ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Workforce Development

COURSE: CSN 2210 Wireless Networks

Date: Spring 2021

Credit Hours: 3

Prerequisite(s):   CSN 1225

Delivery Method: ☒ **Lecture**   **2 Contact Hours** (1 contact = 1 credit hour)

☐ **Seminar**   **0 Contact Hours** (1 contact = 1 credit hour)

☒ **Lab**   **2 Contact Hours** (2-3 contact = 1 credit hour)

☐ **Clinical**   **0 Contact Hours** (3 contact = 1 credit hour)

☐ **Online**

☐ **Blended**

Offered: ☐ **Fall**   ☒ **Spring**   ☐ **Summer**

IAI Equivalent –*Only for Transfer Courses*-go to *http://www.itransfer.org*:

CATALOG DESCRIPTION:
This course teaches how to design, install, and configure wireless networks. It covers protocols, wireless security, and wireless troubleshooting. Lecture 2 hours; Lab 2 hours.

GENERAL EDUCATION GOALS ADDRESSED

[See last page for Course Competency/Assessment Methods Matrix.]

Upon completion of the course, the student will be able:

[Choose up to three goals that will be formally assessed in this course.]

☒ To apply analytical and problem solving skills to personal, social, and professional issues and situations.

☐ To communicate successfully, both orally and in writing, to a variety of audiences.

☐ To construct a critical awareness of and appreciation for diversity.

☒ To understand and use technology effectively and to understand its impact on the individual and society.

☐ To develop interpersonal capacity.

☐ To recognize what it means to act ethically and responsibly as an individual and as a member of society.

☐ To recognize what it means to develop and maintain a healthy lifestyle in terms of mind, body, and spirit.

☐ To connect learning to life.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

[Outcomes related to course specific goals. See last page for more information.]

Upon completion of the course, the student will be able to:

1. understand the 802.11 standard for wireless
    1.a. The student will understand historical, current, and proposed 802.11 protocols
    1.b. The student will understand PAN (such as Bluetooth) and other wireless technologies and how they differ from 802.11

2. design wireless networks
    2.a. The student will be able to conduct site surveys
    2.b. The student will learn about various wireless LAN devices and standards
    2.c. The student will understand physical and logical infrastructure requirements
    2.d. The student will be able to design wireless, high availability mesh networks
    2.e. Comprehend various wireless topologies

3. analyze and troubleshoot a WLAN
    3.a. The student will be able to use network analyzers to capture wireless packets
    3.b. The student will be able to differentiate between normal wireless packet transmissions and ones that are troublesome

4. learn about wireless LAN security and vulnerabilities
    4.a. The student will learn about the types of wireless attacks
    4.b. The student will learn about prevention of attacks
    4.c. The student will learn wireless encryption and transitional, personal, and enterprise security models.
    4.d. The student will learn about intrusion monitoring

5. implement BYOD and Guest Access
    5.a. The student will learn to implement "bring your own device" networks
    5.b. The student will understand the security implications of BYOD and what can be done to lessen the security risks
    5.c. The student will be able to set up BYOD and guest networks for use in an organization

6. learn how to manage a WLAN
    6.a. The student will learn to monitor the wireless network with various tools
    6.b. The student will learn how to maintain and upgrade the wireless network
    6.c. The student will establish a wireless security policy

MAPPING LEARNING OUTCOMES TO GENERAL EDUCATION GOALS
[For each of the goals selected above, indicate which outcomes align with the goal.]

Goals	Outcomes
First Goal	
To apply analytical and problem solving skills to personal, social, and professional issues and situations.	2, 3, 5
Second Goal	
To understand and use technology effectively and to understand its impact on the individual and society.	1, 4, 5

COURSE TOPICS AND CONTENT REQUIREMENTS:
1. Wireless Local Area Networks
2. Radio Frequency Fundamentals
3. WLAN Management and Architecture
4. Conducting a Site Survey
5. WLAN Security
6. Managing a WLAN
7. WLAN Troubleshooting and Optimization

INSTRUCTIONAL METHODS:
Lecture and lab

INSTRUCTIONAL MATERIALS:
- Computers with wireless adapters
- Wireless Access Points
- Wireless Routers
- Devices to allow wireless packet analysis

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:
A= 90-100
B= 80-89
C= 70-79
D= 60-69
F= 0-59

OTHER REFERENCES
Books:
- CWNA Guide to Wireless LANs (3rd or current edition) by Mark Ciampa ISBN: 978-1133132172
- Wireless Networking: Introduction to Bluetooth and WiFi by Gordon Colbach ISBN: 978-1973252115

Course Competency/Assessment Methods Matrix

CSN 2210	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	**Direct/ Indirect**	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D							
The student will be able to understand the 802.11 standard for wireless								X	X																							X
The student will be able to design wireless networks					X			X	X																							X
The student will be able to analyze and troubleshoot a WLAN					X			X	X																							X
The student will be able to learn about wireless LAN security and vulnerabilities					X			X	X																							X
The student will be able to implement BYOD and Guest Access					X			X	X																							X
The student will be able to learn how to manage a WLAN					X			X	X																							X