Lassen Community College Course Outline

CIS 60 Networking Essentials 3.0 Units

I. Catalog Description

This course introduces the architecture, structure, functions, components and models of the internet and other computer networks. It also explores the principles of Internet Protocol (IP) addressing and the fundamentals of Ethernet concepts, media and operations to create a balanced foundation of computer networks. Layered OSI (Open Systems Interconnection) and TCP (transmission Control Protocol) models are used to examine the roles of protocols and services at the application, network, data link and physical layers. Prepares students for the CompTIA Network+ certification exam. This course has been approved for online delivery.

Prerequisite(s): Recommended CIS 50 IT Essentials

Does Not Transfer to UC/CSU
C-ID ITIS 150
51 Hours Lecture, 102 Expected Outside Class Hours, 153 Total Student Learning Hours
Scheduled: Spring

II. Coding Information

Repeatability: Not Repeatable, Take 1 Time
Grading Graded
Credit Type: Credit
TOP Code: 0708.00
Scheduling: Every Spring

III. Course Objectives

A. Course Student Learning Outcomes

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

1. Explain the purpose of a variety of networking concepts and implement them appropriately
2. Determine and explain the appropriate cabling, device and storage technologies
3. Explain the network troubleshooting methodology and appropriate tools to support connectivity and performance

B. Course Objectives

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

1. Explain the concept of network communication.
2. Explain the basic requirements for getting online.
3. Explain the features of an IP address.

4. Explain the DHCP address assignment process.
5. Explain the principles of IPv4 and IPv6 address management.
6. Create a simulated network using Cisco Packet Tracer.
7. Build a simple home network.
8. Build a simple computer network using Cisco devices.
9. Troubleshoot basic network connectivity issues

IV. Course Content

1. Computer Network Fundamentals
2. The OSI Reference Model
3. Network Components
4. Ethernet Technology
5. IPv4 and IPv6 Addressing
6. Routing IP Packets
7. Wide Area Networks
8. Wireless Technologies
9. Network Optimization
10. Command-Line tools
11. Network Management
12. Network Security
13. Network Policies and Best Practices
14. Network Troubleshooting

V. Assignments

A. Reading Assignments

1. Research the features of a Cisco Catalyst 2960 24 port switch and a HP Procurve 5820 24 port switch. Be ready to discuss the feature similarities and differences with the class.
2. Read the article provided by the instructor about the Internet of Things and how it will impact networking. Write a one page essay; be prepared to discuss your findings in class.

B. Writing Assignments

1. Write a two page report comparing the TCP/IP networking Model with the OSI Model and the benefits of each. Explain the reasoning behind why they divide the layers differently. Submit your work electronically**. C. Quizzes**

1. Weekly online quizzes

D. Virtual labs

1**.** Packet Tracer activities to simulate detecting, troubleshooting and fixing network connectivity problem

VI. Methods of Evaluation

Traditional Classroom Evaluation

A. Exams/Tests
B. Quizzes
C. Lab Projects

D. Essays and research papers

Online Evaluation A. Exams/Tests
B. Quizzes
C. Virtual Lab Projects
D. Essays and research papers
E. Online Forum participation

VII. Methods of Delivery

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

X Traditional Classroom Delivery ☐ Correspondence Delivery

☐ Hybrid Delivery **X** Online Delivery

Traditional Classroom Delivery
Lecture, discussion, group work, problem analysis, and interactive exercises.

Online Delivery
Participation in forum based discussions. Online exercises/assignments contained on website. Web based video vignettes with discussion paper, email communications, postings to forums, online lecture notes and web links will compromise the method of instruction.

VIII. Representative Texts and Supplies

Cisco Network Academy IT Essentials v7.0 Netcad learning management system. (www.netacad.com) *Students will be provided with individual account access to the Cisco Netcad LMS. The complete curriculum for this course is available online for student use 24x7 through internet access and supports a range of computers for access*

Cisco Skills for All learning management system. (www.skillsforall.com) *Students will be provided with individual account access to the Cisco Skills for All LMS. The complete curriculum for this course is available online for student use 24x7 through internet access and supports a range of computers for access*

IX. Discipline/s Assignment

Computer Information Systems

X. Course Status

Current Status:
Original Approval Date: 11/16/2021
Board Approval Date: 12/14/2021
Revised By: Melinda Duerksen
Curriculum/Academic Standards Committee Revision Date: 03/21/2023