Course: Advanced Wireless Networking and Network Fundamentals Immersion

Duration: 5 days / 40 Hrs

Module 1: Wireless Networking Fundamentals

Introduction to wireless communication principles

Radio frequency basics and modulation techniques

Understanding wireless standards and protocols (e.g., IEEE 802.11)

Hands-on lab: Exploring wireless devices and communication

Module 2: Network Fundamentals and TCP/IP

Overview of network architecture and communication models

Understanding TCP/IP fundamentals

Configuring IPv4 and IPv6 addressing

Hands-on lab: Setting up a robust network infrastructure

Module 3: WLAN Design and Security Strategies

Conducting comprehensive site surveys for WLAN coverage planning

Implementing advanced WLAN security measures (e.g., WPA3)

Configuring authentication and encryption for maximum protection

Hands-on lab: Building a secure and high-performance WLAN

Module 4: Advanced Wireless Concepts and Optimization

Understanding roaming and fast roaming protocols

Optimizing channel allocation and interference mitigation

Exploring radio frequency regulations and spectrum analysis

Hands-on lab: Analyzing wireless spectrum and optimizing channel utilization

Module 5: Troubleshooting and Network Management Excellence

Troubleshooting complex wireless connectivity issues

Utilizing advanced network monitoring and management tools

Implementing effective network troubleshooting methodologies

Hands-on lab: Diagnosing and resolving intricate network problems

Module 6: Cisco WLC and AP Deployment Best Practices

Deploying Cisco Wireless LAN Controllers (WLC) for seamless network management

Configuring Access Points (APs) for optimal performance

Understanding WLC high availability and redundancy

Hands-on lab: Implementing Cisco WLC and AP configurations

Module 7: WLAN Security and Policy Enforcement

Leveraging advanced security mechanisms (e.g., EAP, RADIUS)

Implementing role-based access control and policy enforcement

Understanding Guest access and Captive portals

Hands-on lab: Configuring advanced security policies

Module 8: Wireless LAN Controller (WLC) High-Availability and FlexConnect

Implementing WLC high-availability with Stateful Switchover (SSO)

Configuring FlexConnect for remote and branch offices

Troubleshooting WLC and AP failover scenarios

Hands-on lab: Configuring WLC high-availability and FlexConnect