KOENIG
step forward

KOENIG SOLUTIONS · COURSE OUTLINE

Wireless Networking: 802.11, WPA3 & Cisco WLC

Learn to design, secure and manage wireless networks using 802.11 standards, WPA3 and Cisco WLC and AP deployments.

5 Days	8	24	8
40 HOURS	MODULES	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course covers wireless communication principles, radio frequency basics and wireless standards such as IEEE 802.11, alongside core TCP/IP and IPv4/IPv6 networking fundamentals. It then addresses WLAN design through site surveys, WPA3 security, authentication and encryption, followed by advanced topics including roaming protocols, channel allocation, interference mitigation and spectrum analysis. Further modules cover troubleshooting methodologies and network monitoring tools, Cisco Wireless LAN Controller and access point deployment, EAP and RADIUS based security with role-based access control and guest access, and WLC high availability with Stateful Switchover and FlexConnect configuration.

WHO THIS COURSE IS FOR

- **Network Engineers**
- **Wireless Engineers**
- **Network Administrators**
- **Systems Administrators**
- **Network Security Engineers**

LEARNING OBJECTIVES

- Explain wireless communication principles and radio frequency basics
- Describe IEEE 802.11 standards and TCP/IP fundamentals
- Configure IPv4 and IPv6 addressing for wireless networks
- Conduct site surveys for WLAN coverage planning
- Implement WPA3 security with authentication and encryption
- Apply roaming protocols and optimise channel allocation
- Deploy Cisco WLCs and configure access points
- Configure WLC high availability with FlexConnect and SSO

COURSE SYLLABUS

8 Modules, 24 Topics

01

Hands-on lab

Wireless Networking Fundamentals

TOPICS

- Introduction to wireless communication principles
- Radio frequency basics and modulation techniques
- Understanding wireless standards and protocols (e.g., IEEE 802.11)

02

Hands-on lab

Network Fundamentals and TCP/IP

TOPICS

- Overview of network architecture and communication models
- Understanding TCP/IP fundamentals
- Configuring IPv4 and IPv6 addressing

03

Hands-on lab

WLAN Design and Security Strategies

TOPICS

- Conducting comprehensive site surveys for WLAN coverage planning
- Implementing advanced WLAN security measures (e.g., WPA3)
- Configuring authentication and encryption for maximum protection

04

Hands-on lab

Advanced Wireless Concepts and Optimization

TOPICS

- Understanding roaming and fast roaming protocols
- Optimizing channel allocation and interference mitigation
- Exploring radio frequency regulations and spectrum analysis

05

Hands-on lab

Troubleshooting and Network Management Excellence

TOPICS

- Troubleshooting complex wireless connectivity issues
- Utilizing advanced network monitoring and management tools
- Implementing effective network troubleshooting methodologies

06

Hands-on lab

Cisco WLC and AP Deployment Best Practices

TOPICS

- Deploying Cisco Wireless LAN Controllers (WLC) for seamless network management
- Configuring Access Points (APs) for optimal performance
- Understanding WLC high availability and redundancy

07

Hands-on lab

WLAN Security and Policy Enforcement

TOPICS

- Leveraging advanced security mechanisms (e.g., EAP, RADIUS)
- Implementing role-based access control and policy enforcement
- Understanding Guest access and Captive portals

08

Hands-on lab

Wireless LAN Controller (WLC) High-Availability and FlexConnect

TOPICS

- Implementing WLC high-availability with Stateful Switchover (SSO)
- Configuring FlexConnect for remote and branch offices
- Troubleshooting WLC and AP failover scenarios

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
01	**Wireless Networking Fundamentals**	Exploring wireless devices and communication
02	**Network Fundamentals and TCP/IP**	Setting up a robust network infrastructure
03	**WLAN Design and Security Strategies**	Building a secure and high-performance WLAN
04	**Advanced Wireless Concepts and Optimization**	Analyzing wireless spectrum and optimizing channel utilization
05	**Troubleshooting and Network Management Excellence**	Diagnosing and resolving intricate network problems
06	**Cisco WLC and AP Deployment Best Practices**	Implementing Cisco WLC and AP configurations
07	**WLAN Security and Policy Enforcement**	Configuring advanced security policies
08	**Wireless LAN Controller (WLC) High-Availability and FlexConnect**	Configuring WLC high-availability and FlexConnect

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

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Talk to a learning advisor about schedules, group training and customised delivery.

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