

Unit 139: VM ware Master: Enterprise Design

Unit code: A/601/9563

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 the design of VMware core components and their relation to the data centre elements such as storage and networking along with data centre design methodologies and principles.

● Unit introduction

This unit is a comprehensive introduction to the principles of managing a virtualised environment, using a range of technologies from VMware. For many data centres, the use of virtualisation supports the need for the secure and resilient support of a range of networked server services. Whilst being able to ensure that the servers are reliable, can support system failures and can easily be distributed internationally. In addition, virtualisation is a cornerstone of the green information technology agenda, providing a resource for powerful technological resources whilst reducing the carbon impact of providing such a service.

The unit covers virtualisation sector skills knowledge in designing and implementing cluster-based technologies, via VMware server and desktop solutions. In particular, learners will gain first hand experience using vSphere, ESXi, vCenter, vMotion and other current virtualisation technologies.

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

This unit will prepare learners to sit the VM Ware master certification the first step towards achieving the globally recognised VM Ware certification. This unit is also assessed with BTEC merit and distinction criteria.

To view general information about the enterprise administration objectives please visit: www.vmware.com/partners/programs/vap/. The detailed scope and sequence documents are available to academies on the VMware internal site.

● Learning outcomes

On completion of this unit a learner should:

- 1 Understand virtualisation principles
- 2 Understand data centre components
- 3 Be able to design a virtualisation environment
- 4 Be able to implement a virtualisation design.

Unit content in relation to the Merit and Distinction Criteria

Virtualisation environment: eg vSphere, vCenter, vMotion, VMware fusion, VMware player, VMware server, VMware desktop, hypervisor, Storage Array Network, fibre backbone, memory requirements, storage requirements, processor requirements, bandwidth capacity

Virtualisation design: eg small-scale system of no more than three servers, medium to large-scale system of more than three servers

Data centre: eg array of servers, corporate server environment, small enterprise environment, large enterprise environment

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 VMWare Master: enterprise design certification The centre will evidence this with a copy of the learner's testing centre examination.	M1 analyse an existing data centre and provide recommendations for improvement [IE]	D1 justify virtualisation design which will allow for long-term growth [IE, CT, SM]
	M2 design a virtualisation environment IE	D2 test and troubleshoot a virtualisation implementation [SM, IE]
	M3 implement a virtualisation design. [TW, EP, SM]	D3 evaluate the effectiveness of the virtualisation design. [RL, IE]

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

The VMware enterprise administration certification is delivered via a selection of proprietary courses available from the VMware academy programme. Centres 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.vmware.com/partners/programs/education/e-academy.html

If learners are taking VMware study as part of their BTEC programme, it is recommended that both programmes of study are integrated. Practical and theory tasks for the VMware 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 VMware: Enterprise administration, both units may be delivered in parallel or in sequence. Units in systems maintenance and networking, that are both BTEC specific as well as from other vendors may be taught in conjunction with the VMware units to enhance the learners experience.

Outline learning plan

VMware as part of their academy programme, provide learning plans and study guidance for their courses. VMware 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 VMware master enterprise design 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, M2, D1	Solution Design	Learners are asked to review an existing data centre and produce a design for deployment of a virtualisation solution.	Presentation, poster, oral, report, video.
M3, D2, D3	Managing the deployment	Learners are required to implement, test, troubleshoot and evaluate a virtualisation solution based on their given design.	Practical, observation, presentation, oral, video, recorded artefact of installation/implementation.

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 the VMware master: enterprise administration module.

Essential resources

Students will need access to practical resources and suitable technology; they can also the range of different virtualisation and multimedia tools on offer via the VMware academy programme to gain prior experience before handling 'live resources'.

This unit must be taught in a computer lab with internet access in order to assess learners via the VMware academy system. The web is a great source of technical information.

The VMware course can be delivered through use of lab servers, which may be located at the centre, or based remotely, Netdevgroup (www.netdevgroup.com) provide a solution that is recognized by the VMware academy programme.

Employer engagement and vocational contexts

VMware certification is 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 access to the VMware academy resources and more information on joining the programme, please visit www.vmware.com/partners/programs/vap/.

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 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 the planning of the virtualisation solution for the merit criteria
Creative thinkers	considering long term growth solutions for their virtualisation environment
Team workers	implementing the planned virtualisation solution
Self-managers	managing the implemented virtualisation environment
Effective participators	implementing the planned virtualisation solution.

● 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	Planning the implementation of their virtualisation solution
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	Planning and justification the implementation of their virtualisation solution
Manage information storage to enable efficient retrieval	Implementing the virtualisation solution
Troubleshoot	Both implementing and managing the virtualisation solution
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	Planning the implementation of their virtualisation solution
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	Planning the implementation of their virtualisation solution
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	Presenting their justification for a virtualisation solution
Bring together information to suit content and purpose	Presenting their justification for a virtualisation solution
Present information in ways that are fit for purpose and audience	Presenting their justification for a virtualisation solution
English	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	Presenting the justification of the virtualisation deployment
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	Presenting the justification of the virtualisation deployment.