

CWNA: Wireless LAN Administration

Activity-Level Outline

Days: 5

Prerequisites: *Basic knowledge of computers and networks*

Unit 1: The wireless world

Topic A: Wireless users

A-1: Viewing a WAP emulator

Topic B: Wireless technologies

B-1: Identifying wireless technologies

Topic C: Wireless LAN applications

C-1: Wireless technology uses

Topic D: Wireless advantages and disadvantages

D-1: Advantages and disadvantages of wireless

Unit 2: Wireless LAN devices and standards

Topic A: WLAN devices

A-1: Installing a wireless NIC

A-2: Connecting to a Cisco Aironet 1200 that receives an IP address from a DHCP server

A-3: Connecting to a Cisco Aironet AP using IPSU

A-4: Connecting to a Cisco AP using telnet

A-5: Setting up a Linksys AP

Topic B: Standards

B-1: Standards and IT

Topic C: Wireless standards organizations and regulatory agencies

C-1: Identifying wireless standards organizations

C-2: Identifying wireless regulatory agencies

Topic D: Types of wireless LANs

D-1: Comparing access points

Unit 3: How wireless works

Topic A: Radio wave transmission principles

A-1: Exploring radio wave transmission principles

A-2: Discussing wireless pioneers

- Topic B:** Radio frequency behavior and measurement
 - B-1:** Evaluating radio frequency loss with Cisco wireless utilities
 - B-2:** RF math and measurements
 - B-3:** Computing RF behavior
- Topic C:** Antennas
 - C-1:** Modifying AP transmit power and antenna diversity
 - C-2:** Using Windows wireless zero configuration

Unit 4: IEEE 802.11 Physical layer standards

- Topic A:** Wireless modulation schemes
 - A-1:** Comparing DSSS and FHSS
 - A-2:** Adjusting Cisco data rates
 - A-3:** Detecting wireless networks with NetStumbler
 - A-4:** Changing Linksys IEEE settings
- Topic B:** IEEE 802.11 physical layer standards
 - B-1:** Exploring IEEE 802.11g compromises
 - B-2:** Researching ways to reduce interference
 - B-3:** Examining conflicts over frequency usage

Unit 5: IEEE 802.11 MAC and Network layer standards

- Topic A:** IEEE Wireless LAN configurations
 - A-1:** Comparison of WLAN configurations
- Topic B:** IEEE 802.11 Media Access Control layer standards
 - B-1:** Adjusting Cisco MAC layer settings
 - B-2:** Viewing SSID and authentication settings
 - B-3:** Setting QoS in Cisco WLAN
 - B-4:** Viewing Linksys MAC layer settings
- Topic C:** WLAN Network layer standards
 - C-1:** Discussing the current state of mobile IP

Unit 6: Planning and deploying a wireless LAN

- Topic A:** Planning for a wireless network
 - A-1:** Calculating WLAN benefits
- Topic B:** Designing the wireless LAN
 - B-1:** Troubleshooting wireless roaming
 - B-2:** Viewing channel numbers on a Cisco access point
 - B-3:** Viewing channel numbers on a Linksys access point
- Topic C:** Deploying a wireless network
 - C-1:** Determining costs of deploying a wireless network
- Topic D:** Providing user support
 - D-1:** Designing a training plan for wireless users

Unit 7: Conducting a site survey

- Topic A:** Site survey tools
 - A-1:** Identifying what a site survey is
 - A-2:** Identifying site survey tools
- Topic B:** Performing a site survey
 - B-1:** Using a basic site survey tool

- B-2:** Performing a site survey using NetStumbler
- B-3:** Using Windows as a site survey tool for Linksys wireless networks
- B-4:** Creating a site survey form

Unit 8: Wireless LAN security and vulnerabilities

- Topic A:** Security principles
 - A-1:** Identifying security concepts
- Topic B:** Basic IEEE 802.11 security protections
 - B-1:** Setting a MAC address filter on Cisco AP
 - B-2:** Setting a MAC address filter on a Linksys AP
- Topic C:** Vulnerabilities of IEEE 802.11 security
 - C-1:** Spoofing a MAC address using SMAC
 - C-2:** Setting WEP on a Linksys AP
- Topic D:** Other wireless attacks
 - D-1:** Discussing the latest wired and wireless attacks

Unit 9: Implementing wireless LAN security

- Topic A:** Wireless security solutions
 - A-1:** Setting Dynamic WEP keys on Cisco access point
 - A-2:** Investigating IEEE security vulnerabilities
- Topic B:** Transitional security model
 - B-1:** Setting Cisco migration mode
- Topic C:** Personal security model
 - C-1:** Setting a pre-shared key on Linksys AP
 - C-2:** Discussing how AES works
- Topic D:** Enterprise security model
 - D-1:** Setting up a Windows VPN client

Unit 10: Managing a wireless LAN

- Topic A:** Monitoring the wireless network
 - A-1:** Viewing Cisco access point information
 - A-2:** Setting Cisco SNMP options
- Topic B:** Maintaining the wireless network
 - B-1:** Updating Linksys firmware
 - B-2:** Boosting the access point signal
- Topic C:** Establishing a wireless security policy
 - C-1:** Enabling Linksys logging
 - C-2:** Discussing wireless security policies

Unit 11: Network settings and wireless LAN troubleshooting

- Topic A:** Wired network settings for wireless connections
 - A-1:** Viewing Ethernet settings
 - A-2:** Exploring the Mobile IP process
 - A-3:** Viewing Mobile IP settings
- Topic B:** Troubleshooting wireless networks
 - B-1:** Using the Windows Connect Now tool
 - B-2:** Viewing 802.1 authentication options
 - B-3:** Troubleshooting wireless connections

Unit 12: Personal, metropolitan, and wide area wireless networks

Topic A: Wireless personal area networks

A-1: Discussing personal area networks

A-2: Enabling IrDA transmissions on notebook computers

A-3: Transferring a file using IrDA

A-4: Setting access restrictions on a Linksys access point

Topic B: Wireless metropolitan area networks

B-1: Exploring wireless MAN technologies

Topic C: Wireless wide area networks

C-1: Identifying wireless WAN technologies

Topic D: The future of wireless networks

D-1: Discussing the future of wireless networks

Appendix A: CWNA exam objectives

Topic A: Exam objectives

Appendix B: Setup options for Cisco Aironet access points

Appendix C: Cisco access point configuration settings

Appendix D: Linksys access point configuration settings

Appendix E: Wireless Web sites

Appendix F: IEEE Committees