National University
School of Engineering and Technology

CSC668 Topics in Computing

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Required Text: "CWSP Certified Wireless Security Professional Official Study Guide: Exam PW0-204 (CWNP Official Study Guides)"
ISBN: 978-0-470-43891-6
by David D. Coleman, Bryan E. Harkins

Course Description:

The course provides the fundamentals of the WLAN security technologies including: Wireless security principles, SOHO, SMB, Enterprise Layer 2 security, Wireless Protected Access (WPA), 802.11i Compliant Wireless Protected Access V2 (WPA2) , Wireless Attacks and vulnerabilities, Protocol Analysis, Wireless Intrusion detection and Prevention systems, Device Management Protocols, Layer 3 VPN security and general security policy. The course provides the basic preparation for the CWSP exam.

Learning Outcomes:

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

- Demonstrate knowledge on implementation, troubleshooting and maintaining wireless security within any sized wireless network, small to enterprise..
- Demonstrate knowledge on hardware used to circumvent 802.11 security.
- Understand the processes involved in auditing.
- Understands use of 802.11 protocol analyzer based on its security features.
- Understand various authentication methods
- Recognizes and understands the various basic wireless security concepts.
- Describes various security infrastructure management protocols.
- Understands the purpose of various wireless LAN security

Week 1:

session 1: Wireless LAN Discovery

- Wireless LAN Auditing Tools
- Wardriving
- NetStumbler
- Kismet and KisMAC
- Wireless Zero Configuration

- Wireless Client Utilities
- Gathering information

Session 2: Network Attacks

- Rogue Devices
- Rogue Infrastructure Hardware Placement
- Data Theft & Malicious Insertion
- Security Feature Weaknesses &Vulnerabilities
- Denial Of Service

Activities:

- Take Quizzes for week 1
- Submit Assignments for week 1 in the dropbox
- Participation in Discussion threads for week 1
- iLinc sessions on Tuesday and Thursday at 6:30 Pacific time

Week 2:

Session 1: Security Policy

- WLAN Security Policy
- General Security Policy
- Functional Security Policy
- Summary

Session 2: Authentication

- Legacy Authentication Protocols
- IEEE 802.1X Authentication
- Extensible Authentication Protocol (EAP)
- Authentication Servers

Encryption

- RC4
- DES
- 3DES
- AES

Activities:

- Submit project topic for the course
- Take midterm test
- Take Quizzes for week 2
- Submit Assignments for week 2 in dropbox
- Participation in Discussion threads for week 2
- iLinc sessions on Tuesday and Thursday at 6:30 Pacific time

Week 3:

session 1: Wi-Fi Security

- WEP
- WPA
- TKIP
- Improvements of WPA over WEP
- IEEE 802.11i

session 2: Encrypting Wireless Data with VPN Techniques

- VPN Overview
- Common VPN Protocols

Activities:

- Take Quizzes for week 3
- Submit Assignments for week 3 in the dropbox
- Participation in Discussion threads for week 3
- iLinc sessions on Tuesday and Thursday at 6:30 Pacific time

Week 4:

session 1: Wireless Monitoring and Protection

- Protocol Analyzers
- WIPS
- Common WIDS/WIPS Features

session 2: WLAN Switches

- Comparative WLAN Architectures
- WLAN Switch Features
- Present Project

Activities:

- Take Quizzes for week 4
- Submit Assignments for week 4 in dropbox
- Participation in Discussion threads for week 4
- Take final exam
- iLinc sessions on Tuesday and Thursday at 6:30 Pacific time

Note: The schedule is tentative and is subject to change

Course Requirements:

Students are expected to attend all class sessions, participate in all class activities, complete exams as scheduled, and turn in all assignments on time. Failure to do so may result in the loss of points or the lowering of one's grade.

Grading Rubric:

Discussion Participation Grading Rubric				
Criteria (12 total points)	**0 Needs-improvement**	**1 Basic**	**2 Proficient**	**3 Exceptional**
Relevant course theories, concepts, or materials are applied correctly. **(3 points)**	Relevant course theories, concepts, or materials are not explained.	Relevant course theories, concepts, or materials are explained.	Relevant course theories, concepts, or materials are applied correctly.	Course theories, concepts, or materials are analyzed correctly, via examples and supporting evidence.
Collaboration with other learners, relating the discussion to relevant course concepts. **(3 points)**	Does not collaborate with other learners.	Collaborates with other learners however, does not relate discussion to the relevant course concepts.	Collaborates with other learners, relates the discussion to relevant course concepts.	Collaborates with other learners, relates the discussion to relevant course concepts and extending the dialogue.
Uses related professional, personal, or other real-world experiences. **(3 points)**	Does not use professional, personal, or other real-world experiences.	Uses unrelated professional, personal, or other real-world experiences.	Uses related professional, personal, or other real-world experiences.	Uses related professional, personal, or other real-world experiences to extend the dialogue.
Position with applicable knowledge is established. **(3 points)**	Does not establish related position.	Establishes related position.	Position with applicable knowledge is supported.	Position with applicable knowledge is validated.

Participation Guidelines:

Participate in class discussions/ submit homework assignments/

Points-to-Grade Conversion:

The points you earn on this activity will be converted to a percentage grade according to the chart below and will be used to determine your final course grade.

0 points	=	0%	=	D
1 point	=	23%	=	D
2 points	=	46%	=	D
3 points	=	69%	=	D
4 points	=	71%	=	C
5 points	=	75%	=	C

6 points	=	79%	=	C
7 points	=	81%	=	B
8 points	=	85%	=	B
9 points	=	89%	=	B
10 points	=	90%	=	A
11 points	=	95%	=	A
12 points	=	100%	=	A

Course Grading:

Course requirements include the following major independent measures of learner competency.

Ensure to submit your work by Friday every week, as I read and grade everything during the weekends. Failure to submit your week by end of Friday may result in a delay of a week in receiving a grade for your work.

Learning Activity Weights and Scoring Guides

Activity	Weight
1. Exam	**Midterm 20%**
	Exam Final 20%
2. Unit Assignments/Quizzes	**15%**
3. Course Project Components	**30%**
	Class Participation/Class activities 15%
Total:	**100%**

Final Course Grade:

Your final course letter grade is determined by a cumulative percentage, a total of the graded percentages you receive for each weighted activity above.

National University Statements on:

Diversity:

Learning to work with and value diversity is essential in every program. Students are required to act respectfully toward other students and the instructor throughout the course. Students are also expected to exhibit an appreciation for multinational and gender diversity in the classroom and develop management skills and judgment appropriate to such diversity in the workplace.

Ethics:

Ethical behavior in the classroom is required of every student. Students are also expected to identify ethical policies and practices relevant to course topics.

Communication Skills:

Both written and oral communications are required in the classroom of every student.

Writing Across the Curriculum:
http://www3.nu.edu/schools/SOET/writing.html

Student Discipline and Plagiarism:
http://www3.nu.edu/schools/SOET/plagiarism.html

Attendance Procedures:
http://www3.nu.edu/schools/SOET/attendance.html

Library Resources:
http://www3.nu.edu/schools/SOET/library.html

APA Reference Guide:
http://www.apastyle.org/pubmanual.html

References:

CWNP (http://www.cwnp.com/cwsp/index.html)

Certification Magazine (http://www.certmag.com/articles/templates/cmag_feature.asp?articleid=981&zoneid=9)