

Computer Virtualization (ITNW 1313)



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

Prerequisite/Co-requisite: None

Course Description

Implement and support virtualization of clients of servers in a networked computing environment. This course explores installation, configuration, and management of computer virtualization workstation and servers.

Required Textbook and Materials

1. *Hands-On Virtual Computing, 2nd Edition*; 2018; Simpson and Novak.
 - a. ISBN for the [print book](#) is 9781337101936.
 - b. ISBN for the [E-book](#) is 9781337669740.
2. Computer Networking and Troubleshooting Technology students are required to have one 64 GB or larger capacity USB Flash Drive 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. Install and configure virtual machine managers.
2. Create and network virtual machines
3. Set priorities for accessing resources.
4. Move and clone virtual machines.
5. Ensure high availability for applications within virtual machines.

Course Outline

1. Introduction to Virtual Computing
 - a. Overview of Virtual Machines and Virtualization Software
 - b. Virtualization Software Categories and Products
 - c. Virtualization Features to Look for in Products
 - d. Comparing and Downloading Virtualization Products
2. Working with Oracle VM VirtualBox 5
 - a. Installing VirtualBox
 - b. Creating a Virtual Machine
 - c. Basic Virtual Machine Functions
 - d. Working with the VirtualBox Manager
 - e. Working with Virtual Machines in VirtualBox
3. Working with VMware Workstation 12 Pro
 - a. Installing VMware Workstation 12 Pro
 - b. Getting Started with VMware Workstation 12 Pro

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Course Syllabus

- c. Using the Administrative Console Menus
 - d. Working with Virtual Machines
- 4. Data Center Virtualization and Cloud Computing
 - a. Data Center Virtualization and Cloud Computing
 - b. Data Center Storage Systems
 - c. Virtual Network Systems
 - d. Virtualization Security
- 5. Working with Microsoft Hyper-V
 - a. Installing Hyper-V
 - b. Working with Hyper-V Manager
 - c. Working with Virtual Machines in Hyper-V
 - d. Using Checkpoints
- 6. Working with Virtual Machine Manager
 - a. Installing Virtual Machine Manager
 - b. Working with the VMM Console
- 7. Working with VMware vSphere
 - a. Planning a vSphere Installation
 - b. Configuring the Virtual Network Environment
 - c. Working with Virtual Machines
- 8. Working with VMware vCenter Server
 - a. Implementing Shared Storage
 - b. Working with vCenter Server
 - c. Working with vSphere Virtual Machines
 - d. Implementing Access Control Security
- 9. Implementing a Virtual Desktop Infrastructure
 - a. Introduction to Virtual Desktop Infrastructure
 - b. Working with VMware Horizon 7
 - c. Working with Microsoft Virtual Desktop Infrastructure
- 10. Introduction to Cloud Computing
 - a. Introduction to Cloud Services
 - b. VMware Cloud Services
 - c. Microsoft Cloud Services
 - d. Introduction to OpenStack Cloud Components

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	30%
Attendance	10%
Tests	30%
Final Exam	30%

Course Requirements

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

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. Any device usage during class may result in a deduction of points on an assignment or test.
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, visit the Student Services office in the Eagles' Nest, or visit the online resource: <https://www.lit.edu/student-success/special-populations>.

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/Learn/Student/Getting_Started/Browser_Support/Browser_Checker.

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

Starfish

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff, all through the Starfish home page. You can also log in to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

For more information, visit <https://www.lit.edu/step/starfish>.

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 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
- Network+ Certification
- Security+ Certification
- Cisco Certified Entry Network Technician (CCENT) (*This test is available for students through July 23, 2020.*)
- Cisco Certified Network Associate (CCNA)
- Microsoft Certified Solutions Associate (MCSA)