



Class Outline

Certified Wireless Network Administrator (CWNA)



Objectives

To familiarize student with the following knowledge domains:

- Radio Frequency (RF) Technologies
- WLAN Regulations and Standards
- WLAN Protocols and Devices
- WLAN Network Architecture and Design Concepts
- WLAN Security
- RF Validation
- WLAN Troubleshooting

Pre-Requisite Knowledge Advisory

- Basic Understanding of Networking
- Familiarity with OSI Model
- Awareness of IP Subnetting

Exam

- CWNA-108
- Proctor: PearsonVUE
- Renewal: 3 years (can be renewed by passing CWSP, CWDP, or CWAP prior to expiration)

Class Outline

Module 1 – WLAN and Networking Industry Organizations

- Wi-Fi Industry Organizations
- Regulatory Domains
- Standards Lifecycle
- 802.11 and Amendments
- Additional Networking Standards
- PoE
- 802.1X
- EAP
- RADIUS

Module 2 – RF Characteristics and Behavior

- Electromagnetic Spectrum
- Properties of RF Waves
- RF Propagation, Types of Power Loss and Environmental Impact on RF Waves
- Modulation
- PSK, QAM, OFDM and OFDMA

Module 3 – RF Mathematics and Measurements

- RF Units of Measurement
- RF Signals Measurement
- Basic RF Math
- Link Budgets

Module 4 – RF Antennas and Hardware

- Antenna Fundamentals
- Polarization and Gain
- Types of WLAN Antennas
- Antenna Systems
- Antenna Implementation and Safety
- RF Cables, Connectors, and Accessories

Module 5 – 802.11 PHYs and Network Types

- Frequency Bands
- Coexistence Mechanisms
- 802.11 PHYs
- Modulation
- Coding Methodologies
- Beamforming
- Deployment Considerations

Module 6 – 802.11 Network Devices

- Infrastructure Devices
- Control and Management Systems
- Network Architecture
- Device Configuration
- Power Over Ethernet

Module 7 – 802.11 MAC Operations

- Frame Types
- Addressing
- Connection Methodologies

Module 8 – 802.11 Channel Access Methods

- Requirements
- Timing and Distribution
- Protection Mechanisms
- Operation Modes
- Power Management

Module 9 – WLAN Network Architectures

- Control, Management, and Data Planes
- Data Forwarding
- Controllers
- Quality of Service (QoS)
- Roaming
- Available Models
- AP Placement and Channel Selection

Module 10 – WLAN Requirements and Solutions

- Data Access
- User Types
- Consumption Models
- Network Types
- Basic Operating Models
- Network Management Systems
- Network Architecture

Module 11 – Security Solutions for WLAN

- AAA and CIA Models
- Security Policy
- Security Strategies
- Security Mechanisms
- Security Management

Module 12 – Site Surveys, Network Design, and Validation

- RF Site Surveys
- Requirements Gathering Processes
- Survey Reports
- Survey Methodologies
- Survey Considerations
- Spectrum Analysis

Module 13 – WLAN Troubleshooting

- Troubleshooting Methodology
- Protocol and Spectrum Analysis
- Monitoring
- Interference