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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 and covers all the units within this pathway.

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 unit and learning outcome so you can see how each activity helps you cover the requirements of this unit.

We've also included some English and maths activities. **These are designed to demonstrate the importance of English and maths skills within real life job roles; and to help those learners who may be re-sitting their English or maths GCSE.**

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).

To find out more about this qualification, go to: <http://www.ocr.org.uk/qualifications/vocational-education-and-skills/cambridge-technicals-it-level-2-2016-suite/>

## 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.

This Delivery Guide **MUST NOT** be used directly for assessment purposes. It is intended to support the teaching and learning of the unit specified.

This pathway includes the following units:

Unit no.	Unit title	GLH	How are they assessed?
Unit 1	Essentials of IT	60	Examined by OCR
Unit 2	Essentials of cyber security	30	Examined by OCR
Unit 5	Creating business solutions	60	Internally by you, moderated by OCR
Unit 6	Participating in a project	30	Internally by you, moderated by OCR
Unit 7	Pitching the product	30	Internally by you, moderated by OCR
Unit 8	Using emerging technologies	30	Internally by you, moderated by OCR
Unit 16	Using social media channels for business	30	Internally by you, moderated by OCR
Unit 17	Using data analysis software	60	Internally by you, moderated by OCR
Unit 18	Creating visual business products	60	Internally by you, moderated by OCR

Delivery Guides for all the units listed above are available from: <http://www.ocr.org.uk/qualifications/vocational-education-and-skills/cambridge-technicals-it-level-2-2016-suite/>

## 2016 Level 2 Cambridge Technicals Suite

- New suite for first teaching September 2017
- Externally assessed content
- Student focused internal assessment rules
- Eligible for Key Stage 5 performance points from 2019
- OCR visiting moderation providing centre feedback and support
- Designed to meet the DfE technical guidance

Cambridge  
TECHNICALS  
2016

# UNIT AIM

The IT solutions that businesses use in the modern world are made up of many different component parts. These parts can include PCs, PCs that are linked together to form a network, devices and wearable technologies that are attached to the PC or the network via the cloud and the internet. These business solutions are designed to help businesses to operate.

This unit is the foundation for this qualification and it is designed give you the underpinning synoptic knowledge that will prepare you to study this suite of qualifications. It is a mandatory externally assessed unit for all sizes and pathways within the suite. You will learn about computer hardware and software. You will gain an understanding of how to perform hardware and software maintenance and how to keep safe while you perform these tasks. You will also learn about the benefits to you and businesses of using IT and the internet to help prepare you for a career in the Information Technology sector.

<http://www.ocr.org.uk/qualifications/vocational-education-and-skills/cambridge-technicals-it-level-2-2016-suite/>

<b>L01</b>	Know about hardware components
<b>L02</b>	Know about software components
<b>L03</b>	Know how to install and upgrade hardware and software
<b>L04</b>	Know about the use of the World Wide Web (WWW)
<b>L05</b>	Know about the benefits of using IT in business

# KEY TERMS

Explanations of the key terms used within this unit, in the context of this unit	
Key term	Explanation
Application software	<p>Applications, single examples of application software, are pieces of software that allow computer users to carry out certain tasks. Commonly used examples of application software include:</p> <ul style="list-style-type: none"> <li>• word processor applications</li> <li>• spreadsheet applications</li> <li>• database applications</li> <li>• web browsers</li> <li>• drawing packages</li> <li>• gaming applications.</li> </ul>
Device	A device is physical item that forms part of an IT system. Devices that you will already be familiar with are: keyboards, monitors, mice, graphics cards and printers. Common network devices are computers, servers, routers and Internet of Things items (e.g. IP Camera, Personal Video Recorder).
Embedded systems	An embedded system is one that is built in to other items; it is not a separate system (e.g. the system within a microwave that controls the inputs from the buttons and displays information on the output screen, as well as controlling the cooking process).
Emerging technologies	<p>Emerging technologies are the result of recent developments in IT, which have been used to produce products that did not exist before. These emerging technologies might be used in many sectors:</p> <ul style="list-style-type: none"> <li>• Business – artificial intelligence used to forecast stock market performances.</li> <li>• Medicine – smart heart monitors worn by patients.</li> <li>• Education – augmented reality used in educational games.</li> <li>• Leisure – wearable technology such as smart watches and fitness trackers.</li> </ul>
Network protocol	A network protocol is like a language used by devices to communicate on a network. A network device on a network needs to use the same protocol (language) as the other network devices that it needs to communicate with on that network. Just as there can be groups of people speaking different languages on an aircraft, there can be more than one protocol being used on a network at any one time.
Operating system	An operating system is the software that provides the person using the computer with a graphic user interface. The operating system also controls all of the devices, allowing the person to access these. Common examples are Windows, Mac OS, Android, iOS and Linux.
Peripherals	A peripheral is any piece of equipment that can be attached to a computer. Common examples are keyboard, mouse, monitor, printer, scanner and loudspeakers.
SATA	The SATA interface is used to connect hard drives, solid state drives and CD/DVD drives to a computer motherboard.
Topologies	Topologies are a way of describing the different ways that you can connect up the devices (e.g. computers, printers, servers etc.) on a network. Topologies are usually shown as diagrams. These topology diagrams show each device on the network, with lines drawn for each connection.
Utility software	<p>Utility software, are pieces of software that help keep a computer running efficiently and also help with data security. These include things like:</p> <ul style="list-style-type: none"> <li>• anti-virus tools</li> <li>• disk defragmenters</li> <li>• disk clean-up tools</li> <li>• data back-up tools</li> <li>• software firewalls.</li> </ul>

# KEY TERMS

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

VoIP	VoIP is short for Voice over Internet Protocol. VoIP allows you to make and receive voice calls and video calls over the Internet, instead of by using telephone lines. Lots of organisations use VoIP for their voice calls, as it can save them money. Many individuals use VoIP through applications and apps like Skype.
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# COMMON 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
The differences between an app and an application	In many ways apps and an application (i.e. a single piece of applications software) are very similar. They both allow users to carry out certain tasks. Generally, apps have more limited functionality and take up less storage space than a corresponding application. Apps, due to their smaller storage requirements, are mostly used on mobile devices like smart phones, smart TV's and tablets. Conversely, applications are usually used on computers and laptops, as these have more storage space. Having said this, there are many apps that are used on computers and laptops, such as weather apps, news apps etc.	
The relationship between the World Wide Web (WWW) and the Internet	<p>The Internet is a massive computer network spanning the World. The Internet is used to view webpages (via the World Wide Web), send emails, transfer files, stream music &amp; video and many more other things.</p> <p>The World Wide Web (WWW) is one of the systems that use the Internet. The WWW is accessed from a computer, tablet etc. using a Web Browser (e.g. Firefox, Chrome).</p>	<p>What's the difference between the Internet and the World Wide Web?</p> <p><a href="http://computer.howstuffworks.com/internet/basics/internet-versus-world-wide-web1.htm">http://computer.howstuffworks.com/internet/basics/internet-versus-world-wide-web1.htm</a></p>

# SUGGESTED ACTIVITIES

LO1 Know about hardware components			
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Storage options</b>	<p>Learners could be presented with a little information on all of the different storage types listed in section 1.1.6 of the Teaching Content (to include some of their typical uses and helpful characteristics).</p> <p>In small groups learners could discuss the storage components, and produce a list of questions that they have.</p> <p>Learners could develop their knowledge and understanding by carrying out research to find answers to their questions. Tutors could check for misunderstandings during the research.</p> <p>Learners, working individually, could present their research findings in a table, listing common uses or each storage type, plus some of their main characteristics.</p>	1 hour	Unit 3 LO3 Unit 9 LO2 Unit 11 LO2
	<p><b>Maths extension activity</b></p> <p>Learners could list a range of storage devices, i.e. CD, DVD, memory stick, hard drive, and calculate the number of files (e.g., a music video or a Powerpoint presentation) that were able to be stored on each. This information could be used to find the cost/storage ratio of the different devices. The results could be presented on charts or graphs to most easily compare. Results could also be compared amongst groups to see any similarities or differences and practicalities against costs compared.</p>	1 hour	
<b>Network protocols</b>	<p>Learners could begin by finding out, and recording, the extended form of the acronyms (e.g. IP = Internet Protocol) listed below:</p> <ul style="list-style-type: none"> <li>• TCP</li> <li>• IP</li> <li>• DHCP</li> <li>• HTTP</li> <li>• FTP</li> </ul> <p>Learners could also research definitions for each of these network protocols, plus Ethernet. Learners could save these definitions, as well as the extended acronyms, as a table.</p> <p>Finally, learners could determine the use of these different protocols, again recording this in the table.</p>	1 hour	Unit 12 LO1

# SUGGESTED ACTIVITIES

LO2 Know about software components			
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Types and functions of operating systems</b>	<p>Learners could begin by watching the three resources below.</p> <p>What is an Operating System as Fast As Possible  <a href="https://www.youtube.com/watch?v=pVzRTmdd9j0">https://www.youtube.com/watch?v=pVzRTmdd9j0</a></p> <p>Types of Operating Systems as Fast As Possible  <a href="https://www.youtube.com/watch?v=MR2ntdZW_A">https://www.youtube.com/watch?v=MR2ntdZW_A</a></p> <p>Operating systems  <a href="http://www.bbc.co.uk/schools/gcsebite/ict/software/4operatingsystemsrev1.shtml">http://www.bbc.co.uk/schools/gcsebite/ict/software/4operatingsystemsrev1.shtml</a></p> <p>Learners could take notes on the functions of operating systems (e.g. manage hardware devices; communicate with the user via the GUI; and execute application software).</p> <p>Tutors could provide learners with the list of operating systems from section 2.1.1 of the Teaching Content. Learners could find the uses of each operating system.</p>	50 minutes	Unit 3 LO3 Unit 3 LO4 Unit 9 LO3 Unit 9 LO4 Unit 14 LO2
<b>Functions of utility software</b>	<p>Tutors could begin by outlining the wide range of utility applications available on most operating systems, using a given OS as an example.</p> <p>Learners could investigate the functions of the following types of utility software:</p> <ul style="list-style-type: none"> <li>• system monitoring</li> <li>• backup tools</li> <li>• system upkeep</li> <li>• troubleshooting tools</li> <li>• formatting (e.g. preparation of hard drive, removal of all system files)</li> <li>• security.</li> </ul>	30 minutes	Unit 3 LO1

# SUGGESTED ACTIVITIES

LO3 Know how to install and upgrade hardware and software			
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Health and safety responsibilities</b>	<p>Tutors could emphasise that both individuals and organisations have a legal responsibility to maintain health and safety in the workplace.</p> <p>Tutors could provide learners with sections 3.1.2 and 3.1.3 of the Teaching Content.</p> <p>Learners could produce a leaflet giving examples of the individual and employer considerations around health and safety in the workplace.</p> <p>As an extension, learners could produce a poster, demonstrating the correct use of the personal safety equipment listed in section 3.1.3.a of the Teaching Content.</p>	<p>1 hour</p> <p>15 minutes</p>	<p>Unit 3 LO4</p> <p>Unit 9 LO1</p>
<b>Installation and upgrade procedures</b>	<p>Learners could develop an understanding of the general order of installation and upgrade procedures, plus the reasons for doing things in a given order. (e.g. confirming compatibility before implementing an installation or upgrade).</p> <p>Tutors could stress the importance of recording changes made to systems, whether that is part of installing or upgrading of new hardware or software.</p> <p>Learners could produce a list of the types of change information that should be recorded when alterations are made to an IT system.</p>	<p>30 minutes</p>	<p>Unit 9 LO1</p> <p>Unit 15 LO4</p>





# SUGGESTED ACTIVITIES

LO5 Know about the benefits of using IT in business			
Title of suggested activity	Suggested activities	Suggested timings	Also related to
<b>Bias in data collection</b>	Learners could describe the ways in which bias can be introduced in data collection.	30 minutes	Unit 17 LO1, LO3
	<p>Learners could differentiate between accidental bias and intentional bias.</p> <p>Bias in data  <a href="http://topdrawer.aamt.edu.au/Statistics/Good-teaching/Data-collection/Bias-in-data">http://topdrawer.aamt.edu.au/Statistics/Good-teaching/Data-collection/Bias-in-data</a></p> <p>Sources of bias: How data goes bad  <a href="https://www.youtube.com/watch?v=uDcb-Rkbrk8">https://www.youtube.com/watch?v=uDcb-Rkbrk8</a></p> <p><b>English extension activity</b>                      As part of their research using the sources given (see Activity 1), learners in small groups could detect different points of view, implicit meaning and bias. Learners could then take one or two examples per small group and clearly explain to the whole group how the example of bias works in the text.</p>	30 minutes	
<b>The advantages and disadvantages of using IT in support of business activities</b>	<p>Tutors could introduce this topic by explaining the advantages and disadvantages of using IT in support of business activities:</p> <ul style="list-style-type: none"> <li>• employee knowledge of software</li> <li>• compatibility issues.</li> </ul> <p>Learners could research real world cases, where this has happened. Tutors could assist learners in their web research, by answering learners' questions and making search term suggestions.</p> <p>Learners could produce a list of examples of the advantages and disadvantages of using IT in support of business activities. Learners could also suggest some solutions that could mitigate the disadvantages they have discovered through their research.</p>	1 hour	Unit 5 LO1 Unit 17 LO1 Unit 18 LO1

# RELATED ACTIVITIES

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

Unit 1	Title of suggested activity	Other units/LOs	
LO1	Storage options	Unit 3 Building IT systems	LO3 Be able to select the components for the designed IT systems
		Unit 9 Supporting IT functions	LO2 Be able to diagnose hardware faults
		Unit 11 IT hardware installation and upgrade	LO2 Be able to prepare for IT hardware installation and upgrade
	Network protocols	Unit 12 Creating a computer network	LO1 Know the components of computer networks
LO2	Types and functions of operating systems	Unit 3 Building IT systems	LO3 Be able to select the components for the designed IT systems
			LO4 Be able to build and configure IT systems to meet business needs
		Unit 9 Supporting IT functions	LO3 Be able to diagnose software faults
		LO4 Be able to recommend maintenance activities	
	Unit 14 Creating mobile applications for business	LO2 Be able to create mobile applications to meet business requirements	
	Functions of utility software	Unit 3 Building IT systems	LO1 Understand the role of IT technical support
LO3	Health and safety responsibilities	Unit 3 Building IT systems	LO4 Be able to build and configure IT systems to meet business needs
		Unit 9 Supporting IT functions	LO1 Understand how organisations use IT support
	Installation and upgrade procedures	Unit 9 Supporting IT functions	LO1 Understand how organisations use IT support
Unit 15 Games creation		LO4 Be able to recommend additional features for game designs	
LO4	Social media	Unit 13 Creating websites	LO2 Be able to review existing websites in relation to business needs
		Unit 16 Using social media channels for business	LO1 Know the social media channels used in business
	Medical, fitness and transport applications of emerging technology	Unit 8 Using emerging technologies	LO1 Know about technologies that are currently emerging
			LO3 Be able to reflect on future impacts of emerging technologies
LO5	Bias in data collection	Unit 17 Using data analysis software	LO1 Understand the data used by business
			LO3 Be able to use software to analyse data for business purposes
	The advantages and disadvantages of using IT in support of business activities	Unit 5 Creating business solutions	LO1 Understand the role of the digital business practitioner
		Unit 17 Using data analysis software	LO1 Understand the data used by business
		Unit 18 Creating visual business products	LO1 Know about creating visual products for business



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