Certified Wireless Network Administrator

Duration: 5 Days **Course Code: CWNA**

Overview:

The goal of this CWNA course is to add Wi-Fi expertise to a networking professional's skillset, while covering all CWNA exam topics. The course begins with discussion topics covering the basic operation of 802.11 Wi-Fi technology. Once a base of Wi-Fi knowledge is established, enterprise relevant topics such as Wi-Fi design, security, and troubleshooting are covered.
Get a head start right out of the gate with a Certified Wireless Network Administrator (CWNA) certification. It is the base certification for Enterprise Wi-Fi within the CWNP family of certifications and a springboard toward earning your security, design, analysis and network expert certifications. Achieving it enhances your networking career profile, providing evidence that you have sought after Wi-Fi knowledge and skills.

Target Audience:

This class is intended for the following participants:
- IT professionals and network engineers responsible for installing or supporting 802.11 (Wi-Fi) Wireless networks
- IT professionals wanting to progress within the wireless network industry
- Network planners, designers and support staff
- IT Security staff, managers and auditors

Objectives:

- After completing this course, you will be able to:
- Understand and apply the essential concepts of Radio Frequency (RF) technology, including RF planning, RF-related calculations and spread spectrum technologies.
- Perform RF Spectrum Analysis for the 2.4GHz and 6GHz bands.
- Describe the rules governing wireless LANs, to comply with local radio regulations for setup and maintenance of WLANs.
- Describe the fundamental operation of wireless LANs, for effective WLAN problem analysis and troubleshooting.
- Understand IEEE 802.11b, 802.11g, 802.11a, 802.11n, 802.11ac and 802.11ax (Wi-Fi 6) standards and amendments; and their practical relevance in depth.
- Correctly install, configure and support Wi-Fi adapters, access points, wireless bridges and WLAN antennas.
- Understand 802.11 / Wi-Fi WLAN Physical and MAC -layer operation in depth.
- Describe and troubleshoot WLAN problems including RF coverage, multipath, hidden nodes and interference problems.
- Understand the essential tools and processes used in Wi-Fi Site Survey.
- Work with sophisticated WLAN diagnostic tools from Ekahau, AirMagnet, MetaGeek, Savvius, Tamosoft and more.
- Describe the insecurities inherent in IEEE 802.11 WLANs.
- Apply best security practices, including WPA2 and WPA3, to secure Wi-Fi networks for small, medium and large organisations.

Prerequisites:

- Understanding Networking Fundamentals (GK3150)

Testing and Certification

This course prepares for the CWNA (Certified Wireless Network Administrator) exam (CWNA-109). Self-study will be needed before taking the exam.
The CWNA certification is a foundational level wireless LAN certification for the CWNP Program. To earn a CWNA certification, you must take the CWNA exam at a Prometric Test Centre or schedule an online exam with Prometric or with CWNP and pass with a 70% or higher. Instructors must pass with a 80% or higher. However you choose to prepare for the CWNA exam, you should start with the exam objectives, which cover the full list of skills tested on the exam.
The CWNA certification is valid for three (3) years. To recertify, pass

one of the professional level certifications exams (CWSP,CWDP, CWAP) BEFORE your CWNA expires. By doing so, the CWNA will be renewed for another three (3) years. Or retake the current version of the CWNA exam.

While the Certified Wireless Specialist (CWS) and Certified Wireless Technician (CWT) certifications are not a required prerequisite to the CWNA certification, it is highly recommended. It will provide a solid learning foundation before continuing to pursue the CWNA.

Content:

Chapter 1 — WLAN and Networking Industry Organizations

1.1: A Brief History of Wireless Communications

1.2: Industry Organizations

1.3: IEEE

1.4: Wi-Fi Alliance

1.5: IETF

1.6: IEEE Standard Creation Process

1.7: Wireless Network Types

Chapter 2 — RF Characteristics and Behaviors

2.1: Electromagnetic Waves

2.2: RF Characteristics and Behaviors

Chapter 3 — RF Mathematics and Measurements

3.1: Basic RF Math

3.2: Implementation of RF Math

Chapter 4 — RF Antennas and Hardware

4.1: Antenna Functionality

4.2: Beamwidths

4.3: Azimuth ; Elevation

4.4: Isotropic Radiator

4.5: Polarization

Chapter 5 — 802.11 PHYs and Network Types

5.1: OSI Model, TCP/IP Model and 802.11

5.2: 802.11 PHYs

5.3: 802.11 Functional Concepts

5.4: 802.11 Service Set Components

5.5: Wireless Bridging

Chapter 6 — 802.11 Network Devices

6.1: WLAN Infrastructure Devices

6.2: Enterprise WLAN Controllers

6.3: Power over Ethernet (PoE)

6.4: Wireless Clients

Chapter 7 — 802.11 MAC Operations

7.1: 802.11 MAC and PHY Terminology

7.2: 802.11 Frame Types

7.3: Locating and Connecting to WLANs

Chapter 8 — 802.11 Channel Access Methods

8.1: Distributed Coordination Function (DCF)

8.2: Enhanced Distributed Channel Access (EDCA)

8.3: Channel Width Operations

8.4: HT and VHT Operation Modes

9.2: RF Planning Models

Chapter 10 — WLAN Requirements and Solutions

10.1: WLAN Roles and Applications

10.2: Deployment Requirements and Solutions

10.3: Required Network Services

10.4: Requirement Engineering Based on Standards

Chapter 11 — Security Solutions for WLANs

11.1: Security Principles

11.2: Weak Security Options

11.3: Effective Security Mechanisms

11.4: Security Enhancements and Tools

11.5: Secure Management Solutions

11.6: WPA3

Chapter 12 – Site Surveys, Network Design and Validation

121: Site Surveys

12.2: WLAN Design

12.3: Post-Implementation Validation

12.4: Locate and Identify Sources of WLAN Interference

12.5: Application Testing

12.6: Validation Tools

4.6: Antenna Diversity

4.7: Advanced Antenna and RF Technologies

4.8: Antennas and Antenna Systems

4.9: Semi-directional Antennas

4.10: Antenna and RF Accessories

8.5: HT and VHT Protection Mechanisms

8.6: BSS Color (802.11ax)

8.7: Power Management Options

Chapter 9 — WLAN Network Architectures

9.1: WLAN Architectures

Chapter 13 — WLAN Troubleshooting

13.1: Troubleshooting Processes

13.2: Troubleshooting Tools

13.3: Implementation Challenges

13.4: Connectivity Problems

Additional Information:

Global Knowledge is a CWNP Authorized Learning Center.

The official CWNA courseware will be used during the course. This course is based on the current CWNA-109 release and will prepare you for the belonging certification.

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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