

Unit 119: CompTIA Network+

Unit code: L/500/7312

QCF Level 3: BTEC in IT

Credit value: 9

Guided learning hours: 80

● Aim and purpose

The Network+ certification covering the 2005 objectives, certifies that the successful candidates knows the layers of the OSI model, can describe the features and functions of network components and has the skills needed to install, configure, and troubleshoot basic networking hardware peripherals and protocols.

● Unit introduction

This unit is a comprehensive introduction to the principles of systems security and enable a learner to explore the range of techniques used in applying security as well as attempting to subvert a system.

The unit explores the diverse subject of networked systems, looking at devices, management, differing media requirements, how each topology affects and enhances performance, the underlying principles of networking, the different tools used to manage (and monitor) a network and how to ensure a networked system remains secure.

CompTIA link with a range of different partners to offer a range of learning resources, where learners and centres can access these through CompTIA's Academic learning programme. To attain a pass, learners must take the CompTIA Network+ certification exam.

This unit will prepare learners to sit the CompTIA Network+ certification exam, this unit is also assessed with BTEC merit and distinction criteria.

To view general information about CompTIA objectives please visit: www.comptia.org, where the detailed scope and sequence for all certifications are available for anyone to download.

● Learning outcomes

On completion of this unit a learner should:

- 1 Understand Network Technologies
- 2 Understand Protocols and Standards
- 3 Understand Network Implementation
- 4 Be able to carry out network support.

Unit content in relation to the Merit and Distinction Criteria

Network Security: eg using cryptography, firewall based, user access control, passwords, usernames and levels, proxy control, VPN, network based, workstation based, server based, domain based, access control list

Networked solution: eg wireless, wired, fibre, server based, peer based, internet access, router, switch, proxy, firewall

Implementation: on at least two devices on an interconnected network

Testing: eg troubleshooting, cable testing, hardware monitoring, traffic tests

Network Management Tools: eg network monitoring, syslog, troubleshooting techniques, cable testing tools

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:
Pass CompTIA Network+ Certification Exam The centre will evidence this with a copy of the learners results, the learner MUST PASS at the minimum set by CompTIA.	M1 plan a network solution [IE, CT] M2 implement the network solution [IE, SM] M3 manage the network solution using network management tools [TW, EP, SM] M4 implement network security. [TW, EP, SM]	D1 justify the network solution [IE, CT, SM] D2 critically test the network solution. [SM, IE]

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

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

Delivery

The CompTIA Network+ course and associated certifications are delivered as part of an academic programme available to centres in UK and Eire. Centres may only access this certification's associated discounts from within this programme are advised to seek guidance on what current courses comprise the study/delivery required for learners to access the certification.

More information on the programme, membership and delivery requirements can be found at www.comptia.org.

If learners are taking CompTIA study as part of their BTEC programme, it is recommended that both programmes of study are integrated. Practical and theory tasks for the CompTIA programme can be integrated into the study required for the merit and distinction criteria within this unit.

The outcomes of this unit are synergic with the other CompTIA units as well as those offered by Cisco, Microsoft and VMWare, where there are considerable differences. This unit may be delivered in parallel or in sequence. Units in security, systems support and networking, that are both BTEC specific as well as from other vendors may be taught in conjunction with the CompTIA units to enhance the learners experience.

Outline learning plan

CompTIA as part of their academy programme, provide learning plans and study guidance for their courses. CompTIA recommend an estimated 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 CompTIA Network+ examination.

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
M1, D1	The network solution	Learners are asked to recommend and evaluate a network proposal based on currently available technology, the assessment could be enhanced by encouraging learners to explore the different types of systems in common usage.	Presentation, poster, oral, report, video.
M2, M3, D2	Network the system	Learners will build a system ensuring it is operational, secure capable of communication and providing a network service.	Presentation, poster, oral, report, video, practical observation.

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

To be completed, links to 6.1 of the NOS and may be co-presented with all other CompTIA modules

Essential resources

As members of the CompTIA academic programme, centres may choose to access a range of teaching and assessment practice resources. The technological requirement for this unit does not demand any more than the 'average' centre is already providing for a computer systems session, old computers, spare components, old routers, switches or replacement parts will enhance the learning experience. If a centre is restricted by the cost of licensing, many Linux distributions exist, that are easy to install in both desktop and server versions and now comparable in support and management terms to other popular operating systems.

To ensure system 'integrity' this unit may be best delivered in a separate sandboxed environment, away from the main campus network.

Employer engagement and vocational contexts

CompTIA certification is internationally recognized by a diverse range of employers (from SME's to large corporations) as one of the principal certifications in systems support and maintenance.

Indicative reading for learners

For access to the CompTIA academic programme resources and more information on joining the programme, please visit www.comptia.org

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 Examination.
Creative thinkers	
Reflective learners	
Team workers	
Self-managers	
Effective participants	

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	investigating current network solutions and presenting a proposed solution
Creative thinkers	investigating current network solutions and presenting a proposed solution
Reflective learners	investigating current network solutions and presenting a proposed solution
Self-managers	implementing and testing the networked solution proposed.

● 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	Implementing and testing the proposed networked solution
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	Implementing and testing the proposed networked solution
Manage information storage to enable efficient retrieval	Implementing and testing the proposed networked solution
Follow and understand the need for safety and security practices	Implementing and testing the proposed networked solution
Troubleshoot	Implementing and testing the proposed networked solution
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	Developing the networked system proposal
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	Developing the networked system proposal
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	Applying/creating IP address or subnet solutions
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	Presenting the justification of the proposal.