Saint Leo University
Donald R. Tapia School of Business

COM 225: PENETRATION TESTING AND COUNTER MEASURES

I. REQUIRED TEXT

Ethical Hacking and Countermeasures: Attack Phases (2nd Edition); EC-Council
ISBN-13: 9781305883437, Cengage Learning, Copyright 2017**.**

II. COURSE DESCRIPTION:

This course is designed for those studying to become security officers, auditors, security professionals, site administrators, and anyone who is concerned about or responsible for the integrity of the network infrastructure. The content of this course is designed to immerse learners into an interactive environment where they will be shown how to scan, test, hack, and secure information systems. A wide variety of tools, viruses, and malware is presented in this course, providing a complete understanding of the tactics and tools used by hackers. By gaining a thorough understanding of how hackers operate, ethical hackers are able to set up strong countermeasures and defensive systems to protect their organization's critical infrastructure and information.

III. LEARNING OUTCOMES:

Students will be able to:

1. Understand the importance of information security in today's world and describe ethical hacking.
2. Describe foot-printing and scanning objectives.
3. Explain the different techniques used for enumeration
4. Describe risk management techniques and penetration testing methods.
5. **VALUES OUTCOME**: Students will demonstrate an understanding of the Saint Leo University core value of personal development, including the criticality of ethical behavior in using computers in an organizational environment.

IV. METHOD OF ASSESSMENT:

A: Discussion Questions and Comments (10%)
B: Case Scenarios (30%)
C: Quizzes (30%)
D: Labs (30%)

A. Weekly Discussions:

Participation in class discussions is expected to be thoughtful and well-informed. For each module, respond to a discussion question posted on the Discussion Board no later than Thursday 11:59 PM EST/EDT of the respective module. Finally, post responses to at least two classmates no later than Sunday 11:59 PM EST/EDT..

B. Case Scenarios:
Students will respond to case scenarios that will be assigned in modules 1 to 7. The case scenarios are built around realistic situations and are intended to reflect real-life situations that students are likely to encounter in their daily work. The case scenarios must be submitted to Mind Tap for grading.

C. Quizzes:
A total of four quizzes will be given in this course. Each quiz covers the material and learning objectives from the respective chapters.

D. Labs: There is a total of eight lab assignments in this course. Each lab assignment is designed to apply the knowledge and principles learned in the respective chapter. The labs will ensure students gain real life experience using tools and technologies that are used by every-day cyber security professionals and pen testers.

ASSESSMENT OF THE LEARNING OUTCOMES:

Learning outcome	Assessment Method(s)
1	Quiz, Case Scenario, Discussion, Lab
2	Quiz, Case Scenario, Discussion, Lab
3	Quiz, Case Scenario, Discussion, Lab
4	Quiz, Case Scenario, Discussion, Lab
5	Case Scenario, Discussion

The following distribution will be used in assigning grades (decimal points will be rounded to the nearest whole number at semester's end)**:**

Grade		Percentage
A	Exceptional	94% to 100%
A-	Superior	90% to 93%
B+	Excellent	87% to 89%
B	Very Good	84% to 86%
B-	Good	80% to 83%
C+	Above Average	77% to 79%
C	Average	74% to 76%
C-	Below Average	70% to 73%
D+	Marginal	67% to 69%
D	Poor	60% to 66%
F	Failure	Below 60%

V. SCHEDULE:

MODULE	CONTENT	Assessment
One	**Assigned Reading**: Chapter 1: Introduction to Ethical Hacking	Discussion, Labs, Quiz
Two	**Assigned Reading**: Chapter 2: Foot-printing	Discussion, Labs, Case Scenarios

Three	**Assigned Reading**: Chapter 3: Scanning	Discussion, Labs, Quiz
Four	**Assigned Reading**: Chapter 4: Enumeration	Discussion, Labs, Case Scenarios
Five	**Assigned Reading**: Chapter 5: System Hacking	Discussion, Labs, Quiz
Six	**Assigned Reading**: Chapter 6: Penetration Testing	Discussion, Labs, Quiz,
Seven	**Assigned Reading**: Chapter 6: Penetration Testing	Discussion, Labs, Case Scenarios
Eight	**Assigned Reading**: Darknet- Understanding Information Security Issues.	Discussion, Labs, Case Scenario

VI. ADA COMPLIANCE:

Appropriate academic accommodations and services are coordinated through the Office of Disability Services, which is located in the Student Activities Building. Students with documented disabilities who may need academic accommodation(s) should email their requests to adaoffice@saintleo.edu or call x8464.

VII. ACADEMIC HONOR CODE:

As members of an academic community that places a high value on truth and the pursuit of knowledge, Saint Leo University students are expected to be honest in every phase of their academic life and to present as their own work only that which is genuinely theirs. Unless otherwise specified by the professor, students must complete homework assignments by themselves (or if on a team assignment, with only their team members). If they receive outside assistance of any kind, they are expected to cite the source and indicate the extent of the assistance. Each student has the responsibility to maintain the highest standards of academic integrity and to refrain from cheating, plagiarism, or any other form of academic dishonesty as well as reporting any observed instance of academic dishonesty to a faculty member.

VIII. STUDENT MISCONDUCT/CLASSROOM DISRUPTION:

Saint Leo University students are expected to conduct themselves at all times in accord with good taste and observe the regulations of the University and the laws of the city, state, and national government. All University community members—faculty, staff, employees, students—have the right and obligation to report violations of civil or University regulations to the appropriate University Vice President or Associate Vice President of Academic Affairs. Should a University community member encounter a disruptive student, the student shall be asked politely, but firmly, to leave the classroom (or wherever the locus of disruption). A University community member has the authority to do this if the student is acting in a disruptive manner. If the student refuses, the appropriate office shall be notified.

XI. LIBRARY RESOURCES:

Below is the library information for classes on the University Campus. Each region has its own library information and can be accessed at http://saintleolibrary.cloudaccess.net/general-help/93-help/258-faculty-syllabus-library-information.html

The regions are: University Campus, Virginia, Central, Florida, COL, and DL. Please contact Elana Karshmer if you have any questions at elana.karshmer@saintleo.edu

Cannon Memorial Library Resources
Accessible in Ecollege, mySaintleo, library homepage

Library Instruction
To arrange library/research instruction for your classes, please contact:

Elana Karshmer	elana.karshmer@saintleo.edu	University Campus
Viki Stoupenos	viki.stoupenos@saintleo.edu	FL, GA, SC Centers
Steve Weaver	steven.weaver@saintleo.edu	CA, MS, TX, VA Centers
Sandy Hawes	sandy.hawes@saintleo.edu	COL
Aimee Graham	aimee.graham02@saintleo.edu	DL

Writing Help
The Cannon Memorial Library now offers instruction in writing and research to all center students at all levels, across the curriculum. Ángel L. Jiménez, M.A., Instructor of Writing and Research, offers instruction on all aspects and stages of the writing process. Please make an appointment: **Appointment Form**

Ángel Jiménez	angel.jimenez@saintleo.edu	1-352-588-8269

Cannon Memorial Library
Librarians are available during reference hours to answer questions concerning research strategies, database searching, locating specific materials, and interlibrary loan (ILL).

Reference Hours

Monday – Thursday	9 a.m. – 10 p.m.
Friday	9 a.m. – 5 p.m.
Saturday	9 a.m. – 6 p.m.
Sunday	10 a.m. – 6 p.m.

The library provides an 800 number and an email address for general reference services: 1-800-359-5945 or reference.desk@saintleo.edu . The library's mailing address and local telephone numbers are:

MC2128, 33701 State Road 52, Saint Leo, FL 33574

352-588-8477 (Reference Desk)
352-588-8476 (Circulation Desk)
352-588-8258 (Main)
352-588-8259 (Fax)

Online Catalog "LeoCat" (All Books and Media)

Click on the Library Catalog link on the **Cannon Memorial Library** website. To borrow books in person from the library, present your SLU ID at the Circulation Desk. Online and off-campus students may have materials delivered to them by completing and electronically submitting article or book request forms from the Interlibrary Loan page.

Online Library Resources (Articles and E-books)

Saint Leo provides its own array of online article databases and e-book resources. Use the Databases and E-books links on the Cannon Memorial Library website to search the latest subscription databases and e-book/e-reference collections.

Subject Research Guides
Click on Research a Subject for an introduction to relevant online and print resources the library has to offer in your given subject area – this is a great place to start your research.

Florida Region

Librarian
For help locating books, database searches, reference assistance, or to arrange library instruction for a class, Florida Region students and faculty may contact:

Viki Stoupenos, Florida Region Librarian
Viki.stoupenos@saintleo.edu 1-912-352-8331 ext. 3025

Library Tutorial
A library tutorial, which takes students through accessing Saint Leo library materials, is available on the library homepage. A short quiz is included which takes approximately 20 minutes to complete.

Supplemental Area Library Resources
Local Florida public and area academic libraries are listed for each center: Libraries Near Your Center

Library Card Reimbursement
To ensure that every student has academic book borrowing privileges, Saint Leo annually reimburses off-campus students up to $150 to obtain a library card at one area college or university library. Students should submit their receipt and a completed reimbursement form at their Saint Leo Center office. The reimbursement form is available online at http://saintleolibrary.cloudaccess.net/images/Library_Reimbursement_Form.pdf

Module 1 **Introduction to Ethical Hacking**

Objectives When you complete this module, you should be able to:

- Determine the importance of information security in today's world.
- Describe the elements of security and ethical hacking.
- Identify the phases of the hacking cycle and different types of hacker attacks.

Readings Chapter 1

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Mind Tap Lab 1	Sunday 11:59 PM EST/EDT
Complete Quiz 1	Sunday 11:59 PM EST/EDT

Module 2 **Foot-Printing**

Objectives When you complete this module, you should be able to:

- Define foot-printing in terms of the reconnaissance phase.
- Select publically accessible information from a company's website.
- Describe both passive and competitive intelligence gathering.

Readings Chapter 2

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Mind Tap Lab 2	Sunday 11:59 PM EST/EDT
Submit Case Study 1	Sunday 11:59 PM EST/EDT

Module 3 **Scanning**

Objectives When you complete this module, you should be able to:

- Define scanning and it's objectives.
- Explain scanning methodology including the different types of scanning.

Readings Chapter 3

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Mind Tap Lab 3	Sunday 11:59 PM EST/EDT
Complete Quiz 2	Sunday 11:59 PM EST/EDT

Module 4 **Enumeration**

Objectives When you complete this module, you should be able to:
- Define enumeration.
- Explain the different techniques used for enumeration.
- Demonstrate the ability to establish null sessions.

Readings Chapter 4

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Mind Tap Lab 4	Sunday 11:59 PM EST/EDT
Submit Case Study 2	Sunday 11:59 PM EST/EDT

Module 5 **System Hacking**

Objectives When you complete this module, you should be able to:
- Explain how to crack passwords.
- Identify various password cracking tools.
- Implement countermeasures for password cracking.
- Describe escalating privileges.

Readings Chapter 5

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Mind Tap Lab 5	Sunday 11:59 PM EST/EDT
Complete Quiz 3	Sunday 11:59 PM EST/EDT

Module 6 **Penetration Testing**

Objectives When you complete this module, you should be able to:
- Describe both types of penetration testing, automated and manual.
- Describe security assessments.
- Describe risk management.

Readings Chapter 6

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT

Submit Mind Tap Lab 6	Sunday 11:59 PM EST/EDT
Complete Quiz 4	Sunday 11:59 PM EST/EDT

Module 7 **Penetration Testing Continued**

Objectives When you complete this module, you should be able to:
- Perform both types of penetration testing, automated and manual.
- Perform security assessments and risk management

Readings Chapter 6 continued

Assignments

Items to be Completed:	**Due No Later Than:**
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Mind Tap Lab 7	Sunday 11:59 PM EST/EDT
Submit Case Study 3	Sunday 11:59 PM EST/EDT

Module 8 **Cybersecurity Issues**

Objectives When you complete this module, you should be able to:
- Demonstrate the ability to stay current in the field of cyber security.

Readings Darknet – Understanding Information Security Issues

Assignments

Items to be Completed:	**Due No Later Than:**
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Case Study 4	Sunday 11:59 PM EST/EDT