National University
School of Engineering and Technology
CSC668 Topics in Computing

Instructor: Nazila Safavi, PhD **email:** nazila@globaltechnologies.biz
Phone: (949) 295-2709

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

Class Schedule:
Note: The schedule is tentative and is subject to change

Session 1: Wireless LAN Overview, Legacy WLAN

Session 2: WLAN Vulnerabilities
***Activities*:**
- *Lab activity in class*
- *Read related material from textbook*

Session 3: Authentication
Activities:
- *Submit assignments*
- *Lab activity in class*
- *Read related material from textbook*

Session 4: WLAN Security Models
***Activities*:**

- *Lab activity in class*
- *Read related material from textbook*

Session 5: Wi-Fi Security
Activities:
- Take midterm
- Submit assignments
- *Read related material from textbook*

Session 6: WLAN enterprise
***Activities*:**
- *Lab activity in class*
- *Read related material from textbook*

Session 7: Design WLAN, Operational support
***Activities*:**
- *Lab activity in class*
- **Submit assignments**
- *Read related material from textbook*

Session 8: Managing WLAN, Security Policies/Plan
Activities:
- Present projects
- *Lab activity in class*
- *Read related material from textbook*

Session 9: Presentations, Final exam
Activities:
- Take Final exam
- Term presentations due

LAB Assignment:

Hack into your team member's device. (peer-to-peer) attack. Both/All parties need to be aware of this occurrence. See manual for instructions. Review the instruction manual during session one, ensure you have all your equipment by session two. You will lose 10% each session if you are without the required equipment.

PROJECT Assignment:

A research paper or presentation project related to a topic in the WLAN security area. The project would involve a simulation, demonstration or paper. Ideally, the project should include some original research. However deriving a known result from scratch, repeating a simulation experiment is also acceptable. The project will be presented to the class in your method of choice (such as powerpoint and/or Matlab simulation, or any other means), or if it is a paper, hand in to your instructor. You must discuss your project topic with your instructor by end of week 2. The project may be done in groups of 1 to 4 people. However, if you are writing a paper in a group, you must submit your portions individually. Some suggested topics may include:

- Methods to resolve security issues in WLAN
- Future of WLAN security.
- Economic issues for WLAN security
- Design your own WLAN device
- Email hacking (demo)

Note that early bird project scores 15% extra (if presented by session 3, 10% extra if presented by session 5, and 5% extra if presented by session 8).When your presentation is ready contact your instructor in advance to book a presentation session to be held during a class session.

Course Requirements:
Students are expected to attend all class sessions, participate in all class activities, complete exams as scheduled, and turn in all assignments. 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.

Assignments:
Check the course room for weekly assignments. 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.

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

Activity	Weight
1. Exam (Midterm)	20%
2. Exam (Final)	20%
3. LAB activity	25%
4. Project	20%
5. Assignments	10%
6. Participation	5%
Total score	100

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)