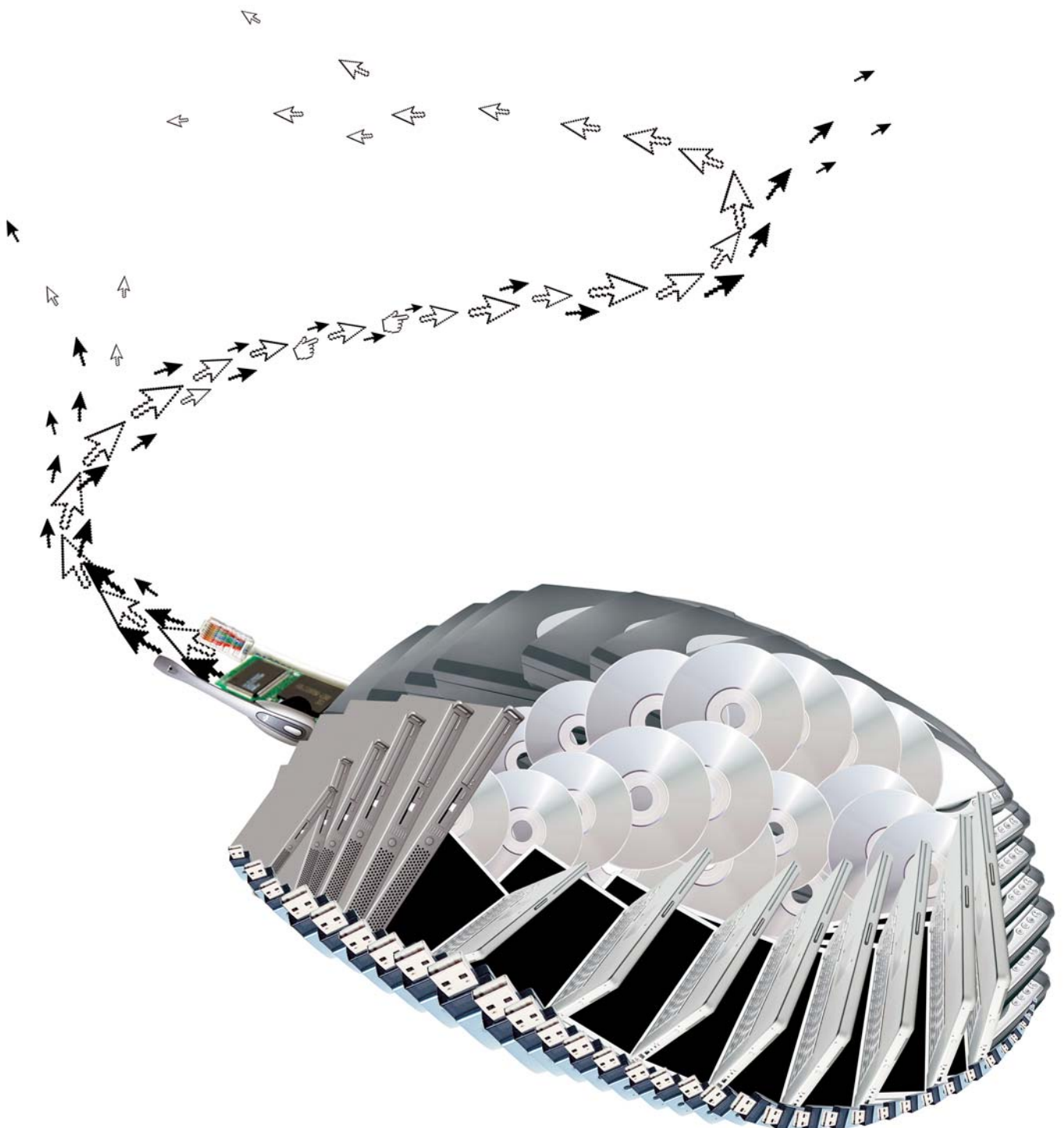


IT

Unit 7: Managing technology systems



IT

Level 3 Unit 7: Managing technology systems

Sample scheme of work

This is an example of a possible scheme of work. You can use it as it is, adjust it or extract content to create a scheme of work to suit your delivery needs. It can also be adjusted by adding theory workshops to support learners who have/need additional learning time.

Total GLH	60
Aim	<p>The purpose of this unit is to develop learners' understanding of both the principles and the practical aspects of managing technology within the business environment. The learner will:</p> <ul style="list-style-type: none"> • know the techniques used for managing the availability, capacity planning and security of technology-enabled systems in business organisations according to the service level requirements • be able to configure a small-scale system for business use, including mobile and fixed line communications, networking and security • be able to take precautions to secure technology-enabled business systems from threats; to manage incidents, reporting and recovery; and to assess the impact of, and address problems in, technology-enabled business systems • understand the principles of effective change management for technology systems, and be able to select, plan, implement, manage and test changes to technology-enabled business systems.
Notes	<p>This unit will be externally assessed by an examination set and marked by AQA–City and Guilds. The examination will last two hours and will consist of questions based on preliminary case study materials, which will be published on www.diplomainfo.org.uk at the beginning of the academic year. You may wish to refer to these materials as you teach the unit.</p> <p>The materials will include tasks that have to be completed prior to the examination. The AQA specimen materials, which have been used extensively in this scheme, can be downloaded from www.diplomainfo.org.uk/IT-external-SAMs.asp</p> <p>Past papers are available to buy from http://shop.aqa.org.uk</p> <p>This unit contains some practical requirements, and learners will need to spend some periods of time in an</p>

	<p>environment that allows a level of safe hands-on experience working with hardware, software and communication technologies. They will need to be able to try things out, problem-solve and practise various skills as required by the preliminary tasks.</p> <p>Suggested learning resources:</p> <ul style="list-style-type: none"> • Daily newspapers with specialised sections relating to digital technology • A variety of industry-standard hardware components to allow them to create technology systems. Learners should be able to create both server and client workstations. In addition, networking architecture elements, eg wired/wireless connections, hubs/switches and routers will need to be available. • A variety of industry-standard software applications – both operating systems and application software. In addition, a variety of security applications such as anti-virus, anti-spam and email filtering software will need to be available. • Information relating to the IT Infrastructure Library (ITIL®) from the UK Office of Government Commerce (OGC): www.itil-officialsite.com/home/home.asp <p>Under FS (functional skills):</p> <p>* indicates opportunities for assessment in English of speaking and listening and/or written communication + indicates opportunities for use of functional mathematics</p>
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Topic	Activities, assignments, assessments, resources	LO and AC	PLTS	FS	GLH	Other comments
1 Introduction to the unit and assessment method	<p>Present an overview of unit content, assessment, learning outcomes and expectations of learners.</p> <p>Provide a first look at the preliminary material for the examination to see what the unit entails.</p>	All			1	This unit can follow on from Unit 3.
2 Network theory	<p>Present an overview or introduction to network theory, including:</p> <ul style="list-style-type: none"> • WAN LAN • Topologies • Fixed, mobile, wireless • Methods of connection • Routers, hubs, switches • Cables • Servers • Connectivity to other external systems or data, eg over the public telecommunications network • Security • Internet access methods • Sharing files and software • Licensing • Backup <p>There are many useful textbooks on this topic and www.wikipedia.org covers it well, but the latest information can often be obtained from websites selling network components.</p>	AC2a AC3a			2	

<p>3 Dealing with common problems in technology-enabled business systems</p>	<p>Conduct a class session to identify common problems with IT systems, such as:</p> <ul style="list-style-type: none"> • software failures ('bugs') – in purchased and in-house created software systems • hardware problems • viruses, Trojans and worms • spam • user errors. <p>See page 92 of the specification.</p> <p>Throughout this unit, learners should keep an IT problem log of any problems they encounter in school/college or at home, and how the problems were solved. This could be word processed, in the form of a blog, or an audio or video diary.</p> <p>See pages 94–95 of the specification for further guidance.</p>	AC4e	RL		2	
<p>4 Practice task 1</p>	<p>Introduce the specimen preliminary materials.</p> <p>Arrange a visit to a similar organisation, in order to help learners gain a deeper understanding of the business involved, and the technology that may be in use.</p> <p>Conduct whole class or group sessions and activities to ensure learners understand the scenario.</p> <p>In a class session look at task 1 and brainstorm ideas for what should be included in the network design.</p>	AC2a	CT	*	2	

<p>5 Practical task: designing a network for the current staff of Teknografix Ltd</p>	<p>Learners, individually or in groups, should create a design for the network according to Task 1 in the specimen preliminary materials.</p> <p>Allocate groups, compare designs and discuss any differences, then finalise designs within each group. The teacher should provide guidance and feedback.</p> <p>Learners must keep their designs for use in the specimen practice exam.</p>	<p>AC2a</p>	<p>CT TW</p>		<p>2</p>	
<p>6 Practical task: setting up a network</p>	<p>In small groups, learners should set up a simple network in the classroom for Teknografix Ltd.</p> <p>Learners must make notes on how they did this task, and keep them for use in the specimen practice exam.</p> <p>Learners should update their IT problem logs.</p>	<p>AC2a</p>	<p>TW EP RL</p>		<p>2</p>	
<p>7 Configuring a network</p>	<p>Present an overview of configuring a network: What does configuration mean? Why is configuration necessary? How do we configure a network? Demonstrate this to the class.</p> <p>In small groups, learners must configure the network they have set up for Teknografix Ltd, including measures to ensure the logical and physical security of the system such as:</p> <ul style="list-style-type: none"> • downloading and updating a free anti-virus program • anti malware programs • setting email filters. <p>Learners must make notes on how they did this task, and keep them for use in the specimen practice exam.</p> <p>Learners should update their IT problem logs.</p>	<p>AC2a AC3a</p>	<p>TW RL EP</p>		<p>2</p>	

8 Connecting devices	<p>Learners must be able to connect other devices such as a printer, a scanner, a video camera, using the appropriate connectors.</p> <p>Learners must make notes on how they did this task, and keep them for use in the specimen practice exam.</p> <p>Learners should update their IT problem logs.</p>	AC2a			1	
9 Testing and problem solving	<p>Learners must write a test plan to test all aspects of the network, including connectivity, file sharing and printer sharing. They should then carry out and record the results of all the tests.</p> <p>Conduct a class session to discuss any problems that may have arisen or could arise.</p> <p>In addition, the teacher could engineer some problems with the networks the groups have created and challenge learners to deal with them in a professional way.</p> <p>Role play could also be used here and videos on YouTube or TeacherTube may be available to illustrate certain points.</p> <p>See pages 94–95 of the specification for further guidance.</p> <p>Learners must write a trouble-shooting guide for a user of the system.</p> <p>Learners should update their IT problem logs.</p>	AC2a AC3b AC4e	EP TW CT RL SM	*	4	
10 System availability	<p>Present an overview to include:</p> <ul style="list-style-type: none"> • What is meant by system availability as related to technology-enabled systems • What causes unavailability – unexpected problems and planned upgrades, etc (see examples on page 92 of the specification) • The consequences if systems become unavailable, eg loss of business, impact on brand and share price, business failure <p>There are many examples in the news, and learners could investigate problems and consequences.</p>	AC1a, b	IE		1	

<p>11 Incident management and reporting techniques</p>	<p>Using real life examples, look at how faults are reported, logged and dealt with in learners' own school/college.</p> <ul style="list-style-type: none"> • What kinds of faults occur? • Which are the most common? • How are priorities set? • How do they communicate with users? • How do they ensure that problems have been resolved to the satisfaction of users? <p>Relate these issues to the learners' own experiences but could also survey other users.</p> <p>Learners must write a report on their findings and recommend improvements to the system.</p>	<p>AC3c AC4e</p>	<p>IE RL CT</p>	<p>*</p>	<p>2</p>	
<p>12 Documentation and communication when service levels are not achieved</p>	<p>Discuss the following issues:</p> <ul style="list-style-type: none"> • What happens when a system fails? • The need to keep a log of system failures and action taken • Informing users of system problems • Communication media and style • Who else needs to be informed? <p>This could be covered by one or more case studies, including a role play activity. Groups could work on different scenarios and present to the whole class.</p>	<p>AC1f, g AC4e</p>	<p>IE RL CT</p>	<p>*</p>	<p>2</p>	

<p>13 Service level requirements as related to technology-enabled systems</p>	<p>Give an introduction to ways of maintaining service:</p> <ul style="list-style-type: none"> • Methods used by businesses to maintain required service levels (see examples on page 92–93 of the specification) • Who undertakes to provide the service? • Service level agreements • In-house versus outsourcing • Monitoring and management of service level agreements <p>Videos on 'IT service management' can be found on www.youtube.com or www.teachertube.com</p>	AC1a–c, e			1	
<p>14 Role and responsibilities of the systems/service manager in large, complex organisations</p>	<p>Learners should write a job description for a systems/service manager in a large, complex organisation, including the key technical and interpersonal skills needed to manage the service effectively.</p> <p>A useful overview of ITIL and BS15000 and ISO20000 is on www.bcs.org/server.php?show=ConWebDoc.19886 or www.askthefox.biz/asp/Frames_Set.asp?go2=BS15000%20Overview</p>	AC1e	IE	*	1	
<p>15 Disaster recovery plans</p>	<p>Present an overview of disaster recovery plans:</p> <ul style="list-style-type: none"> • What disasters may cause system outage or destruction (fire, flood, malicious action, accidental overwriting or destruction of data, etc) • Examples of organisations that have recovered from disasters such as the New Orleans flood, 9/11, etc • Statistics are available to show that having a plan dramatically improves chances of recovery • Look at risks, likelihood of disaster happening and cost of measures to recover <p>Learners must investigate disaster recovery companies on the internet.</p> <p>Learners should study different disaster recovery plans and decide which would be appropriate for different types of organisation.</p>	AC3d	IE	*	2	

16 Capacity planning	<p>Introduce the need for capacity planning for technology-enabled business systems, to ensure current and future business requirements and service level agreements (SLAs) are met for:</p> <ul style="list-style-type: none"> • initial installation and implementation including peak volumes • later expansion. <p>See page 94 of specification.</p> <p>Examples where problems have arisen could include selling tickets for big sports events or concerts, Heathrow Terminal 5 and the passport system introduced in 1999.</p>	AC1d			1	
17 Practice tasks 2 and 3	<p>Learners will now attempt tasks 2 and 3 from the specimen preliminary materials. They must make notes on their findings and keep them for use in the specimen practice exam.</p> <p><i>Task 2</i> Research the following in relation to Teknografix Ltd:</p> <ul style="list-style-type: none"> • The role of user support • Different methods of receiving user support • Error/fault logging • Resource management • The role of the systems/service manager within a large outsourced support company • Service Level Agreements (SLAs) • Security (both logical and physical) including prevention of spyware, viruses, trojans, worms and spam • Methods of backup and the contents of a disaster recovery plan • Capacity planning including future needs and software licensing • The benefits and drawbacks of outsourcing <p><i>Task 3</i> Learners should research a variety of possible solutions to the problems faced by Teknografix Ltd.</p>	AC1a–g AC3a–d	SM CT		2	

<p>18 Management of change</p>	<p>Present an overview of the need to plan for change when introducing a new technology-enabled business system, and the need for:</p> <ul style="list-style-type: none"> • considering the options available to support the change – replacing the existing system with newer technology, adding to the existing system, buying a package – and the implications of each in terms of time, cost and advantages to the business • staff and client involvement and management of their attitudes to the change throughout the process • training for both users and technical support staff • changeover issues such as timing and downtime • documenting internal procedures for the new system • testing the new system, in particular getting users involved in testing • going live • continuity of service to staff and customers, during implementation and after installation • back out from changes due to unexpected failures or problems • ensuring the continued support for the change by the client. <p>This topic could be illustrated by inviting a speaker from a local organisation and by real life case studies.</p>	AC4a–d			2	
<p>19 Practice task 4</p>	<p>Learners should research the need for effective change management in different organisations, including:</p> <ul style="list-style-type: none"> • staffing issues (involvement, training, redundancy) • testing • changeover issues and continuity of service • documentation • options available and associated risks. <p>Learners must make notes on their findings and keep them for use in the specimen practice exam.</p>	AC4a–e	IE		3	

20 Preparation for practice exam	<p>Ensure that learners are aware of the exam format and instructions, what to take into the exam, and how to use their notes.</p> <p>Learners should finalise notes on specimen tasks and print up to 20 pages (or current maximum if changed).</p>	All		1	
21 Practice exam based on specimen materials	<p>Learners must take the practice exam, using a specimen paper and their own notes on Tasks 1–4 already completed.</p>	All		2	
22 Targeted revision	<p>Give learners feedback on the practice exam, and follow with targeted revision, paying particular attention to weak points identified.</p>	All		2	
23 Issue preliminary materials for external examination	<p>Learners will be introduced to the preliminary materials and tasks that they will need to carry out before the external examination.</p> <p>Use project management techniques to plan tasks and set deadlines.</p>	All	EP SM TW	2	Unit 6
24 Understanding the scenario	<p>Carry out whole class or group sessions and activities to ensure learners understand the scenario.</p> <p>Arrange a visit to a similar organisation, in order to help learners gain a deeper understanding of the business involved, and the technology that may be in use.</p>	All		2	
25 The preliminary tasks	<p>Learners may work individually or in teams on their research but they must make their own notes for each task in the preliminary materials.</p> <p>(See current preliminary materials and teacher guidance for further information on what information can be taken into the examination.)</p>	All	SM RL IE	11	
26 Exam format and revision tips	<p>Ensure that learners are aware of the exam format and instructions, what to take into the examination, and how to use their notes.</p> <p>Learners should finalise notes and print up to 20 pages.</p> <p>Discuss tips on revision and exam techniques.</p>	All		1	

27 Mock exam	Learners must take a mock exam (to be invented by the teacher) based on preliminary material and questions asked in past papers, and using learners' own notes.			2	
28 Targeted revision	Give learners feedback on the mock exam, and follow with targeted revision, paying particular attention to weak points identified.	All		2	
29 Examination	External examination (2 hours)	All		2	