KOENIG SOLUTIONS · COURSE OUTLINE

# Comprehensive Wireless Networking Essentials

Learn to plan, secure, troubleshoot and optimise wireless networks, from RF fundamentals to Cisco Unified Wireless Network architecture.

**5**
MODULES

**24**
TOPICS

## COURSE OVERVIEW

This course covers the fundamentals of wireless communication, including radio frequency principles, modulation techniques and wireless standards. It then addresses RF and WLAN planning, covering antennas, RF mathematics, regulatory compliance, spectrum analysis and access point placement for coverage. Attention turns to securing WLANs and client connectivity through threat mitigation, WPA and WPA2 encryption, key management, 802.1X authentication and roaming, followed by methodical troubleshooting, monitoring and Quality of Service management. The final module examines advanced wireless services, including load balancing, band steering, high-density WLAN design and Cisco Unified Wireless Network architecture.

## WHO THIS COURSE IS FOR

- **Network Engineers**
- **Wireless Administrators**
- **Network Security Professionals**
- **RF Planners**
- **Network Support Technicians**

## LEARNING OBJECTIVES

- Explain radio frequency fundamentals and modulation techniques
- Describe wireless standards and protocols
- Apply RF mathematics and antenna concepts to WLAN planning
- Analyse signal measurements through spectrum analysis
- Plan WLAN coverage through access point placement
- Implement WPA and WPA2 encryption with key management
- Configure 802.1X authentication for secure WLAN access
- Troubleshoot WLAN connectivity and performance issues

COURSE SYLLABUS

# 5 Modules, 24 Topics

01

## Fundamentals of Wireless Networking

TOPICS

Introduction to wireless communication · Radio frequency fundamentals · Modulation techniques · Overview of wireless standards and protocols

02

## Mastering RF and WLAN Planning

TOPICS

- Understanding RF signals and modulation
- Antennas and RF mathematics
- Complying with radio frequency regulations and standards
- Analyzing signal measurements and conducting spectrum analysis
- Effective WLAN coverage planning with access point placement

03

## Securing WLAN and Ensuring Client Connectivity

TOPICS

- Identifying and mitigating common wireless security threats
- Implementing robust WPA and WPA2 encryption
- Managing encryption keys with efficiency and security
- Establishing secure WLAN access with 802.1X authentication
- Seamless client connectivity and roaming in wireless networks

04

## Troubleshooting and Optimizing Wireless Networks

TOPICS

- Methodical WLAN troubleshooting techniques
- Analyzing and resolving WLAN issues effectively
- Monitoring wireless client connectivity problems
- Efficient WLAN management with powerful tools
- Implementing WLAN Quality of Service (QoS) for optimal performance

05

### Advanced Wireless Services and Cisco Insights

TOPICS

- Leveraging advanced wireless services for network enhancement
- Balancing loads and steering bands for seamless connectivity
- Best practices for high-density WLAN environments
- Understanding Cisco Unified Wireless Network (CUWN) architecture
- Streamlining operations with centralized WLAN architecture

WHAT IS INCLUDED

## Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

## Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

## Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

## Ready to Get Started?

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