

PROGRAMMA CWNP Certified Wireless Specialist (CWS-101)

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Parts I: Understand Basic RF Characteristics

- Identify RF characteristics
 - RF waves
 - Amplitude
 - Frequency
 - Wavelength

- Explain basic RF behaviors
 - Reflection
 - Absorption
 - Signal strength

- Understand antenna types
 - Omnidirectional
 - Semi-directional
 - Highly directional
 - Internal vs. external

Parts II: Identify Wireless Networking Features and Functions

- Know the frequency bands used by common wireless protocols
 - Sub-1 GHz
 - 2.4 GHz
 - 5 GHz
 - 6 GHz
 - Above 7 GHz

- Identify Physical Layer (PHY) characteristics
 - Data rates
 - Channel widths and center frequencies

- Select appropriate channels
 - Channel selection best practices
 - Common channel selection mistakes

- Identify factors impacting wireless network performance
 - Coverage or link requirements
 - Capacity requirements
 - Required features
 - Poor configuration and implementation

- Explain the basic security solutions used
 - Authentication and key management
 - Encryption

Parts III: Identify Wireless Hardware and Software

- Identify APs, coordinators, gateways, and controller features and capabilities
 - Routing
 - Security
 - Network management
 - Connection interfaces
 - Device management solutions
 - Internal and external antennas
 - PoE support

- Describe wireless network management systems
 - Autonomous
 - Controller
 - Cloud

- Custom or third-party management systems
- Determine capabilities of network client or IoT devices
 - Protocol support
 - Power provisioning
 - Sensor support
 - Security options
 - Mobile vs. stationary
- Identify when Power over Ethernet (PoE) should be used
- Understand the basic requirements for voice over wireless networks
 - Latency
 - Jitter
 - Signal strength
- Determine the best solution for BYOD and guest access in wireless LANs
 - User provisioning
 - Captive portals
 - Device and software control solutions

Parts IV: Understand Organizational Goals

- Understand issues in common vertical markets
 - Standard Enterprise Offices
 - Healthcare
 - Hospitality
 - Conference Centers
 - Education
 - Government
 - Retail
 - Industrial
 - Emergency Response

- Temporary Deployments
- Small Office/Home Office (SOHO)
- Public Wi-Fi
- Identify information sources related to existing networks
 - Network diagrams
 - Wi-Fi implementations
 - IoT network implementations
 - Neighbor networks
 - Available network services
 - PoE availability
- Discover coverage/link and capacity needs from a functional perspective
 - Define coverage areas
 - Define capacity zones
 - Define link requirements
- Discover client devices, IoT devices, and applications in use
 - Laptops, tablets, mobile phones, desktops, and specialty devices
 - Real-time applications
 - Standard applications (e-mail, web browsing, database access, etc.)
 - Data-intensive applications (file downloads/uploads, cloud storage, cloud backup, etc.)
 - IoT sensors
 - IoT actuators
- Determine the need for outdoor coverage networks, outdoor IoT connections, and bridge links
 - Bridge link distance and required throughput
 - Outdoor areas requiring coverage
 - Use cases for outdoor access

- Outdoor IoT connectivity options
- Define security constraints
 - Regulatory
 - Industry standards and guidelines
 - Organizational policies
- Discover use cases and access types
 - Authorized users
 - Onboarded guest access
 - Public Wi-Fi
 - Monitoring and control (IoT devices)
- Match organizational goals to wireless network features and functions