

## WiFi –24hrs

Higher Certificate in Certified Wi-Fi Engineer (HotSpots Specific)

### 課程簡介

隨著政府宣佈投放 2 億多元在香港所有公共場所建立 WiFi Hotspot 後，具相關知識及專業資格的人才將有大量的需求。本課程將教授市場上最受認可的 2 大無線網絡認證：① Cisco Advanced Wireless LAN Field Specialist 及 ② Planet3 Wireless CWNA，務求令學員能儘快掌握無線網絡的原理、保安及相關設定。課程更特別增設 WiFi HotSpots 的相關知識，使學員更能將知識應用在 WiFi HotSpots 的建立上。

### 課程目標

本課程適合已具備基礎網絡知識人士修讀，學員如要考取 Cisco Advanced Wireless LAN Field Specialist，先必需考取 Cisco CCNA 認證。

- ✧ Cisco Exam Code: 642-578；相關網站：www.cisco.com
- ✧ Planet3 CWNA Exam Code: PWD-100；www.cwnp.com

### 課程內容

#### RF Fundamentals

- ✧ Define and explain the basic concepts of RF behavior
- ✧ RF Mathematics
- ✧ Understand and apply the basic components of RF mathematics
- ✧ RF Signal and Antenna Concepts
- ✧ Identify RF signal characteristics, the applications of basic RF antenna concepts, and the implementation of solutions that require RF antennas
- ✧ Explain the applications of basic RF antenna types and identify their basic attributes, purpose, and function
- ✧ Describe the proper locations and methods for installing RF antennas
- ✧ RF Antenna Accessories
- ✧ Identify the use of the following WLAN accessories and explain how to select and install them for optimal performance within FCC regulations

#### Spread Spectrum Technologies

- ✧ Identify some of the uses for spread spectrum technologies
- ✧ Comprehend the differences between, and explain the different types of spread spectrum technologies and how they relate to the IEEE 802.11 standard's PHY clauses
- ✧ Identify the underlying concepts of how spread spectrum technology works
- ✧ Identify and apply the concepts which make up the functionality of spread spectrum technology
- ✧ IEEE 802.11 Standard
- ✧ Identify, explain, and apply the frame and frame exchange concepts covered by the IEEE 802.11 standard (as amended)
- ✧ Identify and apply regulatory domain requirements
- ✧ IEEE 802.11 CSMA/CA
- ✧ IEEE 802.11 Industry Organizations and Their Roles
- ✧ Define the roles of the following organizations in providing direction, cohesion, and accountability within the WLAN industry

#### IEEE 802.11 Protocol Architecture

- ✧ Summarize the processes involved in authentication and association
- ✧ Define, describe, and apply the following concepts associated with WLAN service sets
- ✧ Explain and apply the following power management features of WLANs
- ✧ IEEE 802.11 MAC & PHY Layer Technologies
- ✧ Describe and apply the following concepts surrounding WLAN frames
- ✧ Identify methods described in the IEEE 802.11 standard for locating, joining,
- ✧ Define, describe, and apply IEEE 802.11 coordination functions and channel access methods and features available for optimizing data flow across the RF medium
- ✧ WLAN Infrastructure and Client Devices
- ✧ Identify the purpose of the following WLAN infrastructure devices and describe how to install, configure, secure, and manage them
- ✧ Describe the purpose of the following WLAN client devices and explain how to install, configure, secure, and manage them

#### IEEE 802.11 Network Design, Implementation, and Management

- ✧ Identify technology roles for which WLAN technology is appropriate and describe implementation of WLAN technology in those roles
- ✧ IEEE 802.11 Network Troubleshooting
- ✧ Identify and explain how to solve the following WLAN implementation challenges
- ✧ IEEE 802.11 Network Security - 16%

### **IEEE 802.11 Network Security Architecture**

- ✧ Identify and describe the strengths, weaknesses, appropriate uses, and appropriate implementation of the following IEEE 802.11 security-related items:
  - ✧ Describe, explain, and illustrate the appropriate applications for the following client-related wireless security solutions
  - ✧ IEEE 802.11 Network Security Analysis Systems, Devices
  - ✧ Identify the purpose and features of the following wireless analysis systems and explain how to install, configure, integrate, and manage them as applicable
- ✧ IEEE 802.11 Network Security Policy Basics
  - ✧ Describe the following General Security Policy elements
  - ✧ Describe the following Functional Security Policy elements
  - ✧ IEEE 802.11 RF Site Surveying - 16%

### **IEEE 802.11 Network Site Survey Fundamentals**

- ✧ Explain the importance and processes involved in conducting a complete RF site survey
  - ✧ Explain the importance of and proprietary documentation involved in preparing for an RF site survey
  - ✧ Explain the technical aspects and information collection procedures involved in an RF site survey
  - ✧ Describe site survey reporting procedures for manual and virtual RF site surveys
- ✧ IEEE 802.11 Network Site Survey Systems and Devices
  - ✧ Identify the equipment, applications, and system features involved in performing virtual site surveys
  - ✧ Identify the equipment and applications involved in performing manual site surveys

### **Cisco Wireless LAN Fundamentals**

- ✧ Describe detailed technical features, functions and benefits of the WLAN product offerings available from Cisco
  - ✧ Install advanced feature set hardware so that it functions optimally
- ✧ Install and manage the CiscoWorks WLSE and infrastructure devices so that it functions optimally
  - ✧ Install and administer WLAN management devices

### **Cisco Wireless LAN Advanced**

- ✧ Define concepts and describe considerations for deploying wireless bridges
  - ✧ Configure a Cisco client card with Cisco utilities
  - ✧ Configure the core access point and bridge
  - ✧ Configure an advanced featured WLAN using a Cisco wireless LAN controller
- ✧ Implement a WLAN management solution available from Cisco
  - ✧ Secure a WLAN using security methods and products available from Cisco

### **WiFi HotSpots Specific**

- ✧ The Basic of WiFi HotSpots
  - ✧ Simple Free Access HotSpots
  - ✧ Free or Paid Access and Private Network Using Hotspot Gateway
- ✧ Increasing Hotspots Wireless Coverage
  - ✧ Common problems and fixes