

## **Cisco Wireless LAN Support Specialist**

- **Course Number:** CiscoSup
- **Length:** Day(s)

### **Certification Exam**

There are no current exams associated with this course.

### **Course Overview**

As organizations adopt wireless LAN technology in order to extend employee access to critical network resources, they require qualified professionals who can design, install, support, and operate a wireless LAN solution. This course will cover all of those topics.

### **Prerequisites**

Students attending this course should have prior knowledge of LAN technologies.

### **Audience**

This course is geared towards professionals who want to understand radio technologies associated with WLAN 802.11g standards, WLAN and bridge topologies and applications, as well as basic antenna theory.

### **Course Outline**

- **Level 1**
- Introduction
- 1.1 Wireless LAN Standards
- 1.2 Network Extension
- 1.3 Building to Building Connectivity
- 1.4 Last Mile Data Delivery
- 1.5 Mobility
- 1.6 Small Office Home Office
- 1.7 Summary
- Radio Frequency Overview
- 2.1 Radio Frequency Defined
- 2.2 RF Behaviors
- 2.3 Gain and Loss
- 2.4 Reflection
- 2.5 Refraction
- 2.6 Diffraction
- 2.7 Scattering
- 2.8 Absorption
- 2.9 Voltage Standing Wave Ratio

- 2.10 Principles of Antennas Line of Sight
- 2.11 Principles of Antennas Fresnal Zone
- 2.12 Antenna Gain
- 2.13 Intentional Radiator
- 2.14 Equivalent Isotropically Radiated Power
- 2.15 Radio Frequency Mathematics
- 2.16 Decibel's
- 2.17 Gain and Loss Measurements
- 2.18 Summary
- Spread Spectrum Technology
- 3.1 Unlicensed Frequency Bands
- 3.2 Spread Spectrum RF Technology
- 3.3 Transmitting a Signal
- 3.4 Spread Spectrum Technologies
- 3.5 Frequency Hopping
- 3.6 Direct Sequence VS Frequency Hopping
- 3.7 Scalability Issues
- 3.8 Summary
- **Level 2**
- Access Points Overview
- 1.1 Access Points
- 1.2 Wireless Bridge and Antennas
- 1.3 Device Configuration
- 1.4 Client Adaptors
- 1.5 Hardware in Depth Access Points
- 1.6 Hardware in Depth Wireless Bridges
- 1.7 Hardware in Depth Client Devices
- 1.8 Access Point Setup
- 1.9 Client Devices Setup
- 1.10 Wireless Bridge Setup
- Antenna Overview
- 2.1 Omni Directional Antennas
- 2.2 Semi Directional Antennas
- 2.3 Highly Directional Antennas
- 2.4 RF Antennas Concepts
- 2.5 Free Space Path Loss
- 2.6 Antenna Installation
- 2.7 WLAN Accessories
- 2.8 Summary
- Standards Overview
- 3.1 WLAN Organizations
- 3.2 ISM Bands
- 3.3 Output Rules
- 3.4 IEEE
- 3.5 802.11 Standard
- 3.6 Misc Organizations and Standards

- 3.7 Summary
- **Level 3**
- Network Architecture Overview
- 1.1 SSID
- 1.2 Beacons
- 1.3 Authentication and Association
- 1.4 802.1x and EAP
- 1.5 VPN
- 1.6 Service Sets
- 1.7 Roaming
- 1.8 VLANs
- 1.9 Power Management
- 1.10 Lab- Ad Hoc Mode
- Mac and Physical Layer
- 2.1 WLAN and Ethernet Frames
- 2.2 Control
- 2.3 Collisions
- 2.4 Fragmentation
- 2.5 DRS/NAV
- 2.6 DCF/PCF
- 2.7 IFS/SIFS/PIFS
- 2.8 DIFS/ Slot Times
- 2.9 RTS/CTS
- 2.10 Modulation
- **Level 4**
- Security Overview
- 1.1 WEP
- 1.2 Actual Threats
- 1.3 Encryption Suites
- 1.4 TKIP VS CKIP
- 1.5 WPA
- 1.6 MIC Michael
- 1.7 Keys and Key Management
- 1.8 Authentication Methods
- 1.9 802.11i WPA2
- 1.10 WLAN Security Hierarchy
- 1.11 War Driving
- 1.12 War Chalking
- 1.13 Internet Problems with Wireless Network
- 1.14 New Security Enhancements
- 1.15 Security Policy
- 1.16 Cell Sizing
- 1.17 SSID/ Wireless DMZ
- 1.18 Lab- Net Simulator
- 1.19 Lab- Hot Spot Def Kit
- 1.20 EAP FAST

- 1.21 RADIUS/ TACACS+
- 1.22 AAA?ACS
- 1.23 Summary
- **Level 5**
- Troubleshooting Overview
- 1.1 Multipath
- 1.2 Hidden Node
- 1.3 Near/Far
- 1.4 Throughput
- 1.5 Interference Issues
- 1.6 Weather Issues
- 1.7 Co-Channel Interference
- 1.8 Range
- 1.9 Summary
- Site Survey Overview
- 2.1 Site Survey Fundamentals
- 2.2 Existing Network Information
- 2.3 External Considerations
- 2.4 Business Requirements
- 2.5 Bandwidth and Roaming
- 2.6 Security Preparation
- 2.7 Site Survey Equipment
- 2.8 Documentation Signal Loss
- 2.9 Summary
- Management Overview
- 3.1 Wireless LAN Solution Engine
- 3.2 Cisco SWAN
- 3.3 Roaming
- 3.4 WLSE Options
- 3.5 Summary