



Western Group (Thailand) Co., Ltd.

Western Group (Thailand),Ltd.
31/92 Rangsit-Klong 7 Rd., Lam luk ka,
Patum-tani, 12150, THAILAND
Tel: +662 909-3691, Mobile: +66(0)8-1908-1052
Fax: +662 909-3691

Fundamentals of Wireless LANs:

Prerequisites

Basic understanding of wireless, radio communications is recommended.

Period

Lecture Only: 3 Days

Full Options: 5-6 Days

Option Include

Online Test – Cisco Online Test 10-12 Modules

LAB – Cisco Aronet Access Point (Serie 1100/1200) ~20-25 Labs

Class Size

12 ~15 persons

Course Description (Full Options)

This introductory course to Wireless LANs focuses on the design, planning, implementation, operation and troubleshooting of Wireless LANs. It covers a comprehensive overview of technologies, security, and design best practices with particular emphasis on hands on skills in the following areas:

- Wireless LAN setup & troubleshooting
- 802.11 (a, b, and g) technologies, products & solutions
- Radio Technologies
- WLAN applications and site surveys
- Resilient WLAN products, design, installation, configuration and troubleshooting
- WLAN security
- Vendor interoperability strategies
- Emerging wireless technologies

Course Objectives

Upon completion of this course, students will have an understanding of:

- Understand wireless radio technologies and topologies
- Understand IEEE 802.11 wireless standards
- Configure and install wireless access points, bridges, adapters, and antennae
- Wireless design, installation, configuration, monitoring and maintenance using CLI and web-based Device Manager
- Identify wireless security threats and vulnerabilities
- Wireless security using MAC filtering, WEP, LEAP, EAP and 802.1x technologies
- Understand proper site survey techniques and safety practices
- Configure monitoring technologies such as Syslog, SNMP and logging
- Troubleshooting wireless installation and configuration
- Understand vertical and horizontal wireless implementations and uses

Course Outline (Full Options)

Module 1 - 12 Outline

Module 1: Introduction to Wireless LANs

- 1.1 Introduction to Wireless LANs
- 1.2 Networking Media
- 1.3 Wireless Technologies
- 1.4 Components and Topologies
- 1.5 Wireless LAN Market
- 1.6 Challenges and Issues



Western Group (Thailand),Ltd.
31/92 Rangsit-Klong 7 Rd., Lam luk ka,
Patum-tani, 12150, THAILAND
Tel: +662 909-3691, Mobile: +66(0)8-1908-1052
Fax: +662 909-3691

Module 2: 802.11 (a,b,g) and Network Interface Cards

- 2.1 802.11 Standards
- 2.2 802.11 MAC Layer
- 2.3 Physical Layer (PHY)
- 2.4 Client Adapters
- 2.5 Aironet Client Utility (ACU)
- 2.6 ACU Monitoring and Troubleshooting Tools

Module 3: Wireless Radio Technology

- 3.1 Waves
- 3.2 Mathematics for Studying Radio
- 3.3 Electromagnetic (EM) Waves
- 3.4 Signals
- 3.5 Modulation Techniques
- 3.6 Multiple Access and Bandwidth
- 3.7 Radio Wave Propagation

Module 4: Wireless Topologies

- 4.1 Components
- 4.2 WLAN Topologies
- 4.3 Channel Setup
- 4.4 Bridge Topologies
- 4.5 Sample Topologies
- 4.6 VLAN, QoS, and Proxy Mobile IP

Module 5: Access Points

- 5.1 Access Point Connection
- 5.2 Basic Configuration
- 5.3 Verify AP Operation
- 5.4 Network Interface Configuration
- 5.5 Configure Services
- 5.6 Wireless Services

Module 6: Bridges

- 6.1 Bridge Connection
- 6.2 Basic Configuration
- 6.3 Configuring the radio and Ethernet ports
- 6.4 Configuring Services
- 6.5 Cisco Services
- 6.6 1400 Series Bridge

Module 7: Antennas

- 7.1 Antennas
- 7.2 Omnidirectional Antennas
- 7.3 Directional Antennas
- 7.4 Cable and Accessories
- 7.5 Link Engineering and RF Path Planning
- 7.6 Antenna Installation

Module 8: Security

- 8.1 Security Fundamentals
- 8.2 Basic WLAN Security Technologies
- 8.3 Configuring Basic WLAN Security
- 8.4 Enterprise WLAN Authentication
- 8.5 Enterprise Wireless Encryption
- 8.6 Other Enterprise Security Services

Module 9: Application Design and Site Survey Prep



Western Group (Thailand) Co., Ltd.

Western Group (Thailand),Ltd.
31/92 Rangsit-Klong 7 Rd., Lam luk ka,
Patum-tani, 12150, THAILAND
Tel: +662 909-3691, Mobile: +66(0)8-1908-1052
Fax: +662 909-3691

- 9.1 Site Survey
- 9.2 Applications
- 9.3 WLAN Design
- 9.4 Building-to-building Design
- 9.5 Site Survey Equipment
- 9.6 Site Survey Documentation and Utilities

Module 10: Site Survey

- 10.1 Infrastructure Awareness
- 10.2 Survey
- 10.3 Mounting and Installation
- 10.4 Documentation

Module 11: Troubleshooting Management, Monitoring, and Diagnostics

- 11.1 General Approach to Troubleshooting
- 11.2 OSI Troubleshooting
- 11.3 Diagnostic Tools
- 11.4 WLAN Troubleshooting
- 11.5 System Message Logging
- 11.6 Enterprise Management

Module 12: Emerging Technologies

- 12.1 Ultra-wideband Wireless
- 12.2 VoIP and Voice over WLANs
- 12.3 Mobile Wireless
- 12.4 Wireless Organizations and Certification