



CSCI 50 - Cloud Computing/Cloud+

Catalog Description

Transfer Status: CSU
Unit(s): 3.00
Lecture: 34.00 Contact hours/68.00 Out of class hours/102.00 Total hours/2.00 Unit(s)
Lab: 51.00 Contact hours/0.00 Out of class hours/51.00 Total hours/1.00 Unit(s)
Total: 85.00 Contact hours/68.00 Out of class hours/153.00 Total hours/3.00 Unit(s)
Course Description: This course covers cloud deployment and service models, cloud infrastructure, and the key considerations in migrating to cloud computing. This course also provides the required technology essentials across all domains—including compute, storage, networking, applications, and databases—to help develop a strong understanding of virtualization and cloud computing technologies. Prepares students for the AWS Cloud Practitioner and the CompTIA Cloud+ certifications. (C-ID ITIS 170).

Objectives

- Upon successful completion of this course, the student should be able to:
1. Explain the importance and benefits of cloud computing, the various cloud services (IaaS, PaaS, and SaaS), and its rapid adoption.
 2. Present and use a road-map for building cloud infrastructure using a cloud computing reference model or adoption framework.
 3. Explain the software-defined approach to managing IT infrastructure including virtualization, core services (compute, storage, network, and database), and deployment models (public/private, hybrid and multi-cloud).
 4. Explain business continuity options and address common security concerns in a cloud environment.
 5. Describe service management activities in cloud computing.

Course Content

Topic Titles / Suggested Time Topic	
Lecture	
Topics	Lec Hrs
Core Services	6.00
• Compute (server) • Storage • Networking and Virtual Private Clouds (VPC) • Database	
Service Management	3.00
• Service portfolio management processes • Service operation management processes	
Security	4.00
• Cloud security threats • Cloud security mechanisms • Governance, risk, and compliance	
Business Continuity	5.00
• Business continuity and service availability • Fault tolerance mechanisms • Backup and replication • Cloud application resiliency	
Cloud Architecture	3.00
• Cloud computing well-architected frameworks • Well-architected design principles • Reliability and High Availability	
Virtual Layer	5.00
• Virtual layer functions • Virtualization software • Resource pool and virtual resources	
Building the Cloud Infrastructure	4.00

<u>Topics</u>	<u>Lec Hrs</u>
• Cloud computing reference model or adoption framework • Deployment options and solutions for building cloud infrastructure • Considerations for building cloud infrastructure	
Introduction to Cloud Computing	4.00
• Essential characteristics of cloud computing • Cloud service models and cloud service brokerage • Cloud deployment models	
Total Hours: 34.00	

<u>Topics</u>	<u>Lab</u>	<u>Lab Hrs</u>
Introduction to Cloud Computing		5.00
• Essential characteristics of cloud computing • Cloud service models and cloud service brokerage • Cloud deployment models		
Building the Cloud Infrastructure		6.00
• Cloud computing reference model or adoption framework • Deployment options and solutions for building cloud infrastructure • Considerations for building cloud infrastructure		
Virtual Layer		5.00
• Virtual layer functions • Virtualization software • Resource pool and virtual resources		
Core Services		8.00
• Compute (server) • Storage • Networking and Virtual Private Clouds (VPC) • Database		
Cloud Architecture		7.00
• Cloud computing well-architected frameworks • Well-architected design principles • Reliability and High Availability		
Business Continuity		8.00
• Business continuity and service availability • Fault tolerance mechanisms • Backup and replication • Cloud application resiliency		
Security		6.00
• Cloud security threats • Cloud security mechanisms • Governance, risk, and compliance		
Service Management		6.00
• Service portfolio management processes • Service operation management processes		
Total Hours: 51.00		

Methods of Instruction

- A. Demonstrations
- B. Discussion
- C. Multimedia Presentations
- D. Reading Assignments

Methods of Evaluation

- A. Exams/Tests

- B. Homework
- C. Lab Projects
- D. Practical Evaluations
- E. Essays and research papers

Examples of Assignments

Reading Assignments

- 1. Read the chapter on Planning Identity and Access Management for Cloud Deployments. Research Azure-based Active Directory services, consider the benefits and drawbacks of implementation. Be prepared to discuss your findings.
- 2. Read the Carnegie Mellon article: 12 Risks, Threats, & Vulnerabilities in Moving to the Cloud. Write a one-page summary.

Writing Assignments

- 1. Research a cloud-based database service solution by two different vendors. Write a one-page compare and contrast essay on the services.
- 2. Write a two-page proposal for migrating an on-premise server to the cloud. Include cost, security, and business continuity aspects.

Out-of-Class Assignments

- 1. Using the provided scenario, research a cloud-based solution with two different providers that would satisfy all of the company's requirements. Be prepared to discuss your solutions.
- 2. Research a recent cloud-based security incident. Determine if it could have been prevented, and if so, how? Did they follow best practices? Be prepared to discuss and support your findings.

Recommended Materials of Instruction

Garn, D. (2021). The Official CompTIA Cloud+ Self-Paced Study Guide Exam CV0-003. *CompTIA, 1st*. 9781642743470.

Piper, B. (2025). CompTIA Cloud+ Study Guide: Exam CV0-004. *John Wiley & Sons, Inc, 4th*. 9781394333776.

Piper, B. & Clinton, D. (2019). AWS Certified Cloud Practitioner Study Guide: Exam CLF-C01. *Sybex, 1st*. 9781119490708.

CompTIA Integrated CertMaster Learn + Labs for Cloud+ (CV0-003) - Student Access Key. *Certmaster Learn & Labs, CV0-003*.

Minimum Qualifications

Computer Service Technology
Computer Information Systems

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