

Department of Electrical and Computer Engineering

**EEL 4806 – ETHICAL HACKING AND COUNTERMEASURES
Fall 2022**

Instructor : Dr. Shafiul Islam
Office Hours : by appointments or
Tuesday & Thursday 11:30 am– 1:30 pm

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Class :
TBD

Web Page : <https://ece.fiu.edu/people/faculty/index.html#>

Catalog Description:

No matter what field you work in, you cannot help but notice the impact that the Internet has had on society. It has opened up opportunities and markets that people only dreamed of before. As with any technology, there is always a positive and negative aspect. The positive side is tremendous business opportunities; the business world relies increasingly upon data communications, and modern data networks are based mainly on the Internet. The negative side is the huge security risk that is now posed to so many companies, yet few companies are truly aware of the potential danger.

Information is the asset that must be protected. Without adequate protection or network security, many individuals, businesses, and governments are at risk of losing that asset. It is imperative that all networks be protected from threats and vulnerabilities so that a business can achieve its fullest potential. Security risks cannot be eliminated or prevented completely; however, effective risk management and assessment can significantly minimize the existing security risks.

This course is intended to provide a practical survey of network security applications and standards. The emphasis is on applications that are widely used on the Internet for corporate networks, and on standards that have been widely deployed. It also provides students with the knowledge and skills to begin supporting network security and best practices for implementing security.

(3 Credits)

Reference Textbook: Open source materials are used as instruction materials

Computer Security and Penetration Testing

Alfred Basta, Nadine Basta, Mary Brown, PhD, CISSP, CISA

Publisher : Cengage Learning, Aug-2013

Publish Date : Aug-2013

ISBN 10 : 9780840020932

ISBN 13 : 0840020937

Course Objectives:

1. Evaluate the tools and techniques to use during reconnaissance, scanning, vulnerability identification, exploitation, and maintaining control and privilege escalation.
2. Assess the security issues in telecommunications and networks.
3. Analyze the design aspects of security including threat identification and risk assessment.
4. Apply best practices and guidelines for developing and verifying effective security policies and procedures, security goals, threats and vulnerabilities, standards and security policy development, forensics, privacy implications, and ethics.
5. Analyze the different ways of securing Communication and the various threat agents.
6. Assess the differences between Ethical and unethical Hacking.
7. Evaluate different vulnerabilities and measure how these vulnerabilities are exploited by hackers to gain entry into networks as well as to perform privilege escalation.
8. Synthesize and Evaluate Intrusion Detection, Policy Creation, Social Engineering, DDoS Attacks, Buffer Overflows and Virus Creation.
9. Analyze and Evaluate the severity levels and possible fixes to remediate the uncovered issues and be able to provide comprehensive solutions.

Relationship of course to program outcomes:

1. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Grading Scale:		
A	92-100	"Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook."
A-	90-92	
B+	88-90	
B	82-88	
B-	80-82	
C+	78-80	
C	70-78	
D	60-70	
F	< 60	

Department Regulations Concerning Incomplete Grades

To qualify for an Incomplete, a student:

1. Must contact (e.g., phone, email, etc.) the instructor or secretary before or during missed portion of class
2. Must be passing the course prior to that part of the course that is not completed
3. Must make up the incomplete work through the instructor of the course
4. Must see the Instructor. All missed work must be finished before last two weeks of the following term.

Policies:

1. **Academic Misconduct:** For work submitted, it is expected that each student will submit their own original work. Any evidence of duplication, cheating or plagiarism will result at least a failing grade for the course.
2. Absences: Resolution of absences and materials missed are student responsibility
 - a) **Unexcused Absences:** Two unexcused absences are permitted during the term. More than two will result in the loss of points from your final grade. (1 point per absence above two, 3 points per absence above 5).
 - b) **Excused Absences:** Only emergency medical situations or extenuating circumstances are excused with proper documentation.
 - 1. Review documentation with the lecturer,
 - 2. email as a written record to mdsislam@fiu.edu.
 - Name, SID, class, section, description and date of the absence
3. **On Time:** As in the workplace, on time arrival, preparation, and submissions are required.
4. **Deadlines: Work is due on the date specified.** Late submissions within one week will receive up to half credit. After one week, **late work will not be accepted.** Late submissions are graded after the final exam.

Participation deadlines are absolute – no late completions are accepted

5. **Submissions: This class is paperless.** Submissions are made using the web form listed on the class web site (online and in class sections) See the class web site for instructions. All submissions must be
 - a) a single document,
 - b) web accessible and readable with a browser
 - c) with a single URL reference.
6. **DO NOT** submit work by email.
7. Instructor reserves right to change course materials or dates as necessary.

Grading Scale: NOTE: There are *no makeup exams* offered

Topic	Percentage
Exams <i>no makeup</i>	60%
Discussion	5%
Project	15%
Assignments/Labs	15%
Quiz	5%
Attendance	Unexcused absence penalty based on in class policy

Class Schedule

Tentative weekly schedule and topics (may be adjusted based on other activities):

Date	Details	Due
Mon Aug 22, 2022	Assignment Discussion 1	due by 11:59pm
Sun Sept 11,2022	Assignment Quiz 1 (chapters 1 and 2)	due by 11:59pm
	Assignment Lab 1	due by 11:59pm
Sep12 – Sep 25	Assignment Discussion 2	due by 11:59pm
	Assignment Quiz 2 (chapters 3, 4 and 5)	due by 11:59pm
	Assignment Lab 2	due by 11:59pm
Sep 26 –Oct 9	Assignment Discussion 3	due by 11:59pm
	Assignment Lab 3	due by 11:59pm
	Assignment Quiz 3 (chapters 6, 7 and 8)	due by 9pm
Oct 10 –Oct 23	Assignment Discussion 4	due by 11:59pm
	Assignment Quiz 4 (chapters 9 and 10)	due by 10:30pm

Date	Details	Due
	Assignment Course - Midterm	due by 11:59pm
	Assignment Lab 4	due by 11:59pm
	Assignment Upload Tutorial pre-Draft(Proposal)	due by 11:59pm
Oct 24 – Nov 6	Assignment Discussion 5	due by 11:59pm
	Assignment Quiz 5 (chapters 11 and 12)	due by 11pm
	Assignment Lab 5	due by 11:59pm
	Assignment Upload Tutorial Draft	due by 11:59pm
Nov 7 – Nov 20	Assignment Discussion 6	due by 11:59pm
	Assignment Special Assignment	due by 11:59pm
	Assignment Lab 6	due by 11:59pm
	Assignment Upload Tutorial - Final	due by 11:59pm

Date	Details	Due
Nov 21 –Dec 3	Assignment Quiz 6 (chapters 12 and 13)	due by 11pm
	Assignment Lab Assignment 5 and 6	due by 11:59pm
	Assignment Discussion 7	due by 11:59pm
	Assignment Individual Video	due by 11:59pm
	Assignment Lab 7	due by 11:59pm
	Assignment Quiz 7 (chapters 14 and 15)	due by 11:59pm
	Assignment Presentation	due by 11:59pm
	Assignment Course - Final	due by 11:59pm