Networking I

Networking I is a one-credit course designed to provide students with skills involving a hands-on, career-oriented approach to learning networking that includes practical experiences. This course includes activities that emphasize the application of networking in terms of implementation and career opportunities. It is recommended that Information Technology Fundamentals be taken prior to this course.

Career and technical student organizations are integral, cocurricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Computer Basics

Students will:

1. Describe the purpose and function of personal computers, including software applications and Internet applications.

2. Explain digital representations of common forms of data.
   Examples: binary, hexadecimal

3. Demonstrate the process of installing, verifying, and upgrading computer components.

Networking

4. Determine appropriate components and peripheral devices to meet networking requirements.

5. Explain how communication occurs across a local Ethernet network.

6. Describe access layer devices and communication methods on a local Ethernet network.

7. Differentiate between client and server interaction.

8. Describe various components and structures of a wireless local area network (LAN).

9. Analyze wired and wireless networks for common hardware and connection issues.

10. Utilize the troubleshooting process to identify and solve common problems with a LAN.
    - Interacting with the computer help desk
    - Utilizing a bottom-up or top-down troubleshooting methodology

System Design

11. Describe the purpose of a layered model to illustrate the interaction of various protocols.

12. Utilize mathematics skills to design a LAN.

13. Describe the process of using and connecting to an Internet Service Provider (ISP).

14. Compare various methods of obtaining an Internet Protocol (IP) address.

15. Describe applications of Network Address Translation (NAT) on a home or small business network.

Security

16. Evaluate wireless security issues and mitigation strategies for improved security.

17. Utilize research results to determine ways to improve network security, including evaluating current network threats and methods of attack.

18. Describe attack mitigation strategies and different security applications.

Career Opportunities

19. Determine career and entrepreneurial opportunities, responsibilities, and educational and credentialing requirements related to networking professions.