

I. COURSE INFORMATION

- A. Computer Science 241 Computer Network +
- B. 3 credit hours
- C. West, Jill. *CompTIA Network + Guide to Networks*. 9th ed. Cengage
- D. Prerequisites: None

II. COURSE DESCRIPTION

This course is designed to provide students with skills in configuring, maintaining, and troubleshooting network devices using appropriate network tools the accordance with the Comp-TIA Network+ certification objectives.

III. LEARNING OUTCOMES

- A. Networking Fundamentals
 - a. Compare and contrast the Open Systems Interconnection (OSI) model layers and encapsulation concepts
 - b. Explain the characteristics of network topologies and network types
 - c. Summarize the types of cables and connectors and explain which is the appropriate type for a solution
 - d. Configure a subnet and use appropriate IP addressing schemes
 - e. Explain common ports and protocols, their application, and encrypted alternatives
 - f. Explain the use and purpose of network services
 - g. Explain basic corporate and datacenter network architecture
 - h. Summarize cloud concepts
- B. Network Implementations
 - a. Compare and contrast various devices, their features, and their appropriate placement on the network
 - b. Compare and contrast routing technologies and bandwidth management concepts
 - c. Configure and deploy common Ethernet switching features
 - d. Install and configure the appropriate wireless standards and technologies
- C. Network Operations
 - a. Use the appropriate statistics and sensors to ensure network availability
 - b. Explain the purpose of organizational documents and policies
 - c. Explain high availability and disaster recovery concepts and summarize which is the best solution
- D. Network Security
 - a. Explain common security concepts
 - b. Compare and contrast common types of attacks
 - c. Apply network hardening techniques
 - d. Compare and contrast remote access methods and security implications
 - e. Explain the importance of physical security
- E. Network Troubleshooting
 - a. Explain the network troubleshooting methodology
 - b. Troubleshoot common cable connectivity issues and select the appropriate tools
 - c. Use the appropriate network software tools and commands
 - d. Troubleshoot common wireless connectivity issues
 - e. Troubleshoot general networking issues

IV. MAJOR CONTENT AREAS

- A. Networking concepts

- B. Network installation and configuration
- C. Network media and topologies
- D. Network management
- E. Network security

V. ASSIGNMENTS

- A. Reading assignments
- B. Discussions
- C. Chapter examinations
- D. Hands on and simulation labs

VI. EVALUATION METHODS

- A. Written objective and/or subjective exams
- B. Practical laboratory assignments and exams
- C. Class projects