

KOENIG SOLUTIONS • COURSE OUTLINE

Certified Wireless Specialist (CWS)

Learn to plan, secure and troubleshoot Wi-Fi networks, from RF fundamentals and 802.11 standards to site surveys.

9

MODULES

35

TOPICS

COURSE OVERVIEW

This course covers the fundamentals of Radio Frequency transmissions and the RF bands and channels used for Wi-Fi, followed by the evolution of IEEE 802.11 standards from 802.11 to 802.11ax. It examines Wi-Fi equipment including access points and antennas, wireless client capabilities and loads, and outdoor wireless bridge links such as PTP, PtMP and mesh networks. It then addresses factors affecting Wi-Fi network performance and VoWLAN requirements, WLAN security options including WPA, WPA2 and WPA3, BYOD and guest access, and enhanced 802.11 functions for fast and secure roaming. The course concludes with an examination of Wi-Fi site survey types and best practices.

WHO THIS COURSE IS FOR

Network Engineers**Wireless Engineers****Network Administrators****IT Support Technicians****Network Security Professionals**

LEARNING OBJECTIVES

- Explain the essential characteristics of RF transmissions
- Compare IEEE 802.11 standards and amendments from 802.11 to 802.11ax
- Identify the role, features and types of wireless access points
- Describe Wi-Fi antenna types and how to choose between them
- Assess the capabilities and network loads of wireless client devices
- Evaluate outdoor wireless bridge link options including PTP and PtMP
- Analyse factors that affect Wi-Fi network performance and capacity
- Apply WLAN security methods including WPA2, WPA3, BYOD and guest access

9 Modules, 35 Topics

01

Understanding Radio Frequency (RF)

TOPICS

- Understanding the essential characteristics of Radio Frequency transmissions
- How do RF signals move through an environment?
- Understanding the RF bands used for Wi-Fi
- RF channels and Channel Plans

02

IEEE 802.11 Standards and Amendments

TOPICS

- From 802.11 to 802.11ax and beyond
- What are DSSS, OFDM, ERP, HT, VHT and HE?
- What are the capabilities of each standard
- Understanding the basic Physical layer (PHY) characteristics

03

Wi-Fi Equipment

TOPICS

- The role and functions of Wireless Access Points (APs)
- AP features and capabilities
- Standalone, controller-based, branch and controller-less APs
- Understanding AP management
- Understanding Wi-Fi antennas
- Choosing between WLAN antenna types

04

Wireless Clients

TOPICS

- Understanding the capabilities of Wi-Fi client devices
- Discovering client devices and the applications in use
- Understanding the loads that Wi-Fi clients place on networks

05

Outdoor Wireless Bridge Links

TOPICS

- PTP versus PtMP
- How fast and far can we go with wireless links?
- Wireless link reliability
- Overview of Mesh networks

06

Wi-Fi Network Performance

TOPICS

- Factors that affect Wi-Fi network performance
- The Wi-Fi client perspective
- What affects Wi-Fi network capacity?
- The requirements for VoWLAN (Voice over Wi-Fi)

07

WLAN Security, BYOD and Guest Access

TOPICS

- Understanding WPA, WPA2 and WPA3 security
- Understanding Captive Portals (and splash pages)
- What are BYOD and MDM?
- Determining the best solution for BYOD and Guest Access

08

Enhanced 802.11 Functions

TOPICS

- Understanding the more advanced features of 802.11n, 802.11ac and 802.11ax
- What are the requirements for fast and secure roaming?

09

Understanding Wi-Fi Site Survey

TOPICS

- What's wrong with most Wi-Fi site surveys today?
- Why too many Wi-Fi networks fail to deliver
- The 7 types of Wi-Fi site survey
- What should a real Wi-Fi site survey involve?

WHAT IS INCLUDED

Everything You Need to Succeed

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

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