

# 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. *Cloud Essentials: CompTIA Authorized Courseware for Exam CLO-001*, by Kirk Hausman, Susan L. Cook, Telmo Sampio, Wiley, 2013.
  - a. ISBN number for print book is 978-1-118-40873-5
2. 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. 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. What is Cloud Computing?
  - a. Defining Cloud Computing
  - b. Understanding Distributed Application Design
  - c. Understanding Resource Management Automation
  - d. Understanding Virtualized Computing Environments
  - e. Understanding High-Performance Computing Environments
  - f. Understanding Cloud Computing Technologies
2. Cloud Models
  - a. Planning Organizational Roles in the Cloud
  - b. Identifying Cloud Deployment Models
  - c. Including Future Cloud Models
3. Service Models
  - a. Categorizing Cloud Services
  - b. Examining Software as a Service
  - c. Examining Platform as a Service
  - d. Examining Infrastructure as a Service
  - e. Identifying Emerging Cloud Database Capabilities
  - f. Defining Everything as a Service
4. Current Cloud Technologies

- a. Comparing Traditional Technologies and Cloud Alternatives
  - b. Accessing the Cloud
  - c. Leveraging Software as a Service
  - d. Developing within Platform as a Service
  - e. Implementing Infrastructure as a Service
  - f. Empowering Mobile Computing
5. Cloud Business Value
    - a. Identifying Business Drivers for Cloud Computing
    - b. Examining the Business Impact
  6. Cloud Infrastructure Planning
    - a. Understanding Cloud Networks
    - b. Leveraging Automation and Self-Service
    - c. Understanding Federated Cloud Services
    - d. Achieving Interoperability
  7. Strategies for Cloud Adoption
    - a. Aligning Cloud Deployments with Organizational Goals
    - b. Identifying the Impact of Cloud Adoption on Business Processes
    - c. Understanding the Importance of Service-Level Agreements
  8. Applications in the Cloud
    - a. Understanding the Role of Standard Applications
    - b. Developing Cloud-Ready Applications
    - c. Migrating Applications to the Cloud
    - d. Preparing for Technical Challenges
    - e. Identifying and Mitigating Risks
  9. Cloud Service Rollout
    - a. Identifying Vendor Roles and Responsibilities
    - b. Identifying Organizational Skill Requirements
    - c. Transitioning to Live Environments
    - d. Preparing for Incident Management
  10. Cloud Service-Level Management
    - a. Understanding ITIL Service Management
    - b. Applying ITIL to Cloud Computing
    - c. Developing and Utilizing Performance Metrics
    - d. Implementing Continual Service Improvement
  11. Security in the Cloud
    - a. Understanding Security and Risk
    - b. Reviewing Security Standards
    - c. Exploring Common Risks and Security Mechanisms
    - d. Implementing an ISMS
    - e. Responding to Incidents
    - f. Recognizing Security Benefits
  12. Privacy and Compliance
    - a. Identifying Legal Risks
    - b. Identifying Privacy Risks
    - c. Managing Identity in the Cloud

## 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%
Study Guides	10%
Module Tests	30%
Final Exam	30%

## Course Requirements

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 CompTIA's Cloud+ certification, exam number CVO-001. Students are responsible for scheduling and paying for the certification through the LIT Testing Center. More information about the certification can be found online at <https://certification.comptia.org/certifications/cloud>.

### **Course Schedule**

Week of	Topic	Reference
Week 1	Syllabus and policies Course Introduction Chapter 1: What is Cloud Computing?	pp. 1-14
Week 2	Chapter 1: What is Cloud Computing?	pp. 1-14
Week 3	Chapter 2: Cloud Models	pp. 15-28
Week 4	Chapter 3: Service Models	pp. 29-46

ITNW 1313  
Course Syllabi

Week of	Topic	Reference
Week 5	Chapter 3: Service Models	pp. 29-46
Week 6	Chapter 4: Current Cloud Technologies	pp. 47-74
Week 7	Chapter 5: Cloud Business Value	pp. 75-86
Week 8	Chapter 6: Cloud Infrastructure Planning	pp. 87-104
Week 9	Chapter 6: Cloud Infrastructure Planning	pp. 87-104
Week 10	Chapter 7: Strategies for Cloud Adoption	pp. 105-118
Week 11	Chapter 8: Applications in the Cloud	pp. 119-140
Week 12	Chapter 9: Cloud Service Rollout	pp. 141-156
Week 13	Chapter 10: Cloud Service-Level Management	p. 157-176
Week 14	Chapter 11: Security in the Cloud	pp. 177-196
Week 15	Chapter 12: Privacy and Compliance	pp. 197-210
Week 16	Future of the Cloud	pp. 211-216

**Contact Information:**

**Program Director:** Lauri Arnold-Calder  
Program Director  
Computer Networking and Troubleshooting Technology

**Office:** Office 103C, TA-4

**Telephone:** (409) 839-2050

**E-mail:** lauri.arnold@lit.edu