

Syllabus

Computer Science Information Technology 987

VMware Sphere: Install, Configure, Manage [V5.1]

Course: CSIT 987, 8511, Fall 2014, 3 Units

Instructor: Associate Professor Marcus Butler, CCNA, MCSE, VCP5

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Office Hours: Tuesday, Wednesday, Thursday from 3pm to 5pm

Introduction

West Los Angeles College is offering this course under its VMware IT Academy status. West gained its academy status in March 2012. This is the first course West is offering as a VMware IT Academy.

“The VMware IT Academy Program is designed to introduce students to VMware technologies and equip them with VMware technical skills to complement their chosen fields of study. VMware will provide selected academic institutions with course materials developed by VMware for this purpose. By instituting this program, VMware seeks to create a collaborative relationship with academic institutions whereby their students may obtain the VMware Certified Professional (VCP) status and other VMware certifications.”

The VMware IT Academy is one of many responses from VMware to address the trends in virtualization and cloud computing. In fact, VMware is the industry leader.

“Improve the efficiency and availability of IT resources and applications through virtualization. Start by eliminating the old “one server, one application” model and run multiple virtual machines on each physical machine. Free your IT admins from spending so much time managing servers rather than innovating. About 70% of a typical IT budget in a non-virtualized datacenter goes towards just maintaining the existing infrastructure, with little left for innovation.

An automated datacenter built on the production-proven VMware virtualization platform lets you respond to market dynamics faster and more efficiently than ever before. [VMware vSphere](#) delivers resources, applications—even servers—when and where they’re needed. VMware customers typically [save 50-70% on overall IT costs](#) by consolidating their resource pools and delivering highly available machines with VMware vSphere.”

Course Description

- This hands-on training course explores installation, configuration, and management of VMware vSphere®, which consists of VMware ESXi™ and VMware vCenter Server™. The course is based on ESXi 5.1 and vCenter Server 5.1.
- Completion of this course satisfies the prerequisite for taking the VMware® Certified Professional 5.1 and 5.1 exams.
- Students who complete this course may enroll in any of several more advanced vSphere courses. For advanced course options, see www.vmware.com/education.

Audience Profile:

- System administrators (Windows, Linux)
- Systems & Network engineers
- Operators responsible for ESXi and vCenter Server

Course Student Learning Outcomes – SLO's:

At the end of the course, successful students will gain an understanding of the functionality in vSphere 5 and be able to do the following:

- Install and configure ESXi
- Install and configure vCenter Server components
- Configure and manage ESXi networking and storage using vCenter Server
- Deploy, manage, and migrate virtual machines
- Manage user access to the VMware infrastructure
- Use vCenter Server to monitor resource usage
- Use vCenter Server to increase scalability
- Use VMware vCenter™ Update Manager to apply ESXi patches
- Use vCenter Server to manage higher availability and data protection

Course Prerequisites

Before attending this course, students should have:

- System administrator experience with Windows Server or Linux
- Working knowledge of networking technologies
- Intermediate understanding of network operating systems
- Basic knowledge of Active Directory (Users, Groups, Permission Inheritance)
- An understanding of security concepts and methodologies
- Basic knowledge of TCP/IP
- Basic knowledge of command line concepts

At West LA College students typically meet the above course prerequisites by completing the following courses:

- CS972 – Introduction to Cisco Networking Fundamentals
- CS982 – Introduction to Microsoft Server Operating Systems (Windows Server 2003/2008)
- CS984 – Introduction to Windows Active Directory Services

So, make no mistake this is advanced course. In fact, this is one of the most advanced computer science courses offered at West. You should not consider taking this course without the appropriate background. Of course, there are numerous ways to build that appropriate background, but there are no short-cuts or quick paths to doing it the right way.

Your failure to take the right courses or gain the experience will be immediately apparent in this course. Why, because there's an assessment exam at the beginning of the course. Students who fail the assessment exam will not be automatically dropped from the course. If you score 70% or higher you will be given some suggestions as to how remediate your deficiencies. If you score less than 70% you may be encouraged to drop this class in order to take the appropriate classes to prepare you.

Course Requirements and Expectations

- 1) Class Attendance Policy:
 - a. All students must attend the first day of class (orientation)
 - b. All students must be present for the official course exams
 - c. All students must attend special lecture(s)/demos (Announcements are via ETUDES)
- 2) It is your responsibility to drop the class, if you no longer wish to participate; failure to drop the class in a timely manner will result in a “W” or “F” on your record. The instructor may drop you, as well for inactivity.
- 3) You have approximately 3 days to purchase the required eBook for this class. In addition, there are two suggestions related to optional course material.
- 4) General course information is available under the “Modules” link.
- 5) There are currently 21 lab exercises. Students will perform these labs remotely online using the CSIT Division NetLAB+ system. The instructor will assign Usernames and Passwords during the first week of class.
- 6) There are currently four official course exams. Each exam covers three or four chapters. Due dates for exams and lab exercises are posted in ETUDES and in the syllabus. Each exam is timed for 60 minutes or less depending on the number of questions. Exams will typically consist of multiple choice and true/false questions. THERE IS NO MAKE-UP or EXAM RE-TAKE. You will be dropped from the course, if you miss two or more exams.
- 7) You will prepare for exams by attending lectures, reading the course eBook, completing lab exercises, and utilizing optional course resources.
- 8) Once the course begins all questions, issues, or problems should be brought to my attention by you using the ETUDES "Private Messages" feature on the left-hand menu. In other words after the course start date do not sent emails related to this course to my WLAC email address.
- 9) All other college/class rules will be enforced.

Required Materials - VMware IT Academy eBook

The VMware IT Academy provides an eBook for academy students only. The eBook consist of:

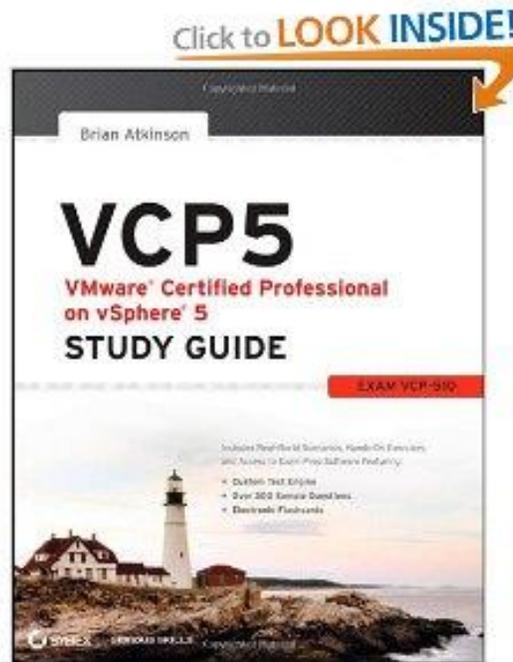
- Part I – Lecture 1
- Part II – Lecture 2
- Lab Manual

- 1) There is only one source for purchasing the required eBook. This is an academy requirement.
- 2) Gilmore Global eBooks is the only authorized source for the required eBook.
- 3) You must purchase your eBook online using the information provided below.

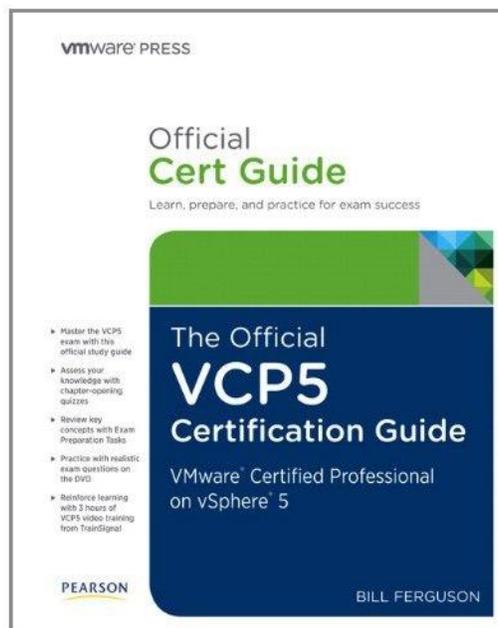
Suggested (Optional) Textbooks – Study Guides

- 1) There are two optional study guides I am recommending. You can purchase one of them, both of them, or neither. It's totally up to you.
- 2) Of course, I highly recommend that you consider purchasing a study guide. This is a must for anyone who is seriously preparing for the VCP5 certification exam. The required eBook is complete, but it does not address the VCP5 certification exam objectives as outlined in the VMware Exam Blueprint.
- 3) Both study guides cover the exam objectives as described in the VMware Exam Blueprint, but each author has a very different approach to covering the exam topics. In addition, their writing styles are unique. You may prefer one style or another.
- 4) My suggestion is that you visit Amazon or your favorite textbook source for reviews and additional information about each study guide. I have provided links for your convenience.
- 5) Each study guides comes with their own collection of value added resources, such as, practice exams, videos, flash cards, and online resources.
- 6) The study guides are not available through the bookstore at this time.

Suggested (Optional) Textbooks – Study Guides



http://www.amazon.com/VMware-Certified-Professional-vSphere-Study/dp/1118181123/ref=sr_1_1?s=books&ie=UTF8&qid=1345044326&sr=1-1&keywords=VCP5+Study+Guide



http://www.amazon.com/Official-Certification-Guide-VMware-Press/dp/0789749319/ref=pd_sim_b_2

Cross Reference Table

VMware eBook - VCP5 Certification Guide – VCP5 Study Guide

eBOOK MODULES	VCP5 CERTIFICATION GUIDE	VCP5 STUDY GUIDE
M1 – Course Introduction	No Chapter Available	C1 – What’s New in vSphere5
M2 – Intro. To Virtualization	No Chapter Available	No Chapter Available
M3 – Virtual Machines	C4 – Deploying/Administering VM & vApps	C6 – Create/Deploy VMs & vApps
M4 – VMware vCenter Server	C7 – Monitoring vSphere Implementation	C2 – Plan, Install, Configure & Upgrade vCenter and VMware ESXi
M5 – Configure/Manage Virtual Networks	C2 – Planning/Configuring vSphere Networking	C4 – Plan/Configure vSphere Networking
M6 – Configure/Manage Virtual Storage	C3 – Planning/Configuring vSphere Storage	C5 – Plan/Configure vSphere Storage
M7 – Managing Virtual Machines	C4 – Deploying/Administering VM & vApps	C7 – Manage/Administer VMs & vApps
M8 – Data Protection	C5 – Establishing/Maintaining Service Levels	C9 – Maintain Service Levels
M9 – Access/Authentication Control	C1 – Planning/Installing/Configuring	C3 – Secure vCenter Server & ESXi and Identify vSphere Architecture/Solutions
M10 – Resource Management & Monitoring	C5 – Establishing/Maintaining Service Levels C7 – Monitoring vSphere Implementation	C8 – Establish Service Levels with Cluster C11 – Monitor a vSphere Implementations
M11 – High Availability	C5 – Establishing/Maintaining Service Levels C6 – Performing Basic Troubleshooting	C8 – Establish Service Levels with Cluster C10 – Perform Basic Troubleshooting
M12 – Host Scalability	C5 – Establishing/Maintaining Service Levels	C8 - Establish Service Levels with Cluster
M13 – Patch Management	C5 – Establishing/Maintaining Service Levels	C9 – Maintain Service Levels
M14 – Installing vSphere Components	C1 – Planning/Installing/Configuring	C2 - Plan, Install, Configure & Upgrade vCenter and VMware ESXi

Note:

As you can see there is no one-to-one chapter reference between the course eBook and the recommended certification/study guides. The best approach is to read the eBook module first, then supplement the module by reading the corresponding certification/study guide chapter(s) as mapped in the table above.

CS987 Fall 2014 Assignments/Exams Schedule

Please observe the start (S:) and due (D:) dates for assignments and exams:

WEEK	DATES	eBOOK MODULES	ASSIGNMENTS	LABS	EXAMS
1 ST	9/01/2014	M1 – Course Introduction (P10)	Assignment: M1 (S:9/1 – D:9/7)		
2 ND	9/08/2014	M2 – Introduction to Virtualization (P47)	Assignment M2 (S:9/8 – D:9/14)	ICM 5.1 Lab 0	
3 RD	9/15/2014	M3 – Virtual Machines (P32)	Assignment M3 (S:9/8 – D:9/21)	ICM 5.1 Lab 1 ICM 5.1 Lab 2	
4 TH	9/22/2014	M4 – VMware vCenter Server (P42)	Assignment M4 (S:9/22 – D:9/28)	ICM 5.1 Lab 3 ICM 5.1 Lab 4 ICM 5.1 Lab 5 ICM 5.1 Lab 6	E1 – M2, M3 & M4 (9/24/14)
5 TH	9/29/2014	M5 – Configure and Manage Virtual Networks (P31)	Assignment M5 (S:9/22 – D:10/5)	ICM 5.1 Lab 7	
6 TH 7 TH	10/06/2014 10/13/2014	M6 – Configure and Manage Virtual Storage (P78)	Assignment M6 (S:10/6 – D:10/19)	ICM 5.1 Lab 8 ICM 5.1 Lab 9 ICM 5.1 Lab 10	
8 TH	10/20/2014	M7 – Managing Virtual Machines (P67)	Assignment M7 (S:10/20 – D:10/26)		E2 – M5, M6 & M7 (10/22/14)
9 TH	10/27/2014	M8 – Data Protection (P20)	Assignment M8 (S:10/27 – D:11/2)		
10 TH	11/03/2014	M9 – Access & Authentication Control (P28)	Assignment M9 (S:11/3 – D:11/9)	ICM 5.1 Lab 11 ICM 5.1 Lab 12 ICM 5.1 Lab 13	
11 TH	11/10/2014	M10 – Resource Management/Monitoring (P70)	Assignment M10 (S:11/10 – D:11/16)	ICM 5.1 Lab 14	
12 TH	11/17/2014	M11 – High Availability (P51)	Assignment M11 (S:11/17 – D:11/23)	ICM 5.1 Lab 15 ICM 5.1 Lab 16	E3 – M8, M9 & M10 (11/19/14)
13 th 14 th	11/24/2014 12/01/2014	M12 – Host Scalability (P29)	Assignment M12 (S:11/24 – D:12/7)		
15 th	12/08/2014	M13 – Patch Management (P22)	Assignment M13 (S:12/8 – D:12/14)	ICM 5.1 Lab 17 ICM 5.1 Lab 18	
16 th	12/15/2014	M14 – Installing vSphere Components (P25)	Assignment M14 (S:12/15 – D:12/21)	ICM 5.1 Lab 19 ICM 5.1 Lab 20 ICM 5.1 Lab 21	E4 – M11, M12, M13 & M14 (12/17/14)
	12/15/2014	Final Exam Week			
	12/21/2014	Semester Ends			

Course Point Table

LABS	POINTS
NetLAB VMware Exercises:	
Lab0: Installing ESXi	50
Lab 1: Install VMware vSphere Graphical User Interfaces	25
Lab 2: Configuring VMware ESXi	25
Lab 3: Configure VMware vCenter Server Appliance	50
Lab 4: Standard Virtual Switches	25
Lab 5: Access iSCSI Storage	25
Lab 6: Accessing IP Storage	25
Lab 7: Managing VMware vSphere VMFS	25
Lab 8: Working with Virtual Machines	25
Lab 9: Using Templates and Clones	25
Lab 10: Modifying a Virtual Machine	25
Lab 11: Host Profiles	25
Lab 12: Migrate Virtual Machines	25
Lab 13: Manage Virtual Machines	25
Lab 14: Manage vApps	25
Lab 15: Access Control	25
Lab 16: User Permissions	25
Lab 17: Resource Pools	25
Lab 18: Monitoring Virtual Machine Performance	25
Lab 19: Using Alarms	25
Lab 20: Using VMware High Availability	50
Lab 21: VMware Distributed Resource Scheduler	50
TOTAL NetLAB POINTS:	650

Note:

- All labs must be completed in sequence.
- Students will be required to complete each lab at least once.
- This means you will complete Lab 0 through Lab 21, and then repeat the sequence again.

Course Point Table

ETUDES EXAMS	POINTS
ETUDES Official Course Exams:	
Exam-1: Module-2, Module-3 and Module-4	100
Exam-2: Module-5, Module-6 and Module-7	100
Exam-3: Module-8, Module-9 and Module-10	100
Exam-4: Module-11, Module-12, Module-13, Module-14	100
Total Official Exam Points:	400

Course Grading Scale

There are a total of 1725 points possible for this course as indicated by the tables above. The total is based on 15 homework assignments (675 points), 21 NetLAB exercises (650 points) and four official course exams (400 points).

Students are required to achieve a 70% course percentile in order to qualify for the 70% exam voucher discount.

COURSE GRADE	POINT RANGE	% RANGE
"A"	1725 – 1553	100% - 90%
"B"	1552 – 1380	89% - 80%
"C"	1379 – 1208	79% - 70%
"D"	1207 – 1035	69% - 60%
"F"	1034 – 0	59% - 0

Instructor's Incomplete Policy

The request for an Incomplete is a common one. I have a formal and consistent policy to determine whether an incomplete makes academic sense and is possible.

- 1) My position is that a student who has successfully completed more than 75% of the course work and has a justifiable explanation should be considered for an Incomplete.
- 2) A student who has not successfully completed 75% or more and does not have justifiable circumstances would either be dropped (if possible), failed, or given a grade based on the course submitted to date.

Methods of Evaluation

All exercises and exams are given a point assessment. The requirements to receive full credit for any exercise or exam are provided below:

eBook homework assignments - requirements to receive full credit:

- Must be submitted and completed on time
- Must be submitted in required format
- Correct answers must include key words, terms, or expressions
- Must not be copied or duplicated from another student
- Assignments are graded manually and posted in ETUDES

NetLAB Exercises - requirements to receive full credit:

- Successfully perform all lab steps
- Complete the lab “conclusion questions” associated with each lab, if any
- Exercises are manually reviewed/graded by the instructor

ETUDES Official Course Exams – requirements to receive full credit

- Answer all questions correctly
- Take and complete the exam when scheduled
- Scores can be reviewed in the ETUDES grade book
- Exams are automatically graded by the ETUDES system upon submission

Instructor Response Policy

Students must communicate with me directly using the ETUDES Message system after the course has started. Do not send multiple messages or send the same message to my various email addresses. This may actually delay a response. I will make every effort to respond within 48 hours or less on average.

Drop Policy

If you choose to drop a course, it is your responsibility to do so by the end of the second week of class if you wish to receive a tuition refund. For compressed eight week semesters, you must drop by the end of the first week to receive a tuition refund. You will not be automatically dropped from your class for lack of participation.

If you drop a class after the fourth week of the semester has passed, you will receive a "W" grade for that class. If you drop a class after the tenth week has passed, you will receive an "F" grade for that class. If you drop a class after the second week has passed in a compressed eight week semester, you will receive a "W" grade for that class. If you drop a class after the fifth week has passed in a compressed eight week semester, you will receive an "F" grade in that class.

Important Drop Dates for Fall 2014:

- Get a full refund: 9/12/14
- Last day to add a class:
 - Online: 8/31/14
 - In-person: 9/12/14
- File for "pass/no pass": 9/12/14
- Drop class without a "W": 9/12/14
- Drop class with a "W": 11/21/14

Special Needs and Disabled Students Policy

If you are a student with a disability and require accommodations, please send me a Private Message. The sooner I am aware of your eligibility for accommodations, the quicker I will be able to assist the Disabled Students Programs & Services (DSP&S) Office in providing them. The DSP&S Office provides special assistance in areas including: registration assistance specialized tutoring, academic and career guidance counseling, instructor liaison, special instruction and testing assistance. You can contact the Director of the DSP&S Office, Adrienne Foster, at fosteraa@wlac.edu describing the accommodations that are necessary.

Academic Integrity Statement

Academic integrity is a fundamental value of higher education and WLAC; therefore, acts of cheating, plagiarism, falsification or attempts to cheat, plagiarize or falsify will not be tolerated in this course. It is your responsibility to understand what plagiarism is and you can read about it here: <http://www.plagiarism.org>.

Any student caught cheating or plagiarizing will be subject to disciplinary action.

Online Student Resources

- Online Student Helpdesk: <http://www.wlac.edu/online/helpdesk.asp>
- Course Login: <http://www.wlac.edu/online/logininfo.asp>
- Technical Requirements: <https://etudes-ng.fhda.edu/portal/site/!gateway/page/4243c7b4-9b68-45fc-0016-148ad08653aa>
- ETUDES FAQ: <http://www.wlac.edu/online/etudesfaq.asp>
- WLAC Homepage: <http://www.wlac.edu>
- WLAC Online Homepage: <http://www.wlac.edu/online>
- WLAC Online Counseling: <http://www.wlac.edu/online/counselingonline.asp>
- WLAC Online Tutoring: <http://www.wlac.edu/online/tutoring.asp>
- WLAC Library: <http://www.wlac.edu/library/index.html>
- WLAC Bookstore: <http://store450.collegestoreonline.com>
- Netiquette: <http://www.albion.com/netiquette/corerules.html>
- Strategies for Online Learners: <http://www.uidaho.edu/eo/dist8.html>
- Be a Successful Online Student:
<http://www.ion.uillinois.edu/resources/tutorials/pedagogy/StudentProfile.asp>
- Tips for Online Success: <http://www.ion.uillinois.edu/resources/tutorials/pedagogy/tips.asp>