

# FIREWALLS AND NETWORK SECURITY (ITSY 2301 6A1)

## CREDIT

3 Semester Credit Hours (2 hours lecture, 4 hours lab)

## MODE OF INSTRUCTION

Hybrid

## PREREQUISITE/CO-REQUISITE:

None

## COURSE DESCRIPTION

This course covers elements of firewall design, types of security threats and responses to security attacks, the use of Best Practices to design, implement, and monitor a network security plan, and the examination of security incident postmortem reporting and ongoing network security.

## COURSE OBJECTIVES

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

1. Demonstrate system security skills through firewall implementation and testing.
2. Use system tools, practices, and relevant technologies to implement a security plan.
3. Evaluate practices, tools, and technologies to identify security breaches, sources of attacks, and protect mission critical systems.
4. Establish an appropriate level of security based on an analysis of security logs.
5. Use relevant tools to secure a network, respond to and follow up on various types of attacks.

## INSTRUCTOR CONTACT INFORMATION

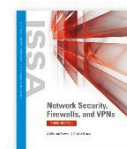
Instructor: Bonnie Cobb  
Email: bscobb@lit.edu  
Department Office Phone: (409) 247-5052  
Department Office Location: TA-4, Room 103  
Office Hours: 10:00 – 11:00 a.m. Thursdays  
Or By Appointment

## REQUIRED TEXTBOOK AND MATERIALS

1. ***Navigate eBook Access for Network Security, Firewalls, and VPNs with Cloud Labs***, J. Michael Stewart; Denise Kinsey, PhD, CISSP, PMP; Jones & Bartlett, 2022.
2. Cyber Security and Networking Technology (CSNT) majors are required to have one 64 GB or larger capacity USB Flash Drive to be used for the duration of the time to complete their degree.



**LAMAR INSTITUTE  
OF TECHNOLOGY**



## ATTENDANCE POLICY

Three absences are allowed. If a student is tardy to class or departs early three (3) times, it will be equal to one (1) absence. Each absence beyond three absences will result in a 2-point deduction from your final grade.

## DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

## COURSE CALENDAR

DATE	TOPIC	READINGS (Due on this Date)	ASSIGNMENTS (Due on this Date)
08/29/2024	Syllabus Course Introduction Instructions for Textbook/Labs Purchase		
09/05/2024	Fundamentals of Network Security	Chapter 1	Lab 1, for Chapter 1: Assessing the Network with Common Security Tools Chapter 1 Quiz
09/12/2024	Network Security Threats	Chapter 2	Lab 2, for Chapter 2: Defending the Network from a Simulated Attack Lab 3, for Chapter 2: Using Social Engineering Techniques to Plan an Attack Chapter 2 Quiz
09/19/2024	Common Network Topologies and Infrastructures	Chapter 3	Chapter 3 Quiz
09/26/2024	Network Design Considerations	Chapter 4	Lab 4, for Chapter 4: Designing a Secure Network Topology Chapter 4 Quiz
10/03/2024	Firewall Fundamentals Test 1	Chapter 5	Test 1: Chapters 1-4
10/10/2024	Firewall Fundamentals	Chapter 5	Lab 5, for Chapter 5: Configuring the Windows Defender Firewall Chapter 5 Quiz
10/17/2024	Firewall Implementation Firewall Deployment Considerations	Chapter 6 Chapter 7	Lab 6, for Chapter 6: Configuring Firewall Interfaces with pfSense Chapter 6 Quiz

10/24/2024	Firewall Deployment Considerations Hands-on Project Introduction Configuring Firewalls	Chapter 7 Chapter 8	Lab 7, for Chapter 7: Monitoring and Logging Network Traffic Chapter 7 Quiz
10/31/2024	Configuring Firewalls VPN Fundamentals	Chapter 8 Chapter 9	Lab 8, for Chapter 8: Configuring Custom Firewall Rules with pfSense Chapter 8 Quiz
11/07/2024	VPN Fundamental Test 2s	Chapter 9	Chapter 9 Quiz Test 2: Chapters 5-8
11/14/2024	VPN Management	Chapter 10	Lab 9, for Chapter 10: Configuring a VPN Server with pfSense Chapter 10 Quiz
11/21/2024	VPN Technologies VPN Implementation	Chapter 11 Chapter 12	Lab 10, for Chapter 11: Configuring a VPN Client for Secure File Transfers Chapter 11 Quiz
11/28/2024	VPN Implementation	Chapter 12	Lab 11, for Chapter 12: Attacking a Virtual Private Network Chapter 12 Quiz
12/05/2024	Test 3 Hands-on Project Review for Final Exam		Test 3: Chapters 9-12 Hands-on Firewall Project
12/10/2024	Final Exam		Final Exam: Chapters 1-12

### **COURSE EVALUATION**

Final grades will be calculated according to the following criteria:

- Labs 30%
- Tests 30%
- Hands-on Project 10%
- Final Exam 30%

### **GRADE SCALE**

- 90-100 A
- 80-89 B
- 70-79 C
- 60-69 D
- 0-59 F

## **TECHNICAL REQUIREMENTS**

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be found online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

## **DISABILITIES STATEMENT**

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email [specialpopulations@lit.edu](mailto:specialpopulations@lit.edu). You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

## **STUDENT CODE OF CONDUCT STATEMENT**

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at [www.lit.edu](http://www.lit.edu). Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

## **ARTIFICIAL INTELLIGENCE STATEMENT**

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses.

## **STARFISH**

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic

alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

## **ADDITIONAL COURSE POLICIES/INFORMATION**

### **Course Policies**

1. No food, drinks, or use of tobacco products in class.
2. Electronic devices not being used for the class, such as phones and headphones, must be turned off while in class. Any device usage during class may result in a deduction of points on an assignment or test.
3. Do not bring children to class.
4. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
5. Tools: Return all tools and/or software to their designated place.
6. A grade of 'C' or better must be earned in this course for credit toward degree requirement:
7. Additional course policies, as defined by the individual course instructor, will be outlined in the course addendum and provided by the instructor.

### **Certification Requirement**

Cyber Security and Networking Technology (CSNT) majors are required to earn certification in one of the following areas prior to graduation.

- A+ Certification
- Network+ Certification
- Security+ Certification
- Linux+ Certification
- Cisco Certified Network Associate (CCNA)