

# Computer Integration (CPMT 2333)



**Credit:** 3 semester credit hours (2 hours lecture, 4 hours lab)

**Prerequisite/Co-requisite:** None

## Course Description

Integration of hardware, software, and applications. Customization of computer systems for specific applications such as engineering, multimedia, or data acquisition.

## Required Textbook and Materials

1. Getting Started with VMware Workstation: VMware Workstation 11, [www.vmware.com](http://www.vmware.com), 2015
  - a. <http://pubs.vmware.com/workstation-11/topic/com.vmware.ICbase/PDF/ws11-getting-started.pdf>
2. Using VMware Workstation: VMware Workstation 11, [www.vmware.com](http://www.vmware.com), 2015
  - a. <http://pubs.vmware.com/workstation-11/topic/com.vmware.ICbase/PDF/ws11-using.pdf>
3. Installing and Configuring VMware Tools, [www.vmware.com](http://www.vmware.com), 2012
  - a. <http://www.vmware.com/pdf/vmware-tools-installation-configuration.pdf>
4. VMWare KVM, [www.vmware.com](http://www.vmware.com), 2013
  - a. <http://pubs.vmware.com/workstation-11/topic/com.vmware.ICbase/PDF/vmware-kvm.pdf>
5. Using vmrun to Control Virtual Machines, [www.vmware.com](http://www.vmware.com), 2012
  - a. [https://www.vmware.com/support/developer/vix-api/vix112\\_vmrun\\_command.pdf](https://www.vmware.com/support/developer/vix-api/vix112_vmrun_command.pdf)
6. VMware Workstation Documentation from VMware, [www.vmware.com](http://www.vmware.com), 2015
  - a. [https://www.vmware.com/support/pubs/ws\\_pubs.html](https://www.vmware.com/support/pubs/ws_pubs.html)
7. Computer Networking and Troubleshooting Technology students are required to have one portable external Hard Drive with a capacity of 500GB or larger to be used for the duration of the time to complete their respective degree.

## Course Objectives

Upon completion of this course, the student will be able to:

1. Integrate special applications in the areas of multimedia, data acquisition, or engineering
2. Install and maintain various hardware and software components for specialized applications
3. Analyze and test system operations

## Course Outline

1. Introduction to Network Addressing
  - a. IPv4 addressing
  - b. IPv6 addressing

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- c. Network ID
- d. Host ID
- e. MAC Address
- 2. Introduction to Network Communication
  - a. Subnet addressing
  - b. NAT
- 3. The Technology Behind Virtualization
  - a. What is virtualization?
  - b. Controlling Multiple Guest Operating Systems
  - c. Hypervisor Methods of Virtualization
- 4. Introduction to VMware
  - a. Host System Requirements
  - b. Virtual Machine Features and Specifications
- 5. Installing and Using Workstation
  - a. License Key
  - b. Installing with other VMware products
  - c. Upgrading a Host OS
  - d. Integrated Virtual Debuggers
  - e. Installing Workstation
  - f. Upgrading Workstation
  - g. Uninstalling Workstation
  - h. Start Workstation
  - i. The Workstation Window and Help feature
- 6. Creating Virtual Machines
  - a. Understanding Virtual Machines
  - b. Features of a Typical Virtual Machine
  - c. Create a Typical Virtual Machine
  - d. Easy Install
  - e. Manual Installation
  - f. VMware Tools
  - g. Install Software in a Virtual Machine
- 7. Using Virtual Machines
  - a. Start and Shut Down a Virtual Machine
  - b. Pause and Unpause
  - c. Suspend and Resume
  - d. Drag-and-Drop
  - e. Copy and Paste
  - f. Add a Host Printer
  - g. Removable Devices
  - h. Virtual Machine Display
  - i. Using Folders to Manage VMs

- j. Snapshots
- k. Closing VMs and Exiting Workstation
- 8. Configuring and Managing Virtual Machines
  - a. Power Option and Settings
  - b. Display Preferences
  - c. Unity Mode
  - d. Encrypting Virtual Machines
  - e. Moving Virtual Machines
- 9. Configuring and Managing Devices
  - a. DVD, CD-ROM, and Floppy Drives
  - b. USB Controller
  - c. Virtual Hard Disks
  - d. Adding a Physical Disk to a Virtual Machine
  - e. Virtual Symmetric Multiprocessing
  - f. Modify Hardware Settings
- 10. Configuring Network Connections
  - a. Understanding Virtual Network Components
  - b. Common Networking Configurations
  - c. Bridged Networking
  - d. Network Address Translation
  - e. Host-Only Networking
  - f. Addressing in Host-Only and NAT Configurations
  - g. MAC Addressing
- 11. Using Remote Connections and Sharing Virtual Connections
  - a. VMware Workstation Server
  - b. Remote Server
  - c. Shared Virtual Machines
  - d. Privileges and Permissions
- 12. Using the VMware Command
  - a. Run the command
  - b. Workstation Startup Options
- 13. VMWare KVM
  - a. Using VMware KVM
  - b. Setting the Hot Keys and Log File
- 14. VMware vmrun Utility
  - a. Commands
  - b. Setting Up vmrun
  - c. Specifying the VMware Product Platform
  - d. Virtual Machine Run Reference

## **Grade Scale**

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

## **Course Evaluation**

Final grades will be calculated according to the following criteria:

Labs	25%
Chapter Tests	35%
Final Exam	35%

## **Course Requirements**

1. Demonstrate proficiency through hands-on labs as assigned.
2. Complete Study Guides.

## **Course Policies**

1. No food, drinks, or use of tobacco products in class.
2. Electronic devices not being used for the class, such as phones and headphones, must be turned off while in class.
3. Do not bring children to class.
4. Certification: If a student passes the certification test that is associated with this class, you will receive an “A” on the final exam and credit for 25% of your labs. If you have missed a previous test, you must still take the final exam to substitute for that grade.
5. Attendance Policy: Three absences are allowed. If a student is tardy to class or departs early three (3) times, it will be equal to one (1) absence. Each absence beyond three absences will result in a 2 point deduction from your final grade.
6. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an ‘F’ in the course.
7. Tools: Return all tools and/or software to their designated place.
8. A grade of ‘C’ or better must be earned in this course for credit toward degree requirement.
9. Additional course policies, as defined by the individual course instructor, will be outlined in the course addendum and provided by the instructor.

## **Disabilities Statement**

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented

disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

### **Technical Requirements (for courses using Blackboard)**

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

[https://help.blackboard.com/en-us/Learn/9.1\\_2014\\_04/Student/015\\_Browser\\_Support/015\\_Browser\\_Support\\_Policy](https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy)

A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

### **Student Code of Conduct Statement**

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the LIT Catalog and Student Handbook. The LIT Catalog and Student Handbook may be accessed at [www.lit.edu](http://www.lit.edu) or obtained in print upon request at the Student Services Office. Please note that the online version of the LIT Catalog and Student Handbook supersedes all other versions of the same document.

### **Certification Requirement**

CNTT majors are required to earn certification in one of the following areas prior to graduation.

- A+ Certification
- Cisco Certified Entry Network Technician (CCENT)
- Cisco Certified Network Associate (CCNA)
- Microsoft Certified Solutions Associate (MCSA)

This course covers the material to prepare for the Desktop portion of VMware certification. There are additional requirements for the certification that are not covered in the CNTT curriculum. More information about VMware certification can be found online at <http://mylearn.vmware.com/portals/certification/>.

### **Course Schedule**

Week of	Topic	Reference
Week 1	Course introduction and policies	
	Introduction to IP Addressing	Lecture
	Network Communication	Lecture
Week 2	VMware Networks	Lecture

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Week of	Topic	Reference
	The Technology Behind Virtualization	Handout
Week 3	Review and Test 1	
Week 4	Introduction to VMware Installing and Using Workstation	pp. 7 – 14 Getting Started pp. 15 – 36
Week 5	Creating Virtual Machines	pp. 37 – 54
Week 6	Using Virtual Machines	pp. 55 – 75
Week 7	Test 2	
Week 8	Configuring and Managing Virtual Machines	pp. 85 – 108 Using VMware
Week 9	Configuring and Managing Devices	pp. 109 – 142
Week 10	Configuring Network Connections	pp. 143 – 176
Week 11	Test 3	
Week 12	Using Remote Connections and Sharing Virtual Machines Using vmware Command	pp. 177 – 196 pp. 197 – 198
Week 13	VMware KVM	pp. 5 – 8 VMware KVM
Week 14	Using vmrun to Control Machines	pp. 7 – 18 Using vmrun
Week 15	Test 4 Labs Due	
Week 16	Final Exam	

**Contact Information:**

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