Training: CWNP
CWDP Certified Wireless Design Professional

TRAINING GOALS:

The Certified Wireless Design Professional (CWDP) has the knowledge and skill set required to manage the entire WLAN design life cycle: defining, designing, deploying, and diagnosing. Tasks within these stages include gathering necessary information and requirements and creating a design. These professional implements, validates, and optimizes the solution to ensure objectives are met. A CWDP contributes to, or takes responsibility for, any or all stages within this process.

When you pass the CWDP exam and hold a valid CWNA certification, you earn the CWDP certification and credit towards the CWNE certification should you choose to pursue it.

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CONSPECT:

- Define Specifications for the WLAN
  - Collect business requirements and constraints
    - Business use cases and justification
    - User requirements
    - Regulatory compliance
    - Industry compliance
    - Budget
    - Aesthetics
    - Architectural constraints
    - Mounting restrictions
    - Access restrictions
    - Time constraints
    - Building codes and safety codes
  - Collect and define technical requirements
    - Vendor selection
    - Location services such as RTLS
    - Latency requirements

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- Signal strength requirements
- Capacity requirements
- Security requirements
  - BYOD and guest access
  - Roaming
  - Monitoring
  - Authentication and encryption
- Applications and their specific requirements
- WLAN upgrade requirements, when applicable
- Bridge link requirements, when applicable
- Voice over WLAN (VoWLAN), when applicable
- Client devices including most important and least capable device
- Requirement areas

- Collect project documentation
  - Validated floor plans
  - Network infrastructure
    - Network diagrams
    - AP locations
    - Existing network services including DNS, DHCP, NTP, and authentication servers
    - Switch capabilities and capacity
  - Cabling infrastructure
    - Cabling maps and plans
    - Wiring closet locations
  - Power availability and PoE capabilities
  - Existing wireless systems
  - Previous design/survey documentation
- Define requirement areas including essential metrics for each requirement
  - Client device types and capabilities
  - Applications and their requirements
  - User and device density
  - SSIDs
  - Security settings
  - Understand common vertical markets
- Gather information on environmental factors
  - Building materials

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- Attenuation values
- Ceiling heights
- Site annotations (photos, notes, plans)
- Wireless environment scan
  - Packet captures
  - Spectrum captures
  - Wi-Fi scanners

- Design the WLAN
  - Define WLAN architectures and select the appropriate architecture for a design
    - Controller-based (physical and virtual) architectures
    - Distributed (cloud-based and local WNMS)
    - Standalone/Autonomous APs
    - Dynamic vs. static channel assignment
    - Dynamic radio management
    - Software defined radios
    - RF profiles
    - Select and/or recommend the appropriate equipment for the design and selected architecture (APs, antennas, controllers, managed services)
  - Produce a design to meet requirements
    - Select and use the appropriate design tools
      - Design and survey software and hardware
      - Spectrum analysis software and hardware
      - Access points and antennas
      - Portable power source
      - Tripods
      - Measuring tools
      - Cameras
      - Personal Protective Equipment (PPE)
    - Select and use the appropriate design methodologies
      - WLAN predictive design (new builds/site or area not accessible)
      - Validated RF modeling
      - AP-on-a-Stick (APoS) measurements
      - Bridge and mesh planning
    - Understand and use the common features of wireless design software
      - Import and scale floor plans
      - Model attenuation of the site (including calibration)
      - Select and place APs and antennas

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- Adjust AP and antenna settings
- Define requirement areas and parameters
- Define channel and power settings

- Select and use common vendor features and make configuration recommendations
  - Band steering
  - Automatic/static channel selection
  - Load balancing
  - RF/AP templates
- Design for different client and application types
  - VoIP handsets
  - Laptops
  - Handheld scanners
  - Smartphones and tablets
  - IoT and smart devices
  - Location tracking systems
  - Voice and video systems
- Ensure end-to-end QoS is properly implemented
  - WMM
  - Wired and wireless QoS mappings
  - QoS markings, classifications, and queues
- Define and recommend security solutions
  - Monitoring (detection and prevention)
  - Authentication servers
  - EAP methods
  - Authentication types
  - Encryption types
- Design for secure roaming
  - Secure BSS transition (roaming)
  - Vendor roaming solutions
  - Client support issues
- Create, distributed, and communicate design documentation
  - Bill of Materials (BoM)
  - Design reports
  - Physical installation guide

- Deploy the WLAN
  - Ensure proper understanding and implementation of the design

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- Implementation meeting
  - Explain design decisions to implementers
  - Ensure understanding of design deployment
- Distribute required documentation

- Recommend or perform essential deployment tasks
  - Understand and perform installation procedures for different WLAN architectures (cloud-based, controller-based, WNMS, autonomous)
  - Infrastructure configuration supporting the WLAN (DHCP, DNS, NTP, switches, and routers)
  - Channel assignment, automatic radio management, and transmit power configuration
  - Installation procedures for cloud-based APs, controller-based APs, WNMS APs, and autonomous APs
- Perform an installation audit for quality assurance
  - Verify proper AP and antenna location and orientation
  - Verify aesthetic requirements are met
  - Verify physical security of the installation

- Validate and Optimize the WLAN
  - Confirm the WLAN system is operational
    - AP Status
    - Verify PoE provisioning of power requirements are met
  - Perform an RF validation survey
    - Ensure coverage requirements
    - Evaluate impacts of contention and interference
  - Perform client performance testing
    - Connectivity testing
    - Application testing
    - Roaming testing
    - Capacity testing
    - Security testing
  - Recommend appropriate physical adjustments
    - AP
    - Antenna and connectors
  - Recommend appropriate RF adjustments
    - RF channel assignment
    - RF channel bandwidth
    - RF coverage (transmit power, radio count, antennas)

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- RF interference issues
- Recommend remediation for application issues
  - Connectivity issues
  - Application issues
  - Roaming issues
  - Capacity issues
  - Security issues
- Implement knowledge transfer and hand-off
  - System training
  - Solution documentation and assets
    - Validation documentation
    - Digital or physical assets
    - Guides
    - Floorplans
    - Configuration documents
  - Final meeting (Q&A and hand-off)

REQUIREMENTS:

Basic networking knowledge (OSI/IP). Basic network security concepts and wireless network administration CWNA or equivalent knowledge. To earn the CWDP certification, you must pass 2 exams: CWNA and CWDP

Difficulty level



CERTIFICATE:

The participants will obtain certificates signed by Compendium CE (course completion).

The CWDP certification is a professional level wireless LAN certification for the CWNP Program. To earn a CWDP certification, you must hold a current and valid CWNA credential. You must take the CWDP exam at a Pearson Vue Testing Center and pass with a 70% or higher. Instructors must pass with a 80% or higher. However you choose to prepare for the CWDP exam, you should start with the exam objectives, which cover the full list of skills tested on the exam. The CWDP certification is valid for three (3) years. To recertify, you must have a current CWNA credential and pass the current CWDP exam. By passing the CWDP certificate, your CWNA certificate will be renewed for an another three years.

CWDP exam is available through the Pearson VUE test centers.

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TRAINER:

Authorized CWNP Trainer.

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