COLEMAN UNIVERSITY

San Diego, CA San Marcos, CA

COURSE SYLLABUS

NET410 VMWARE VIRTUALIZATION CONCEPTS

COURSE DESCRIPTION

This course covers the topics an operator must understand in order to properly use VMware Infrastructure tools to successfully create, manage, and monitor virtual machines. Through lecture and hands-on lab assignments, the student will explore the installation, configuration, and management of VMware's current Infrastructure software, which consists of VMware ESX Server, VMware vCenter and VMware vCenter Server Appliance.

GENERAL COURSE INFORMATION

Number of Credits/Units	4
Course Length in Weeks	10
# Hours Lecture	30
# Hours Laboratory	20
Prerequisites	None
Course Developer(s)	Scott Green
Date Approved / Last Reviewed	Jun 2012 / New
Test Data	N/A

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

- ☒ Install and configure VMware Workstation
- ☒ Install and configure VMware vSphere
- ☒ Install and configure VMware vCenter
- ☒ Understand virtualization concepts
- ☒ Understand the need concept of Virtual Machine Resource Monitoring and the importance of monitoring your Virtual Machines
- ☒ Create and Manage Virtual Machines

LEARNING OBJECTIVES

To achieve the learning outcomes specified for this course, students will, upon successful completion of the course:

- In a written and oral activity, the student will be able to describe the functionality of VMware Workstation with greater then 70% accuracy.
- In a written examination, the student will be able to describe the Overview of VMware vSphere with greater than 70% accuracy.
- In a written examination, the student will be able to describe the What's New in VMware vSphere with greater than 70% accuracy.
- In a laboratory exercise, the student will install and manage a VMware workstation.
- In an ongoing hands-on laboratory exercise, the student will install and configure VMware vSphere
- In an ongoing hands-on laboratory exercise, the student will install and configure VMware vCenter.
- In an ongoing hands-on laboratory exercise, the student will deploy and manage virtual machines using vCenter and vSphere Appliance vCenter Server.
- In an ongoing hands-on laboratory exercise, the student will allocate and monitor virtual machines resources to ensure high availability of applications.
- In an ongoing hands-on laboratory exercise, the student will learn and discuss the aspects of Virtual Machine Resource Monitoring.
- Build on prior learning of students to enhance richness of class activities.

INSTRUCTIONAL METHODS EMPLOYED IN THIS COURSE

A number of instructional/learning methods are employed in this course, including the following:

- Discussion
- Exams
- Labs
- Lecture
- Reading

INFORMATION RESOURCES FOR THIS COURSE

Textbook

VMware Educational Services. (2009) VMware vSphere: Overview. Palo Alto CA: VMware Inc. ISBN: EDU-ENG-A-OVR5-LECT-STU

VMware Educational Services. (2009) VMware vSphere: Overview. Palo Alto CA: VMware Inc. ISBN: EDU-ENG-A-OVR5-LAB-STU

VMware Educational Services. (2009) VMware vSphere: What's New. Palo Alto CA: VMware Inc. ISBN: EDU-ENG-A-VSWN5-LECT-STU

VMware Educational Services. (2009) VMware vSphere: What's New. Palo Alto CA: VMware Inc. ISBN: EDU-ENG-A-VSWN5-LAB-STU

Other Materials

None

Web Site Readings

VMware Workstation

VMware Workstation
http://en.wikipedia.org/wiki/VMware_Workstation
(Retrieved February 3, 2009)

VMware Workstation
http://www.vmware.com/products/ws/
(Retrieved February 3, 2009)

VMware
http://en.wikipedia.org/wiki/VMware
(Retrieved February 3, 2009)

VMware Workstation 6.0
http://www.pcmag.com/article2/0,2817,2158154,00.asp
(Retrieved February 3, 2009)

InfoWorld: Virtualization Showdown: VMware Workstation vs. Sun xVM VirtualBox
http://www.infoworld.com/article/08/09/11/37TC-virtual-workstations_1.html
(Retrieved February 3, 2009)

VMware Workstation 6.5 Consolidates The Best of Desktop Virtualization
http://www.linux.com/feature/150084
(Retrieved February 3, 2009)

VMware vSphere 4.0

VMware vSphere
http://en.wikipedia.org/wiki/VMware_vSphere
(Retrieved April 29, 2010)

vSphere 4 Steps Up, Falls Short of the Cloud
http://www.infoworld.com/d/virtualization/vsphere-4-steps-falls-short-cloud-337
(Retrieved April 29, 2010)

VMware: VMware vSphere 4 The Best Platform for Building Cloud Infrastructures
https://images01.insight.com/media/pdf/VMwarevSphere4Datasheet_010610.pdf
(Retrieved April 29, 2010)

VMware vSphere 4
http://www.vmware.com/products/vsphere/
(Retrieved April 29, 2010)
YouTube: Installing VMware ESX 4.0 vSphere4
http://www.youtube.com/watch?v=3iLjgVCTL9M
(Retrieved April 29, 2010)

What VMware vSphere 4 Really Means For Smaller Businesses
http://bmighty.informationweek.com/hardware_software/showArticle.jhtml?articleID=217000028
(Retrieved April 29, 2010)

eWeek.com: eWeek Lab's First Take on VMware vSphere 4: Impressive
http://www.eweek.com/c/a/Virtualization/eWEEK-Labs-First-Take-on-VMware-vSphere-4-Impressive-170838/
(Retrieved April 29, 2010)

VMware vSphere 5.0

What's New in VMware vSphere 5?
http://www.vmware.com/files/pdf/products/vsphere/vmware-what-is-new-vsphere5.pdf
(Retrieved 11 June 2012)

VMware vSphere Documentation
http://www.vmware.com/support/pubs/vsphere-esxi-vcenter-server-pubs.html?rct=j&q=vsphere%205.0&source=web&cd=4&ved=0CHYQFjAD&url=http://www.vmware.com/go/support-pubs-vsphere&ei=iJzWT7ivHuSg2AXdkel-&usg=AFQjCNGXtIiO0Z1fajLgAxEYdJ3VXGQBcA
(Retrieved 11 June 2012)

Configuring Maximums for VMware vSphere 5.0
http://www.vmware.com/pdf/vsphere5/r50/vsphere-50-configuration-maximums.pdf
(Retrieved 11 June 2012)

What's New in vSphere 5.0 - Storage
http://www.vmware.com/files/pdf/techpaper/Whats-New-VMware-vSphere-50-Storage-Technical-Whitepaper.pdf
(Retrieved 11 June 2012)

VMware vSphere 5.0 Upgrade Best Practices
http://www.vmware.com/files/pdf/techpaper/vSphere-5-Upgrade-Best-Practices-Guide.pdf
(Retrieved 11 June 2012)

Understanding Memory Resource Management in VMware vSphere 5.0
http://www.vmware.com/files/pdf/mem_mgmt_perf_vsphere5.pdf
(Retrieved 11 June 2012)

vSphere 5 FAQ: VMFS-5
http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2003813
(Retrieved 11 June 2012)

COURSE OUTLINE

WEEK	*TOPIC*	*READING*	*PROJECT ASSIGNED*
1	VMware Workstation Mastery		Install and configure VMware Workstation Installing XP and VMware Tools Configuring Virtual Network Settings
2	VMware Workstation Mastery Discussion Mid-Term Exam #1		Snapshot Basic and Advanced Topics
3	Course Overview Intro to VMware vSphere 5.0 Virtual Machine Management	Module 1 Module 2 Module 3	 Upgrading to VMware vSphere 5.0 Managing Virtual Machines
4	Network Management Storage Management Scalability	Module 4 Module 5 Module 6	Network Management Storage Management Managing DataStore Clusters
5	High Availability New VMware vSphere Deployment Alternatives	Module 7 Module 8	Monitoring VMware vSphere High Availability VMware vCenter Server Appliance Config vSphere Auto Deploy on a Windows vCenter Server system Config vSphere Auto Deploy on the vCenter Server Appliance
6	Discussion Mid-Term Exam #2		
7	Course Introduction Virtual Infrastructure Overview Creating Virtual Machines	Module 1 Module 2 Module 3	 Using VMware vCenter Server Deploying a Virtual Machine

WEEK	***TOPIC***	***READING***	***PROJECT ASSIGNED***
8	Allocating Resources to Business Functions	Module 4	Allocating Computer Resources
	Migrating Virtual Machines	Module 5	Migrating Virtual Machines
	Distributing Virtual Machine Workloads	Module 6	Distributed Resource Scheduler Cluster (DRS)
9	Monitoring the Virtual Datacenter	Module 7	Using Alarms
	High Availability and Fault Tolerance	Module 8	Using vSphere High Availability
	Extending VMware vSphere Capabilities	Module 9	
10	Discussion Final Exam #3		

Your Grades for this Course

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other types of activities. The chart below indicates in what activities you will engage, how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity.

Students in this course should be graded following Coleman University assessment practices and policies. A point system is used in the University to indicate student performance on various required activities or projects. For this course, it is recommended that points be distributed as follows:

Coleman University Grade Assignment Policy

The Coleman University guidelines for the assignment of grades to total points earned is as follows:

Percent	Letter Grade	Grade Points
94-100	A	4.0
90-93	A-	3.7
87-89	B+	3.3
84-86	B	3.0
80-83	B-	2.7
77-79	C+	2.3
74-76	C	2.0
70-73	C-	1.7
0-69	Fail	0
	INC	0
	W	0
	WP	0
	WF	0
74 or above	CR	0
73 or below	NC	0
70 or above	PASS	0

Requirements

Assignments: All assignments (including projects, lab work, quizzes and exams) must be completed as scheduled. The following will apply to late assignments:

1-24 hours after due date = 20% off point value

25-48 hours after due date = 60% off point value

49+ hours after due date = No points given

If an assignment equals less than 5 points, no points will be given for late work. If there are extenuating circumstances, the student must submit a written explanation to the department Senior Instructor. Upon evaluation, points will be given according to the Senior Instructor's discretion.

Attendance: Classes begin and end as indicated in the published schedule. It is required that students be present at the beginning of each class session and stay until class is dismissed, including lab periods. Excessive tardiness, leaving early and/or absences (from either lecture or lab sessions) are causes for dismissal from the University. A student that arrives in class beyond 30 minutes late will be considered absent. A student that leaves over 30 minutes before the end of class will also be considered absent.

Conduct: Students are expected to conduct themselves in a professional manner while on campus. Rules of conduct are outlined in the University Catalog and students are required to adhere to such policies.

Coleman University Policy on Academic Dishonesty:

Academic dishonesty is cause for dismissal from Coleman University. Presenting another person's ideas, methods, course work, or test answers with the intention that they be taken as one's own is theft of a special kind. It defrauds the originator of the work, the institution, its graduates, its students, and its future students.

The student has full responsibility for the authenticity of all academic work and examinations submitted. A student who appears to have violated this policy must submit to a hearing with the reporting instructor and the associate dean. If it is determined that a violation occurred, the matter will be referred to an Officer of the University with recommendations for an appropriate penalty. The student may be dismissed, suspended, or given another penalty.

Coleman University employs the plagiarism software known as Turnitin. Students are expected to use this tool in an appropriate manner with the sole purpose to support their own academic endeavors at Coleman University. Turnitin account information cannot be shared with anyone. Contact your instructor if you have any questions about plagiarism related issues.