

Cambridge TECHNICALS LEVEL 2

**IT**

Cambridge  
TECHNICALS  
2016

Unit 9

## Supporting IT functions

J/615/1368

Guided learning hours: 60

Version 1 September 2016

## LEVEL 2

### UNIT 9: Supporting IT functions

J/615/1368

**Guided learning hours:** 60

**Essential resources required for this unit:** Learners should have access to a variety of tools used by IT Support technicians (e.g. multimeter, network cable tester, defrag application). Learners should also have access to hardware and software that can be used to facilitate fault diagnosis (e.g. printer, laptop with operating system).

**This unit is internally assessed and externally moderated by OCR.**

#### UNIT AIM

---

The aim of this unit is to allow you to discover the types of activities carried out by IT Support professionals. You will learn about many of the tasks that they carry out and also about how organisations use IT Support.

You will learn how to diagnose common hardware and software in IT Systems, using a range of tools, techniques and other resources. You will analyse the results of your diagnostic testing and learn the importance of good communication when reporting system faults to your client.

The role of IT Support in delivering both preventative and routine maintenance of IT systems will be introduced and you will develop your understanding of these important areas.

All IT support technicians require the knowledge, understanding and skills to diagnose a wide variety of hardware and software faults and provide advice and guidance to different stakeholders.

The learning in this unit will support the delivery of the CompTIA A+, as well as the Cisco IT Essentials qualification.

This unit is mandatory within the IT Technical Practitioner pathway of the Diploma and is optional in the Award in Digital Business.

## TEACHING CONTENT

The teaching content in every unit states what has to be taught to ensure that learners are able to access the highest grades.

Anything which follows an i.e. details what must be taught as part of that area of content. Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used, learners must know and be able to apply relevant examples in their work, although these do not need to be the same ones specified in the unit content.

For internally assessed units you need to ensure that any assignments you create, or any modifications you make to an assignment, do not expect the learner to do more than they have been taught, but must enable them to access the full range of grades as described in the grading criteria.

Learning outcomes The Learner will:	Teaching content Learners must be taught:
<p>1. Understand how organisations use IT support</p>	<p>1.1. Features and functions of IT Support in organisations.</p> <p>Features i.e.:</p> <ul style="list-style-type: none"> <li>• point of contact (e.g. email, telephone, face to face)</li> <li>• fault log (e.g. date and time reported, type of fault, priority, date and time fault remedied)</li> <li>• policies (e.g. computer use policy, internet use policy, email use policy)</li> <li>• staff (e.g. IT Support technicians, IT Support admin staff, IT Support managers)</li> <li>• maintenance plan (e.g. carry out PAT testing annually, regularly check condition of printers)</li> <li>• training log (e.g. training of IT Support staff, training of other people in an organisation).</li> </ul> <p>Functions, i.e.:</p> <ul style="list-style-type: none"> <li>• support a range of clients (e.g. novice, IT specialist, large organisation, small organisation)</li> <li>• keep IT systems running efficiently (e.g. remedy faults quickly, carry out preventative maintenance, maintain cyber security)</li> <li>• monitor health and safety (e.g. carry out PAT testing annually, provide safety advice to clients)</li> <li>• roll out new IT systems (e.g. applications, operating systems, printers, networks)</li> <li>• disaster recovery (e.g. back up data, restore IT systems to working order)</li> <li>• evaluate emerging technologies (e.g. find better IT solutions for clients, suggest uses for emerging technologies to an organisation)</li> <li>• maintain good working relationship with clients (e.g. respond in good time, communicate effectively with clients)</li> </ul> <p>1.2. IT Support methods, i.e.:</p> <ul style="list-style-type: none"> <li>• in-house versus outsourced, i.e.:               <ul style="list-style-type: none"> <li>○ benefits to an organisation</li> <li>○ specialist knowledge available of organisational systems</li> <li>○ access to a wide range of IT expertise</li> </ul> </li> <li>• IT Support communication methods, e.g.:               <ul style="list-style-type: none"> <li>○ face to face</li> <li>○ email</li> <li>○ remote access</li> <li>○ video</li> </ul> </li> </ul>

Learning outcomes The Learner will:	Teaching content Learners must be taught:
	<ul style="list-style-type: none"> <li>○ telephone</li> <li>○ online chat</li> <li>● benefits and drawbacks of IT Support communication methods.</li> </ul>
<p>2. Be able to diagnose hardware faults</p>	<p>2.1. Common hardware faults, e.g.:</p> <ul style="list-style-type: none"> <li>● printers (e.g. no connectivity, faded prints)</li> <li>● mobile devices (e.g. battery not charging, no wireless or Bluetooth connectivity)</li> <li>● video projectors and monitor screens (e.g. oversized images, dim image)</li> <li>● computers (e.g. POST code beeps, blank screen on startup)</li> <li>● networks (e.g. no Internet access, unable to join the network).</li> </ul> <p>2.2. Tools and techniques to diagnose hardware faults, i.e.:</p> <ul style="list-style-type: none"> <li>● tools, e.g.: <ul style="list-style-type: none"> <li>○ multimeter to check continuity (N.B. learners must not be taught to open power-supplied hardware or monitors)</li> <li>○ network cable tester</li> <li>○ printer toner vacuum</li> <li>○ loop back cable</li> <li>○ POST card</li> <li>○ resource and performance utilities</li> <li>○ disk defragmenter</li> <li>○ check disk utility</li> <li>○ HDD diagnostic utilities</li> <li>○ Wi-Fi analysis tools</li> </ul> </li> <li>● techniques, e.g.: <ul style="list-style-type: none"> <li>○ confirm the fault is as described by the client</li> <li>○ make a 'best guess' at the most likely causes of the problem</li> <li>○ try simple, quick solutions first</li> <li>○ use a database of successfully diagnosed faults</li> <li>○ exchange field replaceable units, to help diagnose the hardware fault (e.g. swap cables, change to a mouse that is known to work)</li> <li>○ complete a test plan and fault log to support diagnostic testing</li> </ul> </li> <li>● analyse results of diagnostic testing</li> </ul> <p>2.3. Communication with the client, i.e.:</p> <ul style="list-style-type: none"> <li>● use suitable language, i.e.: <ul style="list-style-type: none"> <li>○ communicate in plain English</li> <li>○ avoid jargon</li> <li>○ communicate in a suitable way (e.g. email if the client is not on-site, face to face if the client will be present)</li> </ul> </li> <li>● present results of test analysis with recommended solutions.</li> </ul>
<p>3. Be able to diagnose software faults</p>	<p>3.1. Common software faults, e.g.:</p> <ul style="list-style-type: none"> <li>● files 'disappearing'</li> <li>● spam emails received</li> <li>● security alerts</li> <li>● Internet connection problems</li> <li>● unauthorised access to files</li> <li>● problems accessing user account</li> </ul>

**Learning outcomes****Teaching content****The Learner will:****Learners must be taught:**

	<ul style="list-style-type: none"> <li>• web page will not load correctly</li> <li>• file will not open in the application</li> <li>• printer not seen on device list</li> <li>• viruses and malware</li> <li>• file transfers fail.</li> </ul> <p>3.2. Tools and techniques to diagnose software faults, i.e.:</p> <ul style="list-style-type: none"> <li>• tools, e.g.: <ul style="list-style-type: none"> <li>○ system cleaner utilities</li> <li>○ anti-malware software</li> <li>○ antivirus software</li> <li>○ event viewers</li> <li>○ system restore utilities</li> <li>○ driver update utilities</li> </ul> </li> <li>• techniques, e.g.: <ul style="list-style-type: none"> <li>○ close unwanted applications</li> <li>○ adjust application configuration</li> <li>○ uninstall applications/drivers</li> <li>○ reinstall applications/drivers</li> <li>○ check for correct version of applications/drivers</li> <li>○ update applications/drivers</li> <li>○ system restart</li> <li>○ reset to factory default settings</li> <li>○ adjust system settings</li> <li>○ adjust device settings</li> </ul> </li> <li>• analyse results of diagnostic testing.</li> </ul>
<p>4. Be able to recommend maintenance activities</p>	<p>4.1. Preventative maintenance activities, e.g.:</p> <ul style="list-style-type: none"> <li>• carry out regular visual inspections of cables and IT equipment</li> <li>• replace IT equipment on a planned basis</li> <li>• install critical software updates as they become available</li> <li>• install firmware updates as they become available</li> <li>• update antivirus and anti-malware software frequently</li> <li>• monitor the performance of important IT systems over time</li> <li>• regular back-up of all systems</li> <li>• require users to regularly change passwords</li> <li>• justify selection based on diagnostic testing.</li> </ul> <p>4.2. Routine maintenance activities, e.g.:</p> <ul style="list-style-type: none"> <li>• defragment hard drives</li> <li>• run cleaner applications (empty recycle bin, remove unwanted temporary files)</li> <li>• scan for malware</li> <li>• carry out local back-up of data to an external drive</li> <li>• check printers (toner and paper levels)</li> <li>• clean screens and printers</li> <li>• check all cable connectors are secure</li> <li>• install optional software updates (for operating systems and applications)</li> <li>• check internet upload and download speeds</li> <li>• justify selection based on diagnostic testing.</li> </ul>

## GRADING CRITERIA

LO	Pass	Merit	Distinction
	The assessment criteria are the Pass requirements for this unit.	To achieve a Merit the evidence must show that, in addition to the Pass criteria, the candidate is able to:	To achieve a Distinction the evidence must show that, in addition to the pass and merit criteria, the candidate is able to:
1. Understand how organisations use IT support	P1: Describe the features and functions of IT Support within an organisation	M1: Explain the benefits of the IT Support methods available to an organisation	
2. Be able to diagnose hardware faults	P2: Generate a list of the tools that can aid in the diagnosis of given hardware faults		
	P3: Use suitable tools and techniques to diagnose hardware faults	M2: Analyse the results of the diagnostic testing of hardware faults	D1: Report to the client about the hardware faults diagnosed
3. Be able to diagnose software faults	P4: Select suitable tools and techniques to diagnose software faults		
	P5: Use suitable tools and techniques to diagnose software faults	M3: Analyse the results of the diagnostic testing of software faults	
4. Be able to recommend maintenance activities	P6: Recommend appropriate preventative and routine maintenance activities		D2: Justify the selection of preventative and routine maintenance activities based on the results of the diagnostic tests on the hardware and software

## SYNOPTIC ASSESSMENT AND LINKS BETWEEN UNITS

When learners are taking an assessment task, or series of tasks, for this unit they will have opportunities to draw on relevant, appropriate knowledge, understanding and skills that they will have developed through other units. See section 6 of the Centre Handbook for more information on synoptic assessment.

This unit and specific LO	Name of other unit and related LO
<p>LO2: Be able to diagnose hardware faults</p>	<p><b>Unit 1: Essentials of IT</b> LO1: Know about hardware components</p> <p><b>Unit 2: Essentials of cyber security</b> LO1: Know about aspects of cyber security LO2: Understand the threats and vulnerabilities they can make LO3: Understand how organisations/individuals can minimise aspects from cyber security incidents</p> <p><b>Unit 3: Building IT systems</b> LO4: Be able to configure IT systems to meet business needs</p> <p><b>Unit 6: Participating in a project</b> LO2: Be able to contribute to a project</p> <p><b>Unit 8: Using emerging technologies</b> LO1: Know the technologies currently emerging LO2: Be able to explore how emerging technologies can support business needs</p> <p><b>Unit 11: IT hardware installation and upgrade</b> LO1: Know the reasons for installing and upgrading IT hardware</p> <p><b>Unit 12: Creating a computer network</b> LO2: Be able to create networks to meet business needs LO3: Be able to create computer networks to meet business needs</p>
<p>LO3: Be able to diagnose software faults</p>	<p><b>Unit 1: Essentials of IT</b> LO2 Know about software components</p> <p><b>Unit 2: Essentials of cyber security</b> LO1: Know about aspects of cyber security LO2: Understand the threats and vulnerabilities they can make LO3: Understand how organisations/individuals can minimise aspects from cyber security incidents</p> <p><b>Unit 3: Building IT systems</b> LO4: Be able to configure IT systems to meet business needs</p> <p><b>Unit 6: Participating in a project</b> LO2: Be able to contribute to a project</p> <p><b>Unit 8: Using emerging technologies</b></p>

This unit and specific LO	Name of other unit and related LO
	LO1: Know the technologies currently emerging LO2: Be able to explore how emerging technologies can support business needs <b>Unit 10: IT software installation and upgrade</b> LO1: Know the reasons for installing and upgrading IT software <b>Unit 12: Creating a computer network</b> LO2: Be able to create networks to meet business needs LO3: Be able to create computer networks to meet business needs
LO4: Be able to recommend maintenance activities	<b>Unit 1: Essentials of IT</b> LO1: Know about hardware components <b>Unit 2: Essentials of cyber security</b> LO1: Know about aspects of cyber security LO2: Understand the threats and vulnerabilities they can make LO3: Understand how organisations/individuals can minimise aspects from cyber security incidents <b>Unit 3: Building IT systems</b> LO4: Be able to configure IT systems to meet business needs <b>Unit 6: Participating in a project</b> LO2: Be able to contribute to a project <b>Unit 8: Using emerging technologies</b> LO1: Know the technologies currently emerging LO2: Be able to explore how emerging technologies can support business needs LO3: Be able to reflect on future impacts of emerging technologies <b>Unit 10: IT software installation and upgrade</b> LO1: Know the reasons for installing and upgrading IT software LO2: Be able to prepare for IT software installation and upgrade LO3: Be able to install and upgrade IT software <b>Unit 11: IT hardware installation and upgrade</b> LO2: Be able to prepare for IT hardware installation and upgrade LO3: Be able to install and upgrade IT hardware <b>Unit 12: Creating a computer network</b> LO4: Be able to secure computer networks to meet business needs

## ASSESSMENT GUIDANCE

---

Learners will be introduced to the role of an IT support technician in this unit. Learners will need to gain experience of common hardware and software faults in IT systems.

Learners will need to be provided with scenarios which allow them to diagnose hardware and software faults for a client.

### **LO1 Understand how organisations use IT support**

**P1:** Learners must describe the features and functions of IT Support within organisations. Learners could either base their descriptions on a scenario provided by the tutor or in more general terms. Evidence could be in the form of a guide, presentation or podcast.

**M1:** Learners need to explain the benefits of different IT support methods available to organisations. Evidence could be in the form of a written report or presentation.

### **LO2 Be able to diagnose hardware faults**

For this Learning Objective, tutors should provide learners with IT systems containing hardware faults. The scenario should include outline details of the client and their organisation.

**P2:** Learners need to generate a list of tools they will use to support their diagnosis of hardware faults for the given system. Evidence could be in the form of a work log, or report.

**P3:** Learners should use the tools and appropriate techniques to diagnose the hardware faults for the given system. The evidence for P3 could be in the form of a recording of the fault diagnoses and any diagnostic results, or as a written report. The evidence must clearly indicate the faults diagnosed and the tools and techniques used.

**M2:** Learners need to analyse the results of their hardware faults diagnostics from P3. Evidence could include annotated printouts from test results and report on outcome.

**D1:** Learners are required to report to the client the results of their diagnostics of the hardware faults. This should include what they have discovered and possible solutions to rectify the faults. The learners need to consider the format, content and style of their communication with the client to ensure that it is fit for purpose.

### **LO3 Be able to diagnose software faults**

For this Learning Objective, tutors should provide learners with an IT system containing software faults.

**P4:** Learners are required to select appropriate tools and techniques to diagnose the software faults on the given IT system. The evidence could be in the form of a work sheet or report.

**P5:** Learners are required to use the tools and techniques that they selected in P4 to diagnose the software faults in the given IT system. The evidence could include test results and printouts, photographs or a report.

**M3:** Learners need to analyse the results of their software faults diagnostics from P5. Evidence could include annotated printouts from test results and report on outcome.

#### **LO4 Be able to recommend maintenance activities**

**P6:** Learners are required to recommend both preventative and routine maintenance activities in relation to their diagnostics of the identified hardware and software faults in the given IT system. The activities recommended will be dependent on the IT system investigated and intended outcomes.

**D2:** Learners need to provide clear justifications of the maintenance activities selected in P6. This evidence needs to clearly explain why the selected maintenance activities are suitable, given the diagnostic tests carried out. The evidence could be in the form of a report or presentation.

**Feedback to learners:** you can discuss work-in-progress towards summative assessment with learners to make sure it's being done in a planned and timely manner. It also provides an opportunity for you to check the authenticity of the work. You must intervene if you feel there's a health and safety risk.

Learners should use their own words when producing evidence of their knowledge and understanding. When learners use their own words it reduces the possibility of learners' work being identified as plagiarised. If a learner does use someone else's words and ideas in their work, they must acknowledge it, and this is done through referencing. Just quoting and referencing someone else's work will not show that the learner knows or understands it. It has to be clear in the work how the learner is using the material they have referenced to inform their thoughts, ideas or conclusions.

For more information about internal assessment, including feedback, authentication and plagiarism, see the centre handbook. Information about how to reference is in the OCR Guide to Referencing available on our website: <http://www.ocr.org.uk/i-want-to/skills-guides/>

## MEANINGFUL EMPLOYER INVOLVEMENT - a requirement for the Technical certificate qualifications

These qualifications have been designed to be recognised as Technical certificates in performance tables in England. It is a requirement of these qualifications for centres to secure for every learner employer involvement through delivery and/or assessment of these qualifications.

The minimum amount of employer involvement must relate to at least one or more of the elements of the mandatory content. This unit is mandatory in the IT Technical Practitioner pathway, and optional in the Award sized qualification.

Eligible activities and suggestions/ideas that may help you in securing meaningful employer involvement for this unit are given in the table below.

Please refer to the *Qualification Handbook* for further information including a list of activities that are not considered to meet this requirement.

Meaningful employer engagement	Suggestion/ideas for centres when delivering this unit
1. Learners undertake structured work-experience or work-placements that develop skills and knowledge relevant to the qualification.	
2. Learners undertake project(s), exercises(s) and/or assessments/examination(s) set with input from industry practitioner(s).	Employers could help with the setting of the various faults in the IT systems required for this Unit.
3. Learners take one or more units delivered or co-delivered by an industry practitioner(s). This could take the form of master classes or guest lectures.	
4. Industry practitioners operating as 'expert witnesses' that contribute to the assessment of a learner's work or practice, operating within a specified assessment framework. This may be a specific project(s), exercise(s) or examination(s), or all assessments for a qualification.	Employers could act as the client for D1, where a report needs to be made to the client.  Industry practitioners could take on the role of 'specialist IT practitioners', acting as sources of advice for learners as they diagnose both hardware and software faults.

You can find further information on employer involvement in the delivery of qualifications in the following documents:

[Employer involvement in the delivery and assessment of vocational qualifications](#)

[DfE work experience guidance](#)

To find out more

**[ocr.org.uk/it](http://ocr.org.uk/it)**

or call our Customer Contact Centre on **02476 851509**

Alternatively, you can email us on **[vocational.qualifications@ocr.org.uk](mailto:vocational.qualifications@ocr.org.uk)**



OCR is part of Cambridge Assessment, a department of the University of Cambridge.

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored. ©OCR 2015 Oxford Cambridge and RSA Examinations is a Company Limited by Guarantee. Registered in England. Registered office 1 Hills Road, Cambridge CB1 2EU. Registered company number 3484466. OCR is an exempt charity.