

College: A Saddleback College
Division/School: BS Business Science
Department: CIM Computer Information Management
Program: CIMNAD Network Administrator
Subject: CIMNAD Network Administrator

O F F I C I A L C O U R S E O U T L I N E

HISTORY AND STATUS

Course Status: A Active (Fully Approved)
Course Originator: Tom DeDonno

Board of Trustees 08/26/19
State Approval 03/14/94
Curriculum Committee Approval 08/01/19
Division Approval 08/01/19
Tech Review Approval 08/01/19

Technical Change Date: 04/02/14

Technical Change Comment:
2/25/13-fr CIM 251 to CIMN 200, 4/2/14 fr ccc000411451 to ccc000554046;
10/18/19 fr 554046 to 608567

Comments:
moe, txt

BRIEF DESCRIPTION

Short Title: INTRO TO NETWORKING
Full Title: INTRODUCTION TO NETWORKING:COMPTIA NETWORK+

BRIEF DESCRIPTION

Catalog Description:

Includes preparation for the CompTIA Network+ certification exam. This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP (Internet Protocol) addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for further study of computer networks. It uses the OSI (Open Systems Interconnection) and TCP (Transmission Control Protocol) layered models to examine the nature and roles of protocols and services at the application, network, data link, and physical layers (formerly CIMN 200).

Prerequisite:

None

Enrollment Limitation:

None

Corequisite:

None

Recommended Preparation:

None

COURSE FUNCTIONS

Course Prior to: Y Not Applicable
Course Classification: Y Credit Course

SC/IVC GE Code: NA - Not Applicable
CSU GE Code: NA Not Applicable
IGETC GE Code: NA - Not Applicable
UC Transferable Course: N No UC credit
Comparable SC/IVC:

Comparable CSU: CSU
CSU Monterey Bay
CST 281 - Introduction to Communication Networks

Comparable UC:

Comparable CCC Baccalaureate:

TOP Code: 0708.10 Network Administrator
SAM Code: C Clearly Occupational
CAN Number:
CID Number:

COURSE OPTIONS

Grading Option: GR Letter Grade or Pass/No Pass
Open Entry: N No
Fixed, Optional or Variable Units: F Fixed Units

Repeatability Status: N No
Repeatability Model:
Repeatability Limit: 0

Cross-Listed Courses: NONE
Cross-Listed Parent: No

COURSE VALUES

Method of Instruction:	L-L	Lecture/Lab Combination	
Maximum Enrollment:	45	Maximum WSCH:	225
Average Enrollment:	22	Average WSCH:	110

	Lecture	Lab	Learn Ctr	Total
WFCH	2.00	3.00	0.00	5.00
TFCH	33.20	49.80	0.00	83.00
TSCH	33.20	49.80	0.00	83.00
LHE	2.00	2.50	0.00	4.50
FTEF	13.33	16.67	0.00	30.00
UNITS	2.00	1.00	0.00	3.00

Schedule Description:

Prepares students for CompTIA's Network+ exam. This course introduces network topologies, principles and structure of IP (Internet Protocol) addressing, fundamental Ethernet concepts, media, internet/network models, networking devices, routing, firewalls, wireless networking, WAN (Wide Area Networks), and network Security (formerly CIMN 200).

COURSE CONTENT
(Topics Covered)

Lecture Topics:

- I. OSI (Open Systems Interconnection) and TCP/IP (Transmission Control Protocol/Internet Protocol) layered models
- II. IP addressing (IPv4 and IPv6)
- III. Routing and switching
- IV. Functions of common networking protocols
- V. DNS (Domain Name System)
- VI. Network troubleshooting methodology
- VII. Installation and configuration of routers and switches for a given scenario
- VIII. Installation and configuration of a wireless network for a given scenario
- IX. DHCP (Dynamic Host Configuration Protocol)
- X. Planning and implementation of a basic SOHO (Small Office/Home Office) network for a given set of requirements.
- XI. Standard media types (for example Fiber, Copper), associated properties, standard connector types
- XII. Wireless standards
- XIII. WAN (Wide Area Networks) technology types and properties
- XIV. Network topologies (for example Ring, Star, Client-server)
- XV. LAN (Local Area Networks) technology types and properties
- XVI. Hardware and software tools to troubleshoot connectivity issues
- XVII. Network monitoring resources to analyze traffic
- XVIII. Network performance optimization
- XIX. Wireless Security Measures
- XX. Network Access Security Methods
- XXI. User Authentication Methods
- XXII. Common threats, vulnerabilities, and mitigation techniques
- XXIII. Installation and configuration of a basic firewall
- XXIV. Network Security appliances and methods
- XXV. Networking Basics
- XXVI. Cables and Connectors
- XXVII. Networking Devices
- XXVIII. Ethernet
- XXIX. Network Implementation
- XXX. Wireless Networking
- XXXI. Wide Area Networks
- XXXII. Network Security
- XXXIII. Network Management
- XXXIV. Troubleshooting

Lab/Learning Center Content:

Through lab experiences, students will practice skills related to course content in the following areas:

- I. Installation and configuration of a basic firewall
- II. Network Security appliances and methods
- III. Hardware and software tools to troubleshoot connectivity issues
- IV. Use of network monitoring resources to analyze traffic
- V. Routing and switching examples
- VI. Hands-on projects dealing with computer networks

COURSE CONTENT
(Learning Objectives)

Students participating in this class will:

1. Describe computer networks and differentiate the devices and services used to support communications in data networks and the Internet.
2. Describe the role of protocol layers in data networks and how they are used.
3. Evaluate the importance of addressing and naming schemes at various layers of data networks in IPv4 and IPv6 environments.
4. Design, calculate, and apply subnet masks and addresses to fulfill given requirements in IPv4 and IPv6 networks.
5. Explain fundamental Ethernet concepts such as media, services, and operations.
6. Build a simple Ethernet network using hardware components of computer networks such as routers and switches.
7. Compose Cisco command-line interface (CLI) commands to perform basic router and switch configurations.
8. Experiment and Describe how network software utilities are used to communicate over a network, verify network operations and analyze data traffic.
9. Identify various network strategies and topologies.
10. Describe how data is transmitted over a network.
11. Identify the OSI model and describe how communication layers interact.
12. Identify the basic functions of network management.
13. Identify future possibilities for computers and computer networks.
14. Experiment with common network utilities to verify small network operations and analyze data traffic.

COURSE CONTENT
(Student Learning Outcomes)

Students completing this course satisfactorily will be able to:

1. Choose the appropriate hardware to satisfy the customer's needs
2. Match communications methods with the network's requirements
3. Identify the tools, methods and techniques in managing a network

COURSE CONTENT
(Methods of Evaluation)

Evaluation of the student will be based upon the following items:

1. Writing Assignments
 - term or other paper(s)
 - written assignments
 - other (specify)
 - a. Students will be evaluated on their ability to write reports which require them to locate, evaluate, synthesize, use, and communicate information in its various formats.
2. Problem Solving Demonstrations
 - exams
 - quizzes

other (specify)

- a. Students will be evaluated on their ability to use network simulation software to design and develop computer networks.

3. Skill Demonstrations

class performance(s)

performance (exam)

other (specify)

- a. Computer hands-on projects requiring the student to demonstrate proficiency in the use of network simulation software.

4. Examinations

multiple choice, true/false

other (specify)

- a. Exams evaluating student's ability to apply concepts related to course content.
Sample practice test or problems from CompTIA Network+ exam.

5. Other

other (specify)

- a. Evaluation will include hands-on projects and a combination of examinations, presentations, discussions, or problem-solving assignments.

COURSE CONTENT
(In and Out-of-Class Assignments)

1. Typical Reading Assignments:
College-level text
2. Typical Writing Assignments:
 - a. Definitions of the terminology related to local and wide area networks
 - b. Matrix distinguishing between the popular networking vendors and their economic and performance considerations
3. Typical Oral Assignments:
 - a. Brief presentation delineating open systems interconnection (OSI) 7-layer mode and MAP/TOP specifications
 - b. Class discussion

COURSE CONTENT
(Other Requirements)

Textbooks / Supplies:

TestOut, Network Pro, TestOut. 2012
by Jill West (Author), Tamara Dean (Author), Jean Andrews (Author), Network+ Guide to Networks (MindTap Course List), 7 edition Ed. Cengage Learning. 2015
Tomsho, G, Guide to Networking Essentials, 7th Edition Ed. Cengage Learning. 2015
West, J., Dean T., & Andrews J., Network+ Guide to Networks, 8th Ed. CEngage. 2018

Material Fees: \$ 0.00 Transaction Code:

VALIDATION
(Corequisite, Limitation on Enrollment,
Prerequisite and Recommended Preparation)