

# African Advanced Level Telecommunications Institute (AFRALTI)

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## CCNP WIRELESS LANs (IEEE 802.11)

### Course Overview

This course covers advanced wireless Local Area Networks (WLANs). WLANs comprise an access technology which has an increasing significance for network access in offices, factories, hotels, airports, and at home. The course explains the differences between wired and wireless LANs, describes WLAN topologies, and teaches you how to implement Cisco WLAN solutions.

The Program delivers Web-based content, assessment, student performance monitoring, hands-on labs and certified instructor training support and covers objectives for the industry-standard certifications.

### Prerequisites

Cisco Certified Network Associate (CCNA) certification is recommended for students to enroll in the Wireless course and knowledge of LAN / WAN technologies.

### Duration

5 Days

### Objectives

By the end of the course the student should be able to:

- Describe wireless LANs
- Describe Wireless LAN Topologies
- Explain Wireless LAN Technology Standards
- Configure Cisco WLAN Clients
- Implement Wireless LANs
- Configure Wireless WLANs using Autonomous and Lightweight Aps
- Implement Wireless LAN security
- Perform a site survey

### Course Outline

## **Introducing Wireless LANs**

- Wireless Data Technologies
- Wireless LANs
- WLANs and Other Wireless Technologies
- WLANs and LANs

## **Describing Wireless LAN Topologies**

- WLAN Topologies
- Typical WLAN Topologies
- Roaming through Wireless Cells
- Wireless VLAN Support
- Wireless Mesh Networking

## **Explaining Wireless LAN Technology Standards**

- Unlicensed Frequency Bands
- WLAN Regulation and Standardization
- IEEE 802.11b Standard
- IEEE 802.11a Standard
- IEEE 802.11g Standard
- General Office Wireless LAN Design

## **Configuring Cisco WLAN Clients**

- Cisco 802.11a/b/g WLAN Client Adapters
- Cisco Aironet Desktop Utility Installation
- ADU Diagnostics: Advanced Statistics
- Cisco Aironet Site Survey Utility: Associated AP Status
- Windows XP WLAN Configuration
- Cisco Aironet Client Administration Utility
- Compatible Extensions Program for WLAN Client Devices

## **Implementing Wireless LANs**

- Wireless Client Association
- Lightweight Access Point Protocol
- Describing WLAN Components
- Cisco Unified Wireless Network
- Cisco Aironet Access Points and Bridges
- Power over Ethernet
- Explaining WLAN Antennas
- Multipath Distortion
- Definition of a Decibel
- Effective Isotropic Radiated Power

## **Configuring Wireless WLANs**

- Autonomous Access Point Configuration
- Role of Autonomous Access Points in a Radio Network

- Autonomous Access Point Configuration via the Web Browser
- Lightweight WLAN Controller Configuration
- Cisco Wireless LAN Controller Boot Menu
- Web Wizard Initial Configuration

### **Introducing Wireless Security**

- The Need for WLAN Security
- 802.11 WEP
- WLAN Authentication
- Cisco Enhanced 802.11 WEP Security
- 802.1x Overview
- LEAP
- EAP-FAST
- EAP-TLS
- PEAP
- Wi-Fi Protected Access
- WPA Issues

### **Configuring Encryption and Authentication on Lightweight Access Points**

- Configuring Open Authentication
- Configuring Static WEP Key Authentication
- Configuring WPA Preshared Key
- Configuring Web Authentication
- Customizing the Web Login Page
- Configuring 802.1x Authentication
- Configuring WPA with 802.1x
- WPA2/IEEE 802.11i security standard

### **Wireless QoS**

- WLAN QoS Description
- 802.11e WLAN QoS Standard / EDCA
- WLAN QoS Challenges

### **Performing a Site Survey**

- Describe a site survey
- Basic equipment / tools required for a site survey
- Steps to perform a site survey
- Function of the Aironet Client Utility (ACU) Site Survey tool
- Aironet Client Utility (ACU) Site Survey tool

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