

Unit 112: Cisco IT Essentials (Part 2)

Unit code: F/601/7457

QCF Level 3: BTEC in IT

Credit value: 10

Guided learning hours: 80

● Aim and purpose

This unit provides a comprehensive route to developing an in-depth exposure to personal computers, hardware, and a range of operating systems. Students learn the functionality of various hardware and software components and best practices in maintenance and safety issues as well as install a networked system.

● Unit introduction

This unit is an introduction to the basics of computer hardware and operating systems and introduces learners to information technology and data communications.

The unit covers the skills and knowledge that are typical of the day-to-day tasks that an ICT support technician carries out. In particular learners will be taught how to assemble computers and also be able to troubleshoot problems with hardware and software. In addition to this, learners will understand and install commonly used operating systems and extend their understanding of networking. In most companies now, it is accepted that preventive maintenance is essential in order to run support systems efficiently and effectively. Learners will appreciate what a typical preventative maintenance programme will entail and how to perform appropriate maintenance tasks

This unit involves hands-on, lab-oriented activities that stress laboratory safety and working effectively in a group environment. Theory aspects are studied and tested online using Cisco's own electronic curriculum which learners can also access from home. The unit is delivered through a blended learning approach where tutor led teaching is combined with the electronic materials and testing.

This unit is assessed via the Cisco IT Essentials (Part 2) online final examination for chapters 11-16. There are further criteria for merit and distinction grades.

● Learning outcomes

On completion of this unit a learner should:

- 1 Understand the principles of managing computer systems
- 2 Be able to manage the support of operating systems and security requirements
- 3 Be able to maintain networked system.

Unit content in relation to the Merit and Distinction Criteria

Operating systems: eg linux desktop, linux server, windows desktop, windows server

Hardware: components, eg memory, video card, optical media, external storage, internal storage, power supply, display, keyboard, pointing device, processor, communications medium; system eg a computer system with hardware components

Network communication: eg peer-to-peer, client server, Local Area Network, Wide Area Network, topologies, communication medium, routed protocol, network interface, wireless protocols, security protocols, routing protocol

Security components: eg firewall, anti-virus applications, spyware, traffic filters, password and user control, encryption, secure connections, Virtual Private Network support

Resources: eg applications, graphical user interface, device interaction, internet access, security, utilities, usability, performance, kernel, resource management, user management

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
<p>Pass Cisco IT Essentials (Part 2) examination.</p> <p>The centre will evidence this with a copy of the learner's class grade book from the assessment system on completion of the unit (this must be listed by learner name). A pass grade is a score of 70% or more in the final examination.</p>	<p>M1 evaluate the resources in two different operating systems [IE]</p>	<p>D1 support a operating system, maintaining its security components [IE, CT, SM]</p>
	<p>M2 install a hardware system with network communication and operating system services [IE]</p>	<p>D2 critically evaluate the potential problems that may occur in supporting security components. [CT, RL]</p>
	<p>M3 maintain and troubleshoot a networked system. [IE, TW, EP, SM]</p>	

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Cisco IT Essentials (Part 2) is a proprietary unit within the Cisco Networking Academy program. The curriculum, assessment and support materials are available only to institutions participating in the program.

Cisco Systems makes these available at no cost for any non-profit institution; there are some costs for instructor training and support. For detailed information please consult this web link:

www.cisco.com/web/learning/netacad/get_involved/BecomeAnAcademy.html.

If learners are following the Cisco unit in parallel with a BTEC National unit then it is recommended that the two aspects of the assessment are integrated. Tasks being completed as part of the practical preparation for Cisco Skills Based Exams can then be used to support the BTEC assessment for the merit and distinction criteria.

To view general information about the Cisco IT Essentials (Part 2) objectives please visit:

www.cisco.com/web/learning/netacad/unit_catalog The detailed scope and sequence documents are available to academies on the Cisco internal site.

Outline learning plan

Cisco Systems as part of their academy programme, provide learning plans and study guidance for their units. Cisco Systems recommend 75 hours of delivery to attain the pass criteria, in line with QCF credit and notional learning hours. The notional hours for managed learning is set at 40 for learners to attempt the merit and distinction.

Assessment

To achieve a pass grade, learners must pass the **Cisco IT Essentials (Part 2)** module examination. For merit/distinction the learner may take the assessment recommended in the 'programme of suggested assignments', this is designed to align with the vendor pass criteria and may be delivered as an alternate skills based assessment.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
M123 D12	System Management	Learners are asked to review current technology and complete installation of a network based system.	Presentation, poster, oral, report, observation, practical, team work.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC IT sector suite. This unit has particular links with Unit 2 as well as IT essentials Part 1 (at level 2) centres may apply to use either unit for a level 2 or 3 qualification according to QCF and BTEC requirements.

Essential resources

This unit must be taught in a computer lab with internet access in order to assess learners via the Cisco online assessment system. The web is a great source of technical information and access to computers is necessary.

If another room for lab work is available, then the computer hardware part of the class can be taught in this classroom. One lab computer for every two learners is an ideal situation but many classes have up to three to four learners per lab computer. Lab computers do not need to be the latest or newest systems, but it helps if they are all identical. It is recommended not to use the computers used by other classes as learners may tear down the machines. There should be a supply of redundant computers for this task.

Employer engagement and vocational contexts

The Cisco IT essentials certification and the related CompTIA A+ are internationally recognized by a diverse range of employers (from SME's to large corporations) as one of the principal certifications in networking and telecommunications.

Indicative reading for learners

For a list of Cisco resources to assist with this unit, including exam preparation materials, see: www.cisco.com/web/learning/netacad/unit_catalog

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	The pass criteria is set by an examination, the PLTS of self management and reflective learning is supported by the learner, taking personal study and revision in advance of the Cisco Examination.
Creative thinkers	
Reflective learners	
Team workers	
Self-managers	
Effective participators	

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	completing research and analysis of current hardware system as well as planning and implementing the networked system
Creative thinkers	implementing any hardware solution
Reflective learners	evaluating and looking at the impact of hardware issues
Team workers	planning and implementing a hardware solution; this could be accomplished on an array of 'live' resources by a small group of learners. This is an optional element, depending on how the assignment is designed.
Self-managers	justifying the implementation; the learner can reflect on how they managed their own time and analysis of the problem
Effective participators	planning and implementing the hardware solution; this could be accomplished on an array of 'live' resources by a small group of learners. This is an optional element, depending on how the assignment is designed.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	Configuring hardware, installing hardware, installing an operating system, setting a system for a given specification
Follow and understand the need for safety and security practices	During the process of hardware configuration and hardware installation as well as installing an operating system or setting a system for a given specification
Troubleshoot	During the process of hardware configuration and hardware installation as well as installing an operating system or setting a system for a given specification.