical parts attached to a computer. For example, the monitor, mouse, keyboard.	
<b>Computer components</b>	Computer components are internal or built in elements that allow the computer to run. For example, processors, storage, power supply.	
<b>Virtualisation</b>	Virtualisation is creating logical resources from physical resources.	<a href="http://searchvirtualdatacentre.techtarget.co.uk/definition/Virtualisation">http://searchvirtualdatacentre.techtarget.co.uk/definition/Virtualisation</a>
<b>Ethical issues</b>	Ethical issues are required to create a moral and fair working environment. They cover the policies that need to be in place to avoid discrimination and promote a principled work ethic.	
<b>Operational issues</b>	Operational issues are required to promote consistency and continuity within a work environment.  In order to achieve this consideration needs to be given to: <ul style="list-style-type: none"><li>• Security of information</li><li>• Safeguarding against the physical loss of data</li><li>• Health and safety</li><li>• Legislative requirements</li><li>• Business Continuance Planning (BCP)</li><li>• Cost</li><li>• Impact.</li></ul>	

# SUGGESTED ACTIVITIES

LO No:	1		
LO Title:	Understand computer hardware		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Computer hardware, components and connectivity methods</b>  	<p>Learners could (using a media of their own choice or an app developer e.g. <a href="http://www.appsbar.com/">http://www.appsbar.com/</a>) create an informative app demonstrating computer hardware, components and connectivity methods. The tutor could use an old PC taken apart to show computer components.</p> <p>At the end of the activity the learners would have created a detailed app showing their understanding of computer hardware, components and connectivity methods.</p>	3 hours	Unit 1 LO2 Unit 4 LO1, LO2, LO3, LO4 Unit 17 LO1, LO2, LO3 Unit 18 LO1 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3
<b>Types of computer system</b>  	<p>Split learners into groups. Learners could identify the different types of computer systems and then give a fictitious scenario of how they are best used, stating its benefits and limitations. The groups can swap and share their work.</p> <p>At the end of the activity the learners would be able to identify the benefits and limitations of different computer systems and demonstrate a situation as to when that type of computer system would be best to use.</p>	1 hour	Unit 1 LO2 Unit 4 LO1, LO2, LO3, LO4 Unit 17 LO1, LO2, LO3 Unit 18 LO1 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3
<b>Communications hardware</b>  	<p>Learners could create a quiz to match the key words with the correct definitions. <a href="http://www.teach-ict.com/gcse_new/networks/hardware/miniweb/index.htm">http://www.teach-ict.com/gcse_new/networks/hardware/miniweb/index.htm</a></p> <p>Learners could use the web page <a href="http://www.teach-ict.com/gcse_new/networks/hardware/resources/NWB_SIM.swf">http://www.teach-ict.com/gcse_new/networks/hardware/resources/NWB_SIM.swf</a> to build a network.</p> <p>At the end of the activity the learners would understand the definitions of network key words and understand the requirements in order to build a network.</p>	1 hour	Unit 1 LO2 Unit 4 LO1, LO2, LO3, LO4 Unit 17 LO1, LO2, LO3 Unit 18 LO1 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3
<b>Hardware troubleshooting</b>  	<p>Start a discussion of hardware issues that learners have encountered. The tutor could ask learners how they resolved the issues. Learners could record the issues and how they were resolved. The tutor could ask learners what steps they would take next if they could not resolve the issue. The following resource contains helpful tips: <a href="http://www.gcflearnfree.org/computerbasics/15/print">http://www.gcflearnfree.org/computerbasics/15/print</a></p> <p>At the end of the activity the learners would have a comprehensive list of hardware issues and how to resolve them. They would also have a list of what steps could be taken if the issues cannot be resolved.</p>	1 hour	Unit 1 LO2 Unit 4 LO1, LO2, LO3, LO4 Unit 17 LO1, LO2, LO3 Unit 18 LO1 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3






Title of suggested activity	Suggested activities	Suggested timings	Also related to																																						
<b>Units of measurement</b>	<p>Tutors could engage learners by asking them to think about sizes of memory e.g. 8GB iPhone, 4GB USB memory stick and 32GB SD card and then consider what these have in common. Learners could investigate and record further units of measurement. The following website may be of use: <a href="http://www.t1shopper.com/tools/calculate/">http://www.t1shopper.com/tools/calculate/</a></p> <p>Learners could use a spreadsheet to record their findings for key measurements.</p> <p>Extension work could include what to call the units greater than a yottabyte.</p> <p> At the end of the activity the learners would have a comprehensive flat file of gadgets and their storage capacity.</p>	40 minutes	Unit 1 LO2 Unit 4 LO1, LO2, LO3, LO4 Unit 17 LO1, LO2, LO3 Unit 18 LO1 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3																																						
<b>Number systems</b>	<p>Learners could use this web page to look at number systems: <a href="http://code.tutsplus.com/articles/number-systems-an-introduction-to-binary-hexadecimal-and-more--active-10848">http://code.tutsplus.com/articles/number-systems-an-introduction-to-binary-hexadecimal-and-more--active-10848</a></p> <p>Tutors could follow up this introduction using ASCII.</p> <p> At the end of the activity the learners would have a comprehensive set of notes for different number bases and how binary is used to represent data.</p>	40 minutes	Unit 1 LO2 Unit 4 LO1, LO2, LO3, LO4 Unit 17 LO1, LO2, LO3 Unit 18 LO1 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3																																						
<b>Number conversion</b>	<p>Tutors could give learners examples of binary numbers and ask them to convert them into decimal and hexadecimal numbers.</p> <p><b>Example 1</b> Base 2 – binary</p> <table border="1" data-bbox="521 1034 1429 1118"> <tr> <td>128</td><td>64</td><td>32</td><td>16</td><td>8</td><td>4</td><td>2</td><td>1</td> </tr> <tr> <td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td> </tr> </table> <p>Convert to base 10 – decimal  <math>(32 \times 1) + (16 \times 1) + (4 \times 1) + (1 \times 1) = 32 + 16 + 4 + 1 = 53</math></p> <p>Convert to base 16 – hexadecimal            Split into two 4 bits</p> <table border="1" data-bbox="521 1289 1541 1374"> <tr> <td>8</td><td>4</td><td>2</td><td>1</td><td></td><td>8</td><td>4</td><td>2</td><td>1</td> </tr> <tr> <td>0</td><td>0</td><td>1</td><td>1</td><td></td><td>0</td><td>1</td><td>0</td><td>1</td> </tr> </table> <table border="1" data-bbox="521 1406 750 1490"> <tr> <td>16</td><td>1</td> </tr> <tr> <td>3</td><td>5</td> </tr> </table> <p>Check <math>(16 \times 3) + (1 \times 5) = 48 + 5 = 53</math></p>	128	64	32	16	8	4	2	1	0	0	1	1	0	1	0	1	8	4	2	1		8	4	2	1	0	0	1	1		0	1	0	1	16	1	3	5	30 minutes	Unit 1 LO2 Unit 4 LO1, LO2, LO3, LO4 Unit 17 LO1, LO2, LO3 Unit 18 LO1 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3
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Title of suggested activity	Suggested activities	Suggested timings	Also related to																																						
	<p><b>Example 2</b> Base 2 – binary</p> <table border="1" data-bbox="521 308 1429 392"> <tr> <td>128</td><td>64</td><td>32</td><td>16</td><td>8</td><td>4</td><td>2</td><td>1</td> </tr> <tr> <td>1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td> </tr> </table> <p>Convert to base 10 – decimal  <math>(128 \times 1) + (64 \times 1) + (16 \times 1) + (4 \times 1) = 128 + 64 + 16 + 4 = 212</math></p> <p>Convert to base 16 – hexadecimal  split into two 4 bits</p> <table border="1" data-bbox="521 587 1541 671"> <tr> <td>8</td><td>4</td><td>2</td><td>1</td><td></td><td>8</td><td>4</td><td>2</td><td>1</td> </tr> <tr> <td>1</td><td>1</td><td>0</td><td>1</td><td></td><td>0</td><td>1</td><td>0</td><td>0</td> </tr> </table> <table border="1" data-bbox="521 703 752 788"> <tr> <td>16</td><td>1</td> </tr> <tr> <td>D</td><td>4</td> </tr> </table> <p>Hexadecimal – 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F</p> <p>Check <math>(16 \times 13) + (1 \times 4) = 208 + 4 = 212</math></p> <p>At the end of the activity the learners would know how to convert binary to decimal and hexadecimal.</p>	128	64	32	16	8	4	2	1	1	1	0	1	0	1	0	0	8	4	2	1		8	4	2	1	1	1	0	1		0	1	0	0	16	1	D	4		
128	64	32	16	8	4	2	1																																		
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123

# SUGGESTED ACTIVITIES

LO No:	2		
LO Title:	Understand computer software		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Types of software</b>	<p>Split the learners into pairs. Assign a type of software to each pair. Ask each pair to create an animation based on their type of software. The animation should include the characteristics of the software type and its use.</p> <p>At the end of the activity the learners would have completed an animation on their specific type of software. This can be shared to the rest of the group.</p>	1.5 hours	Unit 1 LO4 Unit 4 LO1, LO2, LO3, LO4 Unit 19 LO1, LO2, LO3 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Application software, utility software, and operating systems</b>  See Lesson Element Application software, utility software, and operating systems	<p>Learners could research application software, utility software and operating systems, then make notes on which type of software is most suitable in different scenarios.</p> <p>At the end of the activity the learners would be able to state which type of software would be best to use in a number of different scenarios.</p>	1 hour	Unit 1 LO4 Unit 4 LO1, LO2, LO3, LO4 Unit 19 LO1, LO2, LO3 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Communication methods</b> 	<p>Tutors could ask learners to write down a list of electronic online communication methods that are used in business. Tutors could gather a collaborative list from learners. Learners could then rank the methods by popularity and state the purpose, advantages and disadvantages. The following resource may be helpful for learners: <a href="http://www.workplace-communication.com/types-electronic-communication.html">http://www.workplace-communication.com/types-electronic-communication.html</a></p> <p>At the end of the activity the learners would have a list of electronic online communication methods alongside their purpose, advantages and disadvantages.</p>	1 hour	Unit 1 LO4 Unit 4 LO1, LO2, LO3, LO4 Unit 19 LO1, LO2, LO3 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Software troubleshooting</b> 	<p>Start a discussion on software issues that learners have encountered. The tutor could ask learners how they resolved the issue. Learners could record the issues and how they were resolved. The tutor could then ask learners what further steps they would take if they could not resolve the issue. The following resource contains helpful tips: <a href="http://www.gcflearnfree.org/computerbasics/15/print">http://www.gcflearnfree.org/computerbasics/15/print</a></p> <p>At the end of the activity the learners would have a comprehensive list of software issues and how to resolve them. They would also have a comprehensive list of what steps could be taken if the issues cannot be resolved.</p>	1 hour	Unit 1 LO4 Unit 4 LO1, LO2, LO3, LO4 Unit 19 LO1, LO2, LO3 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3

Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Protocols</b>	<p>Ask learners for a definition of the word protocol.</p> <p>Ask learners why protocols (rules) are needed in their learning establishment. Introduce the concept of the need for protocols in computer systems. Split learners into pairs. Give each pair a protocol to research. Learners can then share the protocols with the rest of the group. Examples are available at: <a href="http://www.comptechdoc.org/independent/networking/protocol/protnet.html">http://www.comptechdoc.org/independent/networking/protocol/protnet.html</a>.</p> <p>At the end of the activity the learners would have compiled a list of commonly used protocols.</p>	1 hour	Unit 1 LO4 Unit 4 LO1, LO2, LO3, LO4 Unit 19 LO1, LO2, LO3 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3






# SUGGESTED ACTIVITIES



LO No:	3		
LO Title:	Understand business IT systems		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Types of servers</b>  	<p>Learners are given seven minutes to memorise different types of servers from the web page: <a href="http://www.buzzle.com/articles/different-types-of-servers.html">http://www.buzzle.com/articles/different-types-of-servers.html</a>. Learners are then asked to write down as many as they can remember in two minutes. The tutor could then ask learners to say how many types of server they can remember. The tutor could divide the class into groups dependent on how many servers were remembered. Each group is to then devise methods of learning more types of server. The group that remembers the most types could be asked to devise a diagrammatical revision method to help others remember the server types and research the Hypervisor. Tutors could run the two-minute test again to check progress.</p> <p>At the end of the activity the learners would have devised a method of recalling types of servers.</p>	1 hour	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Virtualisation</b>  	<p>Learners could prepare a presentation on the benefits and limitations of virtualisation to a fictitious business manager. The business manager is keen to allow his employees to work from home. Learners could conclude the presentation by stating if this is possible. A starting point is the web page: <a href="http://searchvirtualdatacentre.techtarget.co.uk/definition/Virtualisation">http://searchvirtualdatacentre.techtarget.co.uk/definition/Virtualisation</a>.</p> <p>At the end of the activity the learners would have created a presentation on the benefits and limitations of virtualisation.</p>	1 hour	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Network characteristics</b>  	<p>Each learner is given one type of network to develop into a revision aid. The revision aid should be A5 format:</p> <ul style="list-style-type: none"> <li>• Side one: Diagram of network</li> <li>• Side two: List of advantages and disadvantages.</li> </ul> <p>Learners can consolidate learning by sharing their network aid with the rest of the class.</p> <p>At the end of the activity the learners would have a learning aid based on a type of network to share with the rest of the group.</p>	1 hour	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3

Title of suggested activity	Suggested activities	Suggested timings	Also related to																																			
<p><b>Connectivity methods</b></p>	<p>Learners can complete a letter replacement quiz by researching the characteristics for each method. Rules: State the characteristics of each connectivity method. By changing one letter only move on to the next connectivity method.</p> <p><b>Connectivity method quiz</b> Identify the characteristics of each connectivity method by changing only one letter.</p> <table border="1" data-bbox="521 467 1592 676"> <thead> <tr> <th></th> <th>Characteristics</th> </tr> </thead> <tbody> <tr> <td>_AN</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>WAN</td> <td></td> </tr> </tbody> </table> <p>Quiz Answers</p> <table border="1" data-bbox="521 743 1592 952"> <thead> <tr> <th></th> <th>becomes</th> <th>Characteristics</th> </tr> </thead> <tbody> <tr> <td>_AN</td> <td>LAN</td> <td></td> </tr> <tr> <td>LAN</td> <td>MAN</td> <td></td> </tr> <tr> <td>MAN</td> <td>PAN</td> <td></td> </tr> <tr> <td>PAN</td> <td>WAN</td> <td></td> </tr> </tbody> </table> <p>At the end of the activity the learners would have a completed table listing the individual characteristics of LAN, MAN, PAN WAN.</p> <table border="1" data-bbox="521 1050 1592 1259"> <thead> <tr> <th></th> <th>Characteristics</th> </tr> </thead> <tbody> <tr> <td>LAN</td> <td></td> </tr> <tr> <td>MAN</td> <td></td> </tr> <tr> <td>PAN</td> <td></td> </tr> <tr> <td>WAN</td> <td></td> </tr> </tbody> </table>		Characteristics	_AN						WAN			becomes	Characteristics	_AN	LAN		LAN	MAN		MAN	PAN		PAN	WAN			Characteristics	LAN		MAN		PAN		WAN		1 hour	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
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<p><b>Business systems</b></p>	<p>Scenario: A local business manager is looking to invest in an IT system to help him make long-term business decisions and improve production. Learners could research and write a report to the business manager outlining the types of business systems available, stating the benefits and limitations of each.</p> <p>At the end of the activity the learners would have completed a report on the benefits and limitations of the different types of business systems: MIS, CRM, SOP.</p>	2 hours	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3																																			








# SUGGESTED ACTIVITIES

LO No:	4		
LO Title:	Understand employability and communication skills used within an IT environment		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Communication skills</b> 	<p>Individual learners could analyse their own communication skills by completing the quiz on the web page: <a href="http://www.skillsyouneed.com/ls/index.php/343479/">http://www.skillsyouneed.com/ls/index.php/343479/</a>.</p> <p>After analysing their own results, learners can discuss in pairs how to further develop their skills.</p> <p>At the end of the activity the learners would be able to identify their communication strengths and areas for further development.</p>	1 hour	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3
<b>Communication technology</b>  See Lesson Element Communication Technology	<p>Learners could research communication technologies and make notes in table format on which type of technology is most suitable in different scenarios.</p> <p>At the end of the activity the learners would have completed a table explaining which communication method is most suited to a given scenario.</p>	1 hour	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3
<b>Personal attributes and job roles</b> 	<p>Individual learners could analyse their own leadership style by completing the quiz on the web page: <a href="http://www.skillsyouneed.com/ls/index.php/325444/">http://www.skillsyouneed.com/ls/index.php/325444/</a>.</p> <p>By establishing their natural leadership style, learners could choose suitable IT job roles as described on the web page: <a href="http://www.computerhope.com/issues/ch000764.htm">http://www.computerhope.com/issues/ch000764.htm</a>.</p> <p>At the end of the activity the learners would be able to identify which type of IT job role is most suited to them.</p>	1 hour	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3
<b>Ready for work</b>  	<p>Learners could find an IT job vacancy online and prepare for interview. They will need to prepare a script of the questions they are likely to be asked and have answers prepared.</p> <p>Optional task: If time allows the learners could be invited to role-play the interview process with a partner.</p> <p>At the end of the activity the learners would have a greater understanding of the interview process and preparation required.</p>	1.5 hours	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3

Title of suggested activity	Suggested activities	Suggested timings	Also related to												
<b>Professional bodies</b>           	<p>Learners can use the two professional body web pages <a href="http://www.bcs.org/category/1">http://www.bcs.org/category/1</a> and <a href="http://www.ukita.co.uk/">http://www.ukita.co.uk/</a> to complete a summary table of the purpose, benefits and limitations of each professional body to its members and employers.</p> <p>At the end of the activity the learners would have completed a table comparing the benefits and limitations of BCS and UK IT Association.</p> <table border="1" data-bbox="521 470 1574 595"> <thead> <tr> <th></th> <th>Purpose</th> <th>Benefits</th> <th>Limitations</th> </tr> </thead> <tbody> <tr> <td>BCS</td> <td></td> <td></td> <td></td> </tr> <tr> <td>UK IT Association</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Purpose	Benefits	Limitations	BCS				UK IT Association				1 hour	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3
	Purpose	Benefits	Limitations												
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<b>Industry certification</b>           	<p>Split learners into two groups: Group 1 to research industry certifications and their benefits; Group 2 to research academic qualifications and their benefits. Set up a debate based on the motion 'Industry certification is better than a degree'. Group 1 should come up with valid arguments for the motion and Group 2 should come up with valid arguments against the motion. Tutors could video the debate.</p> <p>Optional task: Learners could research the motion 'Industry certification is better than a degree' on the internet. Are UK companies for or against the motion?</p> <p>At the end of the activity the learners would have an opinion on the pros and cons of both industrial certification and subject-based degrees.</p>	1–1.5 hours	Unit 4 LO1, LO2, LO3, LO4 Unit 20 LO1, LO2, LO3 Unit 21 LO1, LO4 Unit 22 LO1, LO2, LO3												



# SUGGESTED ACTIVITIES

LO No:	5		
LO Title:	Understand ethical and operational issues and threats to computer systems		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Ethical issues</b> 	Splitting the class into groups, each group could be instructed to focus on one particular ethical issue and research it. They could then be told to present their research to the rest of the class in the manner of their choice (a presentation, a role play, a TV-style interview/debate etc).	1–2 hours	Unit 2 LO4, LO5 Unit 3 LO3 Unit 11 LO2 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Operational issues</b> 	Learners could research the operational issues that face real businesses in relation to information. They could then be requested to create policies, strategies or procedures for a fictitious company which address the following specific aspects: security, health and safety, disaster planning, organisational issues, change management and scale of change.  Optional task: If time allows the learners could be invited to come to the front of the class and explain their document to the rest of the group, outlining its audience, purpose, approach to layout, the language used and the benefits it will bring to the organisation.	1.5–2 hours	Unit 2 LO4, LO5 Unit 3 LO3 Unit 11 LO2 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Threats</b>  See Lesson Element Threats and digital security	Learners can make notes about threats, using the web page: <a href="http://www.itscolumn.com/2012/03/28-types-of-computer-security-threats-and-risks/">http://www.itscolumn.com/2012/03/28-types-of-computer-security-threats-and-risks/</a>	1 hour	Unit 2 LO4, LO5 Unit 3 LO3 Unit 11 LO2 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Digital security</b>  See Lesson Element Threats and digital security	Learners make notes about digital security, using the web page: <a href="https://www.getsafeonline.org/to-make-notes">https://www.getsafeonline.org/to make notes.</a>	1 hour	Unit 2 LO4, LO5 Unit 3 LO3 Unit 11 LO2 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3
<b>Safe disposal of data and computer equipment</b> 	Individual learners could research and create an informative radio advert aimed at the general public to increase awareness of the importance of safe disposal of data and computer equipment.	1 hour	Unit 2 LO4, LO5 Unit 3 LO3 Unit 11 LO2 Unit 20 LO1, LO2, LO3 Unit 22 LO1, LO2, LO3



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