GROSSMONT COLLEGE

Official Course Outline

COMPUTER SCIENCE INFORMATION SYSTEMS 125 – NETWORK+ CERTIFICATION

1. Course Number Course Title Semester Units Semester Hours

CSIS 125 Network+ Certification 3 2 hours lecture: 32-36 hours

3 hours lab: 48-54 hours

64-72 outside-of-class hours

for lecture

144-162 total hours

2. Course Prerequisites

None.

Corequisite

None

Recommended Preparation

A “C” grade or higher or “Pass” in CSIS 110 or CSIS 120 or equivalent.

3. Catalog Description

Practical course intended for those interested in learning computer networking with an emphasis on earning the Computing Technology Industry Association’s (CompTIA) Network+ certification, a foundation-level, vendor-neutral international industry credential that validates the knowledge of networking professionals.

Earning this certification demonstrates that a candidate can describe the features and functions of networking components, and possesses the knowledge and skills needed to install, configure and troubleshoot basic networking hardware, protocols and services. It also indicates technical ability in the areas of media and topologies, protocols and standards, network implementation, and network support. Throughout the course, theory will be demonstrated and practiced in laboratory exercises. Lectures, laboratories and practical assignments will emphasize skills needed to work effectively in the networking environment and to earn the Network+ certification.

4. Course Objectives

Students will:

1. Differentiate between computer network topologies, standards, models, and protocols that are used by the networking community and describe each of their characteristics and functions.
2. Describe the computer networking systems hardware and software components necessary to complete a computer network and identify each of their characteristics and functions, and utilize compatible components to build a functioning computer network.
3. Design, build and operate an Ethernet Local Area Network utilizing skills learned in class.
4. Identify prevailing security risks to computer networks (including wireless security) and explain the precautions used to ensure adequate computer network security that keep data safe from viruses, loss, or damage.
5. Develop a networking solution to a real-world business networking problem using network design software and techniques learned in class.

5. Instructional Facilities

Computer equipped classroom with Internet access and appropriate software and hardware.

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6. Special Materials Required of Student

1. File storage system
2. Access to web-based course material

7. Course Content

1. Introduction to networking
2. How computers find each other on networks
3. How data is transported over networks
4. Structured cabling and networking elements
5. Network cabling
6. Wireless networking
7. Cloud computing and remote access
8. Network risk management
9. Unified communications and network performance management
10. Network segmentation and virtualization
11. Wide area networks
12. Industrial and enterprise networking
13. Networking standards and the OSI model
14. Transmission basics and networking media
15. Network protocols
16. Networking hardware
17. Topologies and ethernet standards
18. Network operating systems
19. In-depth TCP/IP networking
20. Troubleshooting network problems
21. Ensuring network integrity and availability
22. Network security
23. Voice and video over IP
24. Network management

8. Method of Instruction

1. Lecture and demonstration
2. Hands-on practice
3. Assignments

9. Methods of Evaluating Student Performance

1. Quizzes and exams will be conducted that measure students’ ability to use networking terminology and to explain networking concepts, plans, designs, implementation and troubleshooting concepts.
2. Practical exams that measure students’ ability to use networking knowledge and skills to demonstrate proficiency in network topologies, protocols, hardware and software components.
3. Projects that measure students’ ability to conceptualize, build, maintain, upgrade and troubleshoot computer networks.
4. Exercises that measure students’ ability to identify security, reliability and availability concerns, and to address those concerns with practical solutions.

10. Outside Class Assignments

1. Read textbook and assignment instructions.
2. Complete assignments, labs, and online quizzes.
3. Review online resources, including videos.

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11. Textbook(s)

1. Required Textbook(s):
   * 1. West, Dean, Andrews. *CompTIA Network+ Guide to Networks.* 7 edition, Boston, MA: Cengage Learning, 2016.

b. Supplemental Textbook(s):

* + 1. Dulaney, Emmett. *Exam Cram CompTIA Network+ N10-006*. 5th edition. Hoboken, NJ: Pearson, 2015.
    2. Tomsho, Greg. *Guide to Networking Essentials*. 7th edition, Boston, MA: Cengage Publishing, 2016.

Addendum: Student Learning Outcomes

Upon completion of this course, our students will be able to do the following:

Design and evaluate a comprehensive project including, but not limited to, hands-on/simulated installation, upgrade, troubleshooting, and maintenance of a computer network.

Date approved by the Governing Board: May 15, 2018