

Introduction to Wireless Networking

Module 1: Introduction to Wireless Networking

History, Evolution, and Trends of Wireless Networking

Wireless Communication Technologies and Standards: WiFi, Bluetooth, Cellular, Satellite, and more

Wireless Network Architecture and Design Principles: Access Points, Routers, Switches, and Clients

Wireless Networking Components: Antennas, Transmitters, Receivers, and Protocols

Module 2: Wireless Network Security

Wireless Network Security Fundamentals: Authentication, Encryption, and Access Control

Wireless Network Threats: Eavesdropping, Man-in-the-Middle Attacks, Denial of Service, and Rogue Access Points

Wireless Network Security Protocols and Standards: WPA, WPA2, and 802.11i

Wireless Network Security Best Practices: Strong Passwords, Firmware Updates, and Intrusion Detection

Module 3: Wireless Network Deployment and Planning

Wireless Network Deployment Strategies: Indoor vs. Outdoor, Single vs. Multiple Access Points

Wireless Network Planning and Site Surveying: Coverage, Interference, and Signal Strength Analysis

Wireless Network Troubleshooting and Performance Optimization: Signal Quality, Range, and Bandwidth

Wireless Network Management Tools and Techniques: Network Monitoring, Configuration, and Reporting

Module 4: Wireless Network Protocols and Standards

Wireless Network Protocols and Standards: 802.11a/b/g/n/ac, Bluetooth, Zigbee, and Cellular

Wireless Network Protocol Operation and Features: Frequency Bands, Data Rates, and Modulation Schemes

Wireless Network Protocol Comparison: Strengths, Weaknesses, and Trade-offs

Wireless Network Integration with Wired Networks: Routers, Gateways, and Switches

Module 5: Wireless Network Applications

Wireless Network Applications: Mobile Computing, IoT, Sensor Networks, and more

Emerging Wireless Network Technologies: 5G, Wi-Fi 6, and Beyond

Wireless Network Trends and Future Directions: Virtualization, Cloud Integration, and AI-based Optimization

Module 6: Wireless Network Case Studies

Real-world Examples of Wireless Network Deployment, Management, and Security

Case Studies in Various Industries: Healthcare, Education, Manufacturing, and more

Lessons Learned and Best Practices from Wireless Network Deployments