



# Networking Technology

## What is a Network?

- Defining the Modern Network
- Network Classifications
- Network Topology
- Network Architecture
- Network Standards and Organizations

## Designing a Network

- Needs Analysis
- Physical and Logical Design
- Assuring Security
- Assuring Quality
- Implementation

## How Data is Encoded and Transported

- Encoding
- Bandwidth
- Baseband and Broadband
- Data Flow
- The OSI Model

## Networking Hardware and Software

- Networking Components
- Networking Operations Systems
- Servers
- Web Servers and Services
- External Storage Systems

## The Physical Layer

- Physical Transmission Media
- Common Transmission Media Problems
- Long Distance Communication Media

## The Data Link Layer

- Ethernet
- VLANs
- AV Data Link Protocols



## **Network Addressing**

- Network Layer Protocols
- IP Addresses
- Types of IP Addresses
- IPv4 Subnetting and Supernetting
- IPv6 Subnetting
- IP Address Assignment
- Naming Services

## **IP Data Transmission**

- Routing Protocols
- Transport Layer Protocols
- The Upper Layers

## **Network Security**

- Common Network Risks
- Security Tools
- System Backups
- User Authentication
- Secure Transmission Protocols
- Virtual Private Networks
- Wireless Security
- Network Maintenance

## **Troubleshooting Networked Systems**

- Troubleshooting Methodology
- Network Infrastructure Troubleshooting Tools
- Troubleshooting with TCP/IP Utilities
- Troubleshooting Common Network Problems