



BROWARD COMMUNITY COLLEGE COURSE OUTLINE

LAST REVIEW: 2003-2004

NEXT REVIEW: 2008-2009

STATUS: A

COURSE TITLE: Cisco Networking Academy: Fundamentals of Wireless LANs

COMMON COURSE NUMBER: CET 1850C

CREDIT HOURS: 4

CONTACT HOUR BREAKDOWN

(per 16 week term)

CLOCK HOURS:

Lecture: 56

Lab: 8

(Voc. Course ONLY)

Clinic: 0

Other: 0

PREREQUISITE(S): CET 1610C

COREQUISITE(S):

PRE/COREQUISITE(S):

COURSE DESCRIPTION: *(600 characters, maximum)*

This Cisco Networking Academy course in wireless technology focuses on the design, planning, implementation, operation and troubleshooting of Wireless LANs. It offers a comprehensive overview of technologies, security, and design best practices, with particular emphasis on hands-on skills.

UNIT TITLES

1. Introduction to Wireless LANs
2. 802.11(a, b, & g) and Network Interface Cards
3. Wireless Radio Technology
4. Wireless Topologies
5. Access Points
6. Bridges
7. Antennas
8. Security
9. Application Design and Site Survey Prep
10. Site Survey
11. Troubleshooting, Management, Monitoring and Diagnostics
12. Emerging Technologies



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UNITS

Unit 1 Introduction to Wireless LANs

General Outcome:

1.0 The student shall have a basic understanding of wireless LANs.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

1.1 Present an Introduction to Wireless LANs

1.2 Recognize Networking Media

1.3 Define Wireless Technologies

1.4 Describe wireless Components and Topologies

1.5 Discuss Wireless LAN Market

1.6 List the Challenges and Issues in wireless technology



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Unit 2 802.11(a, b, & g) and Network Interface Cards

General Outcome:

2.0 The student shall understand the 802.11 standards.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

2.1 Describe 802.11 Standards

2.2 Discuss 802.11 MAC Layer

2.3 Explain the Physical Layer (PHY)

2.4 Distinguish Client Adapters

2.5 Use Aironet Client Utility (ACU)

2.6 Employ ACU Monitoring and Troubleshooting Tools



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Unit 3 Wireless Radio Technology

General Outcome:

3.0 The student shall understand wireless radio technology.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

3.1 Explain Waves

3.2 Perform Mathematics for Studying Radio

3.3 Explain Electromagnetic (EM) Waves

3.4 Define Signals

3.5 Understand Modulation Techniques

3.6 Describe Multiple Access and Bandwidth

3.7 Explain Radio Wave Propagation



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Unit 4 Wireless Topologies

General Outcome:

4.0 The student shall understand wireless topologies.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

4.1 Identify Components

4.2 Discuss WLAN Topologies

4.3 Perform Channel Setup

4.4 Explain Bridge Topologies

4.5 Describe Sample Topologies

4.6 Discuss VLAN, QoS, and Proxy Mobile IP



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Unit 5 Access Points

General Outcome:

5.0 The student shall have a basic understanding of access points.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

5.1 Establish Access Point Connection

5.2 Perform Basic Configuration

5.3 Verify AP Operation

5.4 Check Network Interface Configuration

5.5 Configure Services

5.6 Implement Wireless Services



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Unit 6 Bridges

General Outcome:

6.0 The student shall understand the use of bridges.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

6.1 Discuss Bridge Connection

6.2 Perform Basic Configuration

6.3 Describe Configuring the radio and Ethernet ports

6.4 Explain Configuring Services

6.5 Employ Cisco Services

6.6 Use 1400 Series Bridge



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Unit 7 Antennas

General Outcome:

7.0 The student shall have a basic understanding of antennas.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

7.1 Identify Antennas

7.2 Describe Omnidirectional Antennas

7.3 Explain Directional Antennas

7.4 List Cable and Accessories

7.5 Use Link Engineering and RF Path Planning

7.6 Perform Antenna Installation



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Unit 8 Security

General Outcome:

8.0 The student shall understand wireless security techniques.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

8.1 Explain Security Fundamentals

8.2 Discuss Basic WLAN Security Technologies

8.3 Describe Configuring Basic WLAN Security

8.4 Employ Enterprise WLAN Authentication

8.5 Employ Enterprise Wireless Encryption

8.6 Use Other Enterprise Security Services



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Unit 9 Application Design and Site Survey Prep

General Outcome:

9.0 The student shall be able to create application designs and understand site surveys.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

9.1 Discuss Site Survey

9.2 Design Applications

9.3 Develop WLAN Design

9.4 Develop Building-to-building Design

9.5 List Site Survey Equipment

9.6 Describe Site Survey Documentation and Utilities



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Unit 10 Site Survey

General Outcome:

10.0 The student shall be able to complete site surveys.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

10.1 Demonstrate Infrastructure Awareness

10.2 Complete the Survey

10.3 Perform Mounting and Installation

10.4 Write Documentation



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Unit 11 Troubleshooting, Management, Monitoring and Diagnostics

General Outcome:

11.0 The student shall be able to troubleshoot and manage wireless installations.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

11.1 Describe a General Approach to Troubleshooting

11.2 Employ OSI Troubleshooting

11.3 Use Diagnostic Tools

11.4 Perform WLAN Troubleshooting

11.5 Interpret System Message Logging

11.6 Perform Enterprise Management



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Unit 12 Emerging Technologies

General Outcome:

12.0 The student shall be able to explain emerging wireless technologies.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

12.1 Describe Ultra-wideband Wireless

12.2 Discuss VoIP and Voice over WLANs

12.3 Explain Mobile Wireless

12.4 List Wireless Organizations and Certification