

Cambridge **TECHNICALS LEVEL 3**

IT

Unit 24 – Enterprise computing
DELIVERY GUIDE

Version 2



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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.

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 activities suggested in this Delivery Guide **MUST NOT** be used for assessment purposes. 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. The latest version of this Delivery Guide can be downloaded from the OCR website.

UNIT AIM

Enterprise computing is sold to business users as an entire solution that can be applied broadly across an organisation and then further customised by users within each business function. This means the analytics, reporting, database management and other applications are standard across the system, whilst the application packages used and the data accessed in each business function will be different. In this sense, enterprise computing is a departure from finding single software solutions to specific business problems, such as inventory or accounting software. Instead, enterprise computing is intended to offer integrated solutions to these problems. Enterprise computing is a concept for software and hardware solutions designed to meet the needs of large global organisations.

This unit will require you to carry out research based on a scenario. Your research will incorporate the knowledge, skills and understanding that you have obtained within your selected pathway i.e. Digital Technician or Application Data Technician. You will be evaluating a global organisation and making recommendations on how enterprise computing could be used to support their business needs. Therefore, it is important that this unit is carried out synoptically when you have secured the relevant knowledge, skills and understanding from other units.

This unit is mandatory in both specialist pathways in the Level 3 Extended Diploma.

The activities within this teaching and learning resource must not be used for summative assessment purposes. As part of our teaching we expect support to be given to your learners; such support is not permissible for summative assessment and is likely to be considered malpractice.

Unit 24 Enterprise computing

LO1	Understand the concept of enterprise computing systems
LO2	Be able to investigate business requirements for an enterprise computer solution
LO3	Be able to develop enterprise computing solutions to meet business requirements
LO4	Be able to review the enterprise computing solutions with stakeholders

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>

**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 24)	Title of suggested activity	Other units/LOs	
LO1	Where is enterprise computing used? Requirements for an enterprise computing solution	Unit 1 Fundamentals of IT	LO1 Understand computer hardware LO2 Understand computer software LO3 Understand business IT systems
		Unit 2 Global information	LO1 Understand where information is held globally and how it is transmitted LO2 Understand the styles, classification and the management of global information LO3 Understand the use of global information and the benefits to individuals and organisations LO4 Understand the legal and regulatory framework governing the storage and use of global information LO5 Understand the process flow of information
		Unit 22 Big Data analytics	LO1 Understand the scope of Big Data
		Unit 23 Cognitive computing	LO1 Know how cognitive computing is used in business
	Security – threats, risks; their minimisation and prevention	Unit 1 Fundamentals of IT	LO5 Understand ethical and operational issues and threats to computer systems
		Unit 2 Global information	LO6 Understand the principles of information security
		Unit 3 Cyber security	LO1 Understand what is meant by cyber security LO2 Understand the issues surrounding cyber security LO3 Understand measures used to protect against cyber security incidents LO4 Understand how to manage cyber security incidents
	Central data storage	Unit 1 Fundamentals of IT	LO1 Understand computer hardware LO3 Understand business IT systems
		Unit 2 Global information	LO1 Understand where information is held globally and how it is transmitted
		Unit 4 Computer networks	LO1 Understand the concept of networks
		Unit 18 Computer systems – hardware	LO1 Understand the components of a computer system
		Unit CC Cloud technology	LO4 Understand the features of cloud storage
	Scalability, adaptability and accessibility	Unit 18 Computer systems – hardware	LO1 Understand the components of a computer system
		Unit 19 Computer systems – software	LO2 Be able to implement software installations and upgrades to meet specified user requirements
		Unit 20 IT technical support	LO1 Understand the role of technical support
		Unit 23 Cognitive computing	LO2 Be able to investigate opportunities for the positive application of cognitive computing
		Unit CC Cloud technology	LO1 Understand the characteristics and context of cloud technology and why it is used LO2 Understand the business benefits of cloud services

This unit (Unit 24)	Title of suggested activity	Other units/LOs	
LO2	Business requirements	Unit 1 Fundamentals of IT	LO3 Understand business IT systems
		Unit 2 Global information	LO1 Understand where information is held globally and how it is transmitted LO2 Understand the styles, classification and the management of global information LO3 Understand the use of global information and the benefits to individuals and organisations LO4 Understand the legal and regulatory framework governing the storage and use of global information LO5 Understand the process flow of information LO6 Understand the principles of information security
		Unit 3 Cyber security	LO1 Understand what is meant by cyber security LO2 Understand the issues surrounding cyber security LO3 Understand measures used to protect against cyber security incidents LO4 Understand how to manage cyber security incidents
		Unit 4 Computer networks	LO2 Be able to plan computer networks to meet client requirements
		Unit 5 Virtual and augmented reality	LO1 Understand virtual and augmented reality and how they may be used
		Unit 6 Application design	LO1 Understand how applications are designed LO2 Be able to investigate potential solutions for application developments
		Unit 7 Data analysis and design	LO1 Understand the purpose and stages of data analysis and design LO2 Be able to investigate client requirements for data analysis
		Unit 9 Product development	LO1 Understand the product development life cycle
		Unit 10 Business computing	LO2 Be able to capture and store data for analysis
		Unit 11 Systems analysis and design	LO1 Understand the role of systems analysis and design in relation to the systems development lifecycle LO2 Be able to use investigative techniques to establish requirements for business systems
		Unit 12 Mobile technology	LO1 Understand mobile technologies LO2 Be able to investigate how businesses use mobile technologies LO3 Be able to determine solutions for the use of mobile technologies
		Unit 13 Social media and digital marketing	LO1 Understand digital marketing LO2 Understand the use of social media in a business
		Unit 14 Software engineering for business	LO2 Be able to investigate business requirements for programming solutions
		Unit 15 Games design and prototyping	LO1 Understand the principles of games design and prototyping
		Unit 16 Developing a Smarter Planet	LO1 Understand what is meant by a Smarter Planet
		Unit 17 Internet of Everything	LO1 Understand what is meant by the Internet of Everything (IoE)
		Unit 18 Computer systems – hardware	LO1 Understand the components of a computer system LO2 Be able to propose a computer system for identified business requirements
		Unit 19 Computer systems – software	LO2 Be able to implement software installations and upgrades to meet specified user requirements
		Unit 20 IT technical support	LO1 Be able to diagnose faults and solutions for computer systems
		Unit 22 Big Data analytics	LO2 Be able to process Big Data for business purposes
Unit 23 Cognitive computing	LO2 Be able to investigate opportunities for the positive application of cognitive computing		

This unit (Unit 24)	Title of suggested activity	Other units/LOs	
LO2	Personalised user experience – the types of interface	Unit 1 Fundamentals of IT	LO1 Understand computer hardware LO2 Understand computer software LO3 Understand business IT systems
		Unit 2 Global information	LO1 Understand where information is held globally and how it is transmitted
		Unit 4 Computer networks	LO1 Understand the concept of networks LO2 Be able to plan computer networks to meet client requirements
		Unit 5 Virtual and augmented reality	LO1 Understand virtual and augmented reality and how they may be used
		Unit 6 Application design	LO1 Understand how applications are designed LO2 Be able to investigate potential solutions for application developments
		Unit 7 Data analysis and design	LO1 Understand the purpose and stages of data analysis and design LO2 Be able to investigate client requirements for data analysis
		Unit 9 Product development	LO1 Understand the product development life cycle LO2 Be able to capture and store data for analysis
		Unit 10 Business computing	LO1 Understand the role of systems analysis and design in relation to the systems development lifecycle
		Unit 11 Systems analysis and design	LO2 Be able to use investigative techniques to establish requirements for business systems
		Unit 14 Software engineering for business	LO2 Be able to investigate business requirements for programming solutions
		Unit 15 Games design and prototyping	LO1 Understand the principles of games design and prototyping
		Unit 18 Computer systems – hardware	LO1 Understand the components of a computer system LO2 Be able to propose a computer system for identified business requirements
		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
	Unit 21 Web design and prototyping	LO1 Understand the fundamentals of web design LO2 Be able to plan the development of an interactive website for an identified client	
	Unit 23 Cognitive computing	LO2 Be able to investigate opportunities for the positive application of cognitive computing	
	Personalised user experience – the audience window	Unit 1 Fundamentals of IT	LO1 Understand computer hardware LO2 Understand computer software LO3 Understand business IT systems
		Unit 2 Global information	LO1 Understand where information is held globally and how it is transmitted
		Unit 4 Computer networks	LO1 Understand the concept of networks LO2 Be able to plan computer networks to meet client requirements
		Unit 18 Computer systems – hardware	LO1 Understand the components of a computer system LO2 Be able to propose a computer system for identified business requirements
		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

This unit (Unit 24)	Title of suggested activity	Other units/LOs	
LO3	Outlining the scope	Unit 4 Computer networks	LO2 Be able to plan computer networks to meet client requirements LO4 Be able to plan maintenance activities for computer networks
		Unit 5 Virtual and augmented reality	LO2 Be able to design virtual and augmented reality resources
		Unit 6 Application design	LO3 Be able to generate designs for application solutions
		Unit 7 Data analysis and design	LO3 Be able to develop data design solutions to meet business requirements
		Unit 9 Product development	LO2 Be able to design products that meet identified client requirements LO3 Be able to implement and test products
		Unit 10 Business computing	LO3 Be able to use tools to edit and analyse data
		Unit 11 Systems analysis and design	LO3 Be able to develop and document models for business systems LO4 Be able to create logical and physical designs for specified business systems
		Unit 12 Mobile technology	LO3 Be able to determine solutions for the use of mobile technologies
		Unit 13 Social media and digital marketing	LO3 Be able to plan content and propose appropriate social media channels for digital marketing campaigns LO4 Be able to develop social media digital marketing campaigns
		Unit 14 Software engineering for business	LO3 Be able to develop software solutions to meet business requirements
		Unit 15 Games design and prototyping	LO2 Be able to develop game concepts LO3 Be able to develop game prototypes
		Unit 17 Internet of Everything	LO2 Be able to repurpose technologies to extend the scope of the IoT
		Unit 18 Computer systems – hardware	LO1 Understand the components of a computer system LO2 Be able to propose a computer system for identified business requirements
		Unit 20 IT technical support	LO1 Understand the role of technical support
		Unit 21 Web design and prototyping	LO1 Understand the fundamentals of web design LO2 Be able to plan the development of an interactive website for an identified client LO3 Be able to create prototype websites for an identified client
		Unit 22 Big Data analytics	LO2 Be able to process Big Data for business purposes LO3 Be able to provide information resulting from processing Big Data
		Unit 23 Cognitive computing	LO2 Be able to investigate opportunities for the positive application of cognitive computing LO3 Be able to generate business proposals for an identified application of cognitive computing
	Logical and physical designs	Unit 1 Fundamentals of IT	LO1 Understand computer hardware LO2 Understand computer software
		Unit 4 Computer networks	LO2 Be able to plan computer networks to meet client requirements LO4 Be able to plan maintenance activities for computer networks
		Unit 7 Data analysis and design	LO3 Be able to develop data design solutions to meet business requirements
Unit 8 Project management		LO3 Be able to execute projects	

This unit (Unit 24)	Title of suggested activity	Other units/LOs	
LO3	Business benefits	Unit 4 Computer networks	LO2 Be able to plan computer networks to meet client requirements LO4 Be able to plan maintenance activities for computer networks
		Unit 5 Virtual and augmented reality	LO2 Be able to design virtual and augmented reality resources
		Unit 6 Application design	LO3 Be able to generate designs for application solutions
		Unit 7 Data analysis and design	LO3 Be able to develop data design solutions to meet business requirements
		Unit 9 Product development	LO2 Be able to design products that meet identified client requirements LO3 Be able to implement and test products
		Unit 10 Business computing	LO3 Be able to use tools to edit and analyse data
		Unit 11 Systems analysis and design	LO3 Be able to develop and document models for business systems LO4 Be able to create logical and physical designs for specified business systems
		Unit 12 Mobile technology	LO3 Be able to determine solutions for the use of mobile technologies
		Unit 13 Social media and digital marketing	LO3 Be able to plan content and propose appropriate social media channels for digital marketing campaigns LO4 Be able to develop social media digital marketing campaigns
		Unit 14 Software engineering for business	LO3 Be able to develop software solutions to meet business requirements
		Unit 15 Games design and prototyping	LO2 Be able to develop game concepts LO3 Be able to develop game prototypes
		Unit 17 Internet of Everything	LO2 Be able to repurpose technologies to extend the scope of the IoT
		Unit 18 Computer systems – hardware	LO1 Understand the components of a computer system LO2 Be able to propose a computer system for identified business requirements
		Unit 20 IT technical support	LO1 Understand the role of technical support
		Unit 21 Web design and prototyping	LO1 Understand the fundamentals of web design LO2 Be able to plan the development of an interactive website for an identified client LO3 Be able to create prototype websites for an identified client
		Unit 22 Big Data analytics	LO2 Be able to process Big Data for business purposes LO3 Be able to provide information resulting from processing Big Data
	Unit 23 Cognitive computing	LO2 Be able to investigate opportunities for the positive application of cognitive computing LO3 Be able to generate business proposals for an identified application of cognitive computing	
	Security characteristics Securing the solution	Unit 1 Fundamentals of IT	LO5 Understand ethical and operational issues and threats to computer systems
		Unit 2 Global information	LO4 Understand the legal and regulatory framework governing the storage and use of global information LO6 Understand the principles of information security
		Unit 3 Cyber security	LO1 Understand what is meant by cyber security LO2 Understand the issues surrounding cyber security LO3 Understand measures used to protect against cyber security incidents
Unit 4 Computer networks		LO1 Understand the concept of networks LO2 Be able to plan computer networks to meet client requirements LO4 Be able to plan maintenance activities for computer networks	

This unit (Unit 24)	Title of suggested activity	Other units/LOs	
LO4	Considerations when proposing solutions Proposing solutions to stakeholders Evaluation techniques Evaluating the proposal	Unit 1 Fundamentals of IT	LO4 Understand employability and communication skills used in an IT environment
		Unit 4 Computer networks	LO3 Be able to present network solutions to clients
		Unit 5 Virtual and augmented reality	LO3 Be able to create a virtual or augmented reality resource LO4 Be able to predict future applications for virtual and augmented reality
		Unit 6 Application design	LO4 Be able to present application solutions to meet client and user requirements
		Unit 7 Data analysis and design	LO4 Be able to present data analysis and design solutions to stakeholders
		Unit 9 Product development	LO4 Be able to carry out acceptance testing with clients
		Unit 10 Business computing	LO4 Be able to present data analysis outcomes
		Unit 11 Systems analysis and design	LO4 Be able to create logical and physical designs for specified business systems
		Unit 12 Mobile technology	LO4 Be able to present solutions for the use of mobile technologies
		Unit 14 Software engineering for business	LO4 Be able to propose software solutions to meet business requirements
		Unit 15 Games design and prototyping	LO4 Be able to present and evaluate game concepts
		Unit 16 Developing a Smarter Planet	LO2 Be able to propose ways to extend the scope of the Smarter Planet LO3 Be able to present, refine and evaluate Smarter Planet concepts
		Unit 17 Internet of Everything	LO3 Be able to present concept ideas for repurposed developments
		Unit 18 Computer systems – hardware	LO2 Be able to propose a computer system for identified business requirements
		Unit 20 IT technical support	LO1 Understand the role of technical support
Unit 21 Web design and prototyping	LO4 Be able to present the interactive website concept to an identified client		
Unit 23 Cognitive computing	LO3 Be able to generate business proposals for an identified application of cognitive computing		

KEY TERMS

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

Key term	Explanation
Adaptability	The ability of a system, network or process to adapt to change in a fast and efficient manner.
Audience	The group of people for which a service or product is designed.
Built-in redundancies	Backup systems in place should a primary system fail e.g. second hard drive, power supply etc.
Business rules	A list of statements that informs whether something can or cannot be done, or the criteria and conditions for making decisions.
Enterprise computing	Business orientated technology which is critical to the operation of an organisation.
Global applications	Systems which can be implemented and used on a global scale.
Logical design	A graphical representation of a system showing the system's processes and the flow of data in and out of each process. Examples of logical designs include EAR (Entity-Attribute-Relationship diagrams), DFDs (Data Flow Diagrams).
Multi-layered access	A system with a number of levels of access depending on permissions.
Non-repudiation	Mechanism to ensure that a user's access and activity on a system cannot be disputed at a later date.
Outline scope	The outline of the combined objectives and requirements to complete a project.
Physical design	The hardware, software and implementation environment of a system.
Platform independence	Applications/software that are able to run in different operating environments i.e. can run on any hardware or software platform.
Scalability	The capability of a system, network or process to handle ever increasing amounts of work and maintain full functionality.
Software independence	Applications/software that are able to run on any software platform.
Sub-phase	A stage in the process of change or development.
Virtualisation	A virtual (simulated) version of a device or resource e.g. a server, desktop, operating system, file, storage or network.

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
End-users and users are the same thing	<p>Learners need to be provided with guidance with respect to the difference between the two. The following statement could be used:</p> <p>The end user is a person who uses the product after it has been fully developed and marketed. They require a bug-free and finished product. The user is a person who may use the same product for development purposes.</p>	<p>Organisation: TechTarget Resource Title: end user Web Link: http://whatis.techtarget.com/definition/end-user Description: Provides clarity for the term 'end user'.</p>
Interface means the user interface (what the user sees)	<p>An interface within IT and computing has more than one meaning. It can be:</p> <ul style="list-style-type: none"> • A user interface consisting of dials, knobs, operating system commands, graphical display formats and other devices provided by a computer or a program to allow the user to communicate and use the computer or program. A graphical user interface (GUI) is a user-friendly interface to a computer system. • A programming interface consisting of statements, functions, options and various other ways of expressing program instructions and data provided by a program or language for a programmer to use. • The physical and logical access supporting the attachment of a device to a connector or to another device. 	<p>Organisation: Webopedia Resource Title: interface Web Link: http://www.webopedia.com/TERM/I/interface.html Description: Gives a brief overview of the term 'interface' and also provides additional links to other forms of interface.</p>
Business rules and business requirements are the same	<p>Business rules are what can or cannot be done within a business or a set of criteria and conditions that must be used when making a decision. Business requirements are what needs to be done to enable the implementation of and compliance with a business rule.</p>	<p>Organisation: Business Rules Group Resource Title: Defining Business Rules ~ What Are They Really? Web Link: http://www.businessrulesgroup.org/first_paper/br01c3.htm Description: Provides guidance on business rules with a number of clear examples.</p>

SUGGESTED ACTIVITIES

LO No:	1		
LO Title:	Understand the concept of enterprise computing systems		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
Enterprise computing – a buzzword or reality	<p>Learners could carry out independent research to find information relating to enterprise computing. This could then lead to a group discussion on the results of their research facilitated by the tutor. The intention is for the group to agree on a definition for enterprise computing – what it is and most importantly the purpose of enterprise computing.</p> <p>The following slide presentation is a useful tool for tutors to use in the session in order for learners to gain a better understanding of enterprise computing:</p> <p>Organisation: SlideShare Resource Title: Enterprise Computing Web Link: http://www.slideshare.net/samudin/enterprise-computing-8474983</p>	1.5 hours	
Where is enterprise computing used?	<p>Enterprise computing has been around for a while and has already been implemented by many organisations. The tutor could facilitate a group discussion where learners could suggest business sectors that would benefit from using enterprise computing and identify any real-life examples. This could lead to the group answering the following questions:</p> <ul style="list-style-type: none"> • What is the sector? • What is the product and/or service they offer? • Where are their customers based (e.g. locally, nationally, internationally, globally)? • Why would the sector benefit from implementing enterprise computing? 	1.5 hours	Unit 1 LO1, LO2, LO3 Unit 2 LO1, LO2, LO3, LO4, LO5 Unit 22 LO1 Unit 23 LO1
Requirements for an enterprise computing solution	<p>The tutor could provide an overview of the requirements and purpose for enterprise computing based on the list within the Teaching Content. The tutor could select one of the examples discussed in the activity above and then facilitate a group discussion on what the requirements and purpose could be for the example based on list from the Teaching Content. For example, if it is agreed that the system implemented required built-in redundancies, what may these be and why would they be required? Learners could consider:</p> <ul style="list-style-type: none"> • high level of reliability and functionality • high level of accessibility • potential platform and software independence. 	2 hours	Unit 1 LO1, LO2, LO3 Unit 2 LO1, LO2, LO3, LO4, LO5 Unit 22 LO1 Unit 23 LO1
Security – threats, risks; their minimisation and prevention	<p>Learners could draw on their learning from Unit 3 Cyber security and, for the same example used in the activity above, consider what the potential risks and threats could be and why. They could then identify ways that these could be minimised and/or prevented. This could be conducted as an individual activity with the learners being required to produce a presentation with speaker notes on their thoughts and ideas.</p>	1.5 hours	Unit 1 LO5 Unit 2 LO6 Unit 3 LO1, LO2, LO3, LO4

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Central data storage	<p>Learners could be encouraged to think of a wide range of data storage options, drawing on their knowledge and understanding from Unit CC Cloud technology.</p> <p>The learners could work in small groups to discuss the types of central data storage that could be used, and the benefits and limitations of each. Each group could then present their decisions to the rest of the group. The tutor could then discuss with the group which option would be best suited for the example business sector selected for the activities above.</p>	1 hour	Unit 1 LO1, LO3 Unit 2 LO1 Unit 4 LO1 Unit 18 LO1 Unit CC LO4
Scalability, adaptability and accessibility	<p>Learners could research each of the terms 'scalability', 'adaptability' and 'accessibility' with regard to IT systems and prepare a definition for each. These definitions could be presented to the whole group for discussion and agreement on a final definition for each.</p> <p>The learners could then work independently to explain how scalability, adaptability and accessibility has been achieved within the example business sector used in the Requirements for an enterprise computing solution activity. This could then lead to a group discussion to obtain a consensus of opinion.</p>	1.5 hours	Unit 18 LO1 Unit 19 LO2 Unit 20 LO1 Unit 23 LO2 Unit CC LO1, LO2

SUGGESTED ACTIVITIES

LO No:	2		
LO Title:	Be able to investigate business requirements for an enterprise computer solution		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
Business requirements	<p>It is important that learners understand that, when developing any system or product, addressing the business requirements is key to the overall success of the project.</p> <p>Tutors could facilitate a group discussion where they consider one of the examples from the Where is enterprise computing used? activity in Learning Outcome 1. Learners could be asked to put forward their suggestions for:</p> <ul style="list-style-type: none"> • purpose • intended outcome • intended users. <p>At this point, it would be useful for the tutor to encourage the learners to think of the different ways that they could gather this information.</p> <p>Tutors could ask learners to view the following web page:</p> <p>Organisation: Mind Tools Ltd Resource Title: Business Requirements Analysis Web Link: https://www.mindtools.com/pages/article/newPPM_77.htm Description: This article provides clear steps and tips for identifying business requirements.</p>	1.5 hours	Unit 1 LO3 Unit 2 LO1, LO2, LO3, LO4, LO5, LO6 Unit 3 LO1, LO2, LO3, LO4 Unit 4 LO2 Unit 5 LO1 Unit 6 LO1, LO2 Unit 7 LO1, LO2 Unit 9 LO1 Unit 10 LO2 Unit 11 LO1, LO2 Unit 12 LO1, LO2, LO3 Unit 13 LO1, LO2 Unit 14 LO2 Unit 15 LO1 Unit 16 LO1 Unit 17 LO1 Unit 18 LO1, LO2 Unit 19 LO2 Unit 20 LO1 Unit 22 LO2 Unit 23 LO2
Personalised user experience – the users	<p>Learners need to understand that users can be based anywhere and could be internal and/or external to the business.</p> <p>Learners could be given a list of businesses (e.g. HSBC, Amazon, Facebook, Microsoft) and work in small groups to discuss who the users of each business may be and their location(s). Learners could make notes and use these to support discussions in the larger group.</p> <p>At this stage it is important that they understand the difference between 'end user' and 'user'.</p>	1.5 hours	

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Personalised user experience – the types of interface	<p>Tutors need to emphasise to the learners that different end users will be using different interfaces and this needs to be taken into consideration when analysing the business requirements and in particular the end user experience.</p> <p>Learners could be asked to review the following website as homework before this particular lesson:</p> <p>Organisation: webopedia Resource Title: interface Web Link: http://www.webopedia.com/TERM/I/interface.html Description: This gives a brief overview of the term 'interface' and also provides additional links to other forms of interface.</p> <p>Tutors could discuss the term 'interface' and what it means when considering enterprise computing solutions for businesses. As a group discussion the learners could discuss the different types of interface that different businesses would require. The learners could consider the examples of businesses used in the activity above.</p>	2 hours	Unit 1 LO1, LO2, LO3 Unit 2 LO1 Unit 4 LO1, LO2 Unit 5 LO1 Unit 6 LO1, LO2 Unit 7 LO1, LO2 Unit 9 LO1, LO2 Unit 10 LO1 Unit 11 LO2 Unit 14 LO2 Unit 15 LO1 Unit 18 LO1, LO2 Unit 19 LO1, LO2 Unit 21 LO1, LO2 Unit 23 LO2
Personalised user experience – the audience window	<p>Learners could work in small groups to prepare a presentation to deliver to the main group. The purpose of the presentation would be to present their ideas on what would be appropriate windows for each audience. Initially the learners would need to ensure that they identify each audience and then consider appropriate windows which will not duplicate systems or the effort required to capture the business rules.</p> <p>Tutors could also encourage learners to look at the following website to remind them of the term 'business rules':</p> <p>Organisation: Business Rules Group Resource Title: Defining Business Rules ~ What Are They Really? Web Link: http://www.businessrulesgroup.org/first_paper/br01c3.htm Description: Provides guidance on business rules with a number of clear examples.</p>	1.5 hours	Unit 1 LO1, LO2, LO3 Unit 2 LO1 Unit 4 LO1, LO2 Unit 18 LO1, LO2 Unit 19 LO1, LO2
How to investigate business requirements	<p>Tutors could lead a group discussion where learners reflect on how they have investigated business/client requirements throughout the qualification in order to pitch their designs, prototypes and products to the client. They could be asked to consider the following:</p> <ul style="list-style-type: none"> • The methods they would use for gathering information. • Any significant differences between investigating business requirements for an individual product compared to an enterprise computing solution. 	1 hour	

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Documenting the business requirements	<p>Learners need to understand that as well as investigating the business requirements, they will need to document the outcomes of their investigations and that this document will feed into the scope documentation.</p> <p>Learners could be asked to read the information on the following websites:</p> <p>Organisation: Requirements Network Resource Title: How to Write a Business Requirements Document Web Link: http://www.requirementsnetwork.com/documents.htm Description: Provides a good overview of the key elements within a business requirements document.</p> <p>Organisation: TechWhirl Resource Title: Business Requirements Document: BRD Template Web Link: http://techwhirl.com/business-requirements-document-brd-template/ Description: Provides a Word template document for downloading to help document business requirements.</p>	1 hour	

SUGGESTED ACTIVITIES

LO No:	3		
LO Title:	Be able to develop enterprise computing solutions to meet business requirements		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
Outlining the scope	<p>Tutors could lead a discussion on what 'outline scope' actually means. The following list could be included in the outline scope and the tutor could ask learners to provide explanations for each item and why it is important:</p> <ul style="list-style-type: none"> • objectives • goals • sub-phases • tasks • resources • budget • schedule • advantages/benefits • disadvantages/limitations. 	2 hours	Unit 4 LO2, LO4 Unit 5 LO2 Unit 6 LO3 Unit 7 LO3 Unit 9 LO2, LO3 Unit 10 LO3 Unit 11 LO3, LO4 Unit 12 LO3 Unit 13 LO3, LO4 Unit 14 LO3 Unit 15 LO2, LO3 Unit 17 LO2 Unit 18 LO1, LO2 Unit 20 LO1 Unit 21 LO1, LO2, LO3 Unit 22 LO2, LO3 Unit 23 LO2, LO3

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Logical and physical designs	<p>All learners, irrespective of pathway, should understand the terms 'logical design' and 'physical design'.</p> <p>Learners could work in small groups to prepare a presentation which explains the terms 'logical design' and 'physical design'. In addition, they could include an explanation of the following considerations.</p> <p>Logical design:</p> <ul style="list-style-type: none"> • platform independent • inputs • outputs • processes • data. <p>Physical design:</p> <ul style="list-style-type: none"> • platform dependent • hardware • software • implementation environment. <p>Each group could then present to the whole group followed by a discussion to agree the final definitions and explanations.</p>	2 hours	Unit 1 LO1, LO2 Unit 4 LO2, LO4 Unit 7 LO3 Unit 8 LO3
Business benefits	<p>Tutors could lead a group discussion on the following business benefits i.e. what they are, what they mean, how they can be achieved:</p> <ul style="list-style-type: none"> • operational efficiency • systems utilisation • greener computing • reduction in production time • increased productivity • reduced operational cost • enables growth and supports the competitive market • improved customer satisfaction. <p>For the business examples used in previous activities (e.g. HSBC, Amazon, Microsoft), the tutor could encourage the learners to discuss how they think one or more of the above business benefits has been achieved.</p>	1.5 hours	Unit 4 LO2, LO4 Unit 5 LO2 Unit 6 LO3 Unit 7 LO3 Unit 9 LO2, LO3 Unit 10 LO3 Unit 11 LO3, LO4 Unit 12 LO3 Unit 13 LO3, LO4 Unit 14 LO3 Unit 15 LO2, LO3 Unit 17 LO2 Unit 18 LO1, LO2 Unit 20 LO1 Unit 21 LO1, LO2, LO3 Unit 22 LO2, LO3 Unit 23 LO2, LO3

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Preparing the scope	<p>Learners could be given a scenario about the potential for developing an enterprise computing solution. For example:</p> <p>An organisation that produces custom designed window shutters wants to expand its business into Europe and the USA. It has an e-Commerce website and home-based advisors who visit potential customers to provide quotes based on initial measurements that they take whilst with the customer. The information is fed into the main system via a tablet. The advisors also take a 50% deposit from the customer which is paid via debit or credit card using bespoke software on their tablet. There are fitters who also visit the customers to ensure that the measurements are accurate prior to the order being made. These are also fed into the main system via a tablet. The order then goes to the workshop where the shutters are produced. At this stage, the customer service team agree a completion date for production, obtain fitter availability dates and contact the customers via telephone to agree an installation date. Once the shutters have been installed and accepted by the customer, the customer service team then invoice the customer for the balance of the payment.</p> <p>Learners could be asked to investigate the business requirements and produce the following:</p> <ul style="list-style-type: none"> • an outline scope • logical or physical designs (depending on the pathway they have studied) • a report on the business benefits of the proposal. 	3 hours	
Security characteristics	<p>The tutor could lead a group discussion in relation to the following security characteristics:</p> <ul style="list-style-type: none"> • authentication • access control for sensitive resources • data integrity • data privacy • non-repudiation • auditing. <p>Learners need to understand what these characteristics mean and how they could be controlled when designing an enterprise computing solution. Reference to Unit 3 Cyber security as well as Units 1 and 2 could help learners to identify ways that these characteristics can be maintained.</p>	2 hours	Unit 1 LO5 Unit 2 LO4, LO6 Unit 3 LO1, LO2, LO3 Unit 4 LO1, LO2, LO4
Securing the solution	<p>Learners could use the scenario in the Preparing the scope activity above to provide a report on how the proposed enterprise computing solution could meet the security characteristics discussed in the Security characteristics activity. They could be asked to identify where a breach could occur within the system and then how this could be prevented or minimised.</p>	2 hours	Unit 1 LO5 Unit 2 LO4, LO6 Unit 3 LO1, LO2, LO3 Unit 4 LO1, LO2, LO4

SUGGESTED ACTIVITIES

LO No:	4		
LO Title:	Be able to review the enterprise computing solutions with stakeholders		
Title of suggested activity	Suggested activities	Suggested timings	Also related to
Considerations when proposing solutions	<p>Learners may have had experience of presenting their designs, prototypes, solutions and/or products throughout their study of the qualification. Tutors could facilitate a group discussion where learners are encouraged to reflect on what they needed to take into consideration when making their presentations to stakeholders. The tutor could start the discussions by using the following points:</p> <ul style="list-style-type: none"> • Does it reflect all aspects of the design? • Does it meet business needs? • Is it understood by the audience? • What is the format of the presentation? 	1 hour	Unit 1 LO4 Unit 4 LO3 Unit 5 LO3, LO4 Unit 6 LO4 Unit 7 LO4 Unit 9 LO4 Unit 10 LO4 Unit 11 LO4 Unit 12 LO4 Unit 14 LO4 Unit 15 LO4 Unit 16 LO2, LO3 Unit 17 LO3 Unit 18 LO2 Unit 20 LO1 Unit 21 LO4 Unit 23 LO3
Proposing solutions to stakeholders	<p>Learners could prepare a presentation (with speaker's notes if they are not going to actually make the presentation) to demonstrate their proposed enterprise computing solution for the scenario they worked on in Learning Outcome 3.</p>	1.5 hours	Unit 1 LO4 Unit 4 LO3 Unit 5 LO3, LO4 Unit 6 LO4 Unit 7 LO4 Unit 9 LO4 Unit 10 LO4 Unit 11 LO4 Unit 12 LO4 Unit 14 LO4 Unit 15 LO4 Unit 16 LO2, LO3 Unit 17 LO3 Unit 18 LO2 Unit 20 LO1 Unit 21 LO4 Unit 23 LO3

Title of suggested activity	Suggested activities	Suggested timings	Also related to
What the stakeholders want...	<p>Learners need to understand that they have to not only meet the needs of the business, but they also need to appease the stakeholders. They have to understand that stakeholders may ask for additional requirements and they have to consider where these can be met effectively within their proposed solution and the impact it has on other aspects of the solution. If the additional requirement(s) would have a negative impact on the overall proposed solution, how would learners broach this with stakeholders? Could they provide alternative options?</p> <p>The tutor could identify potential additions to one of the proposals made by learners and as a group ask them to discuss what their response would be, why and what they would do e.g. refine their proposal, provide alternative options to the stakeholders.</p>	1 hour	
Evaluation techniques	<p>Learners could review the guidance from the other Units in the qualification where they were required to evaluate their designs/products.</p> <p>The learners could be asked to explain how they would evaluate the following:</p> <ul style="list-style-type: none"> • Did they meet business requirements? • Was the project achievable? • Was the project manageable? • Was the project extendable? • Was the project secure? • Was the project customisable? • Did the project enable user personalisation? <p>Learners may find the following link useful: Organisation: IGCSE ICT Resource Title: What Does an Evaluation Look For? Web Link: http://www.igcseict.info/theory/8/eval/</p>	1 hour	Unit 1 LO4 Unit 4 LO3 Unit 5 LO3, LO4 Unit 6 LO4 Unit 7 LO4 Unit 9 LO4 Unit 10 LO4 Unit 11 LO4 Unit 12 LO4 Unit 14 LO4 Unit 15 LO4 Unit 16 LO2, LO3 Unit 17 LO3 Unit 18 LO2 Unit 20 LO1 Unit 21 LO4 Unit 23 LO3

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Evaluating the proposal	Using the scenario learners have been working on in previous activities, they could carry out an evaluation of their proposal against the original business requirements. They could be asked to present it as a formal report or a presentation.	2 hours	Unit 1 LO4 Unit 4 LO3 Unit 5 LO3, LO4 Unit 6 LO4 Unit 7 LO4 Unit 9 LO4 Unit 10 LO4 Unit 11 LO4 Unit 12 LO4 Unit 14 LO4 Unit 15 LO4 Unit 16 LO2, LO3 Unit 17 LO3 Unit 18 LO2 Unit 20 LO1 Unit 21 LO4 Unit 23 LO3



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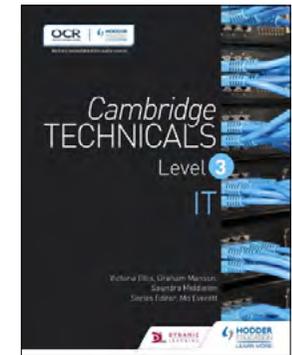
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