Lassen Community College Course Outline

CIS 82 Cloud Computing   3.0 Units

I.   Catalog Description

This course introduces cloud computing which shifts IT from on premises computing infrastructure to elastic cloud systems. The course provides a foundation of cloud computing technologies and provides students with the ability to evaluate and assess the business and technical benefits of cloud computing and cloud applications. The course will include labs to provide hands on training.

Transfer Status: Not Transferrable
Number of total hours by instructional method: 51 hours lecture, 102 hours out-of-class: Total hours 153
Scheduled: Fall only

II.   Coding Information

Repeatability: Not repeatable
Grading Option: Graded only
Credit Type: Credit - Degree Applicable
TOP Code: 0708.00

III.   Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:
1. Describe cloud services offered by different cloud providers
2. Utilize cloud services offered by different cloud providers

B. Course Objectives

Upon completion of this course the student will 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 roadmap 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.

IV.   Course Content

A. Outline of Topics

       1. Introduction to Cloud Computing
          a. Essential characteristics of cloud computing
          b. Cloud service models and cloud service brokerage

      c.   Cloud deployment models

2. Building the Cloud Infrastructure
      a.   Cloud computing reference model or adoption framework
      b.   Deployment options and solutions for building cloud infrastructure
      c.   Considerations for building cloud infrastructure

3. Virtual Layer
      a.   Virtual layer functions
      b.   Virtualization software
      c.   Resource pool and virtual resources

4. Core Services
      a.   Compute (server)
      b.   Storage
      c.   Networking and Virtual Private Clouds (VPC)
      d.   Database

5. Cloud Architecture
      a.   Cloud computing well-architected frameworks
      b.   Well-architected design principles
      c.   Reliability and High Availability

6. Business Continuity
      a.   Business continuity and service availability
      b.   Fault tolerance mechanisms
      c.   Backup and replication
      d.   Cloud application resiliency

7. Security
      a.   Cloud security threats
      b.   Cloud security mechanisms
      c.   Governance, risk, and compliance

8. Service Management
      a.   Service portfolio management processes
      b.   Service operation management processes

V.   Assignments

A. Appropriate Readings
Current tech journals, blogs and online articles.

B. Writing Assignments
Weekly discussions, comparative paper on different cloud models (IaaS, PaaS, SaaS), create a proposal for a business looking to migrate to a cloud based system.

C. Expected Outside Assignments
Students will be required to complete two hours of outside-of-class homework for each

hour of lecture, all labs will be completed at home in a virtual learning environment
    D. Specific Assignments that Demonstrate Critical Thinking
      Labs on identifying security concerns, analysis on cloud computing legal issues.

VI. Methods of Evaluation
List general evaluation methods
    A. Hands-on Project
    B. Exams
    C. Lab assignments

VII. Methods of Delivery
Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☒ Traditional Classroom Delivery   ☐ Web-enhance course

☐ Correspondence Delivery ☐ Hybrid Delivery ☒ Online Delivery

VIII. Representative Texts and Supplies

Montgomery, T., *CompTIA Cloud+ Study Guide: Exam CV0-002*, Sybex

Piper, B. and Clinton, D., *AWS Certified Cloud Practitioner Study Guide:Exam CLF-C01*, Sybex

IX. Discipline/s Assignment
Computer Information Systems

X. Course Status
Current Status: Active
Original Approval Date: 10/18/2022
Course Originator: Melinda Duerksen
Board Approval Date: 11/8/2022
Chancellor's Office Approval Date:
Revised By:
Curriculum/Academic Standards Committee Revision Date: