FIREWALLS AND NETWORK SECURITY
(ITSY 2301 6A1)

LAMAR INSTITUTE OF TECHNOLOGY

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

MODE OF INSTRUCTION
Face to Face

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

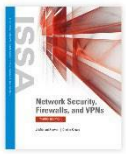
1. Demonstrate system security skills through firewall implementation and testing.
2. Use system tools, practices, and relevant technologies to implement a security plan.
3. Evaluate practices, tools, and technologies to identify security breaches, sources of attacks, and protect mission critical systems.
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:	Susan Joiner
Email:	sljoiner@lit.edu
Office Phone:	409-247-5326
Office Location:	TA 4 Room 103A
Office Hours:	MWF 7:30-10:00am; MW 12:00-1:00pm TR 7:30-8:00am; 1:30-2:00pm

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.

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 by the specified drop date as listed on the Academic Calendar. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

Important Drop Dates

Last Day to Drop with Refund	9/10/2025
Last Day to Pay Tuition to Avoid Drop	9/22/2025
Last Day to Drop without Academic Penalty	9/26/2025
Last Day to Drop with Academic Penalty	10/31/2025

STUDENT EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

COURSE CALENDAR (Subject to change)

DATE	TOPIC	READINGS	ASSIGNMENTS (Due on this Date)
Week 1 8/25-8/31	Syllabus Acknowledgement Course Introduction Instructions for Textbook/Labs Purchase	Syllabus	9/1/2025
Week 2 8/31-9/7	Fundamentals of Network Security	Chapter 1	Lab 1, for Chapter 1: Assessing the Network with Common Security Tools Chapter 1 Quiz 9/8/2025

Week 3 9/7-9/14	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 9/15/2025
Week 4 9/14-9/21	Common Network Topologies and Infrastructures	Chapter 3	Chapter 3 Quiz 9/22/2025
Week 5 9/21-9/28	Network Design Considerations	Chapter 4	Lab 4, for Chapter 4: Designing a Secure Network Topology Chapter 4 Quiz 9/29/2025
Week 6 9/28-10/5	Firewall Fundamentals Test 1	Chapter 5	Test 1: Chapters 1-4 9/30/2025
Week 7 10/5-10/12	Firewall Fundamentals	Chapter 5	Lab 5, for Chapter 5: Configuring the Windows Defender Firewall Chapter 5 Quiz 10/13/2025
Week 8 10/12-10/19	Firewall Implementation	Chapter 6	Lab 6, for Chapter 6: Configuring Firewall Interfaces with pfSense Chapter 6 Quiz 10/20/2025
Week 9 10/19-10/26	Firewall Deployment Considerations Hands-on Project Introduction	Chapter 7	Lab 7, for Chapter 7: Monitoring and Logging Network Traffic Chapter 7 Quiz 10/27/2025
Week 10 10/26-11/2	Configuring Firewalls	Chapter 8	Lab 8, for Chapter 8: Configuring Custom Firewall Rules with pfSense Chapter 8 Quiz 11/3/2025
Week 11 11/2-11/9	Test 2 Hands-on Project Review	Test 2	Test 2: Chapters 5-8 11/4/2025
Week 12 11/9-11/16	VPN Fundamentals	Chapter 9	Chapter 9 Quiz 11/17/2025
Week 13 11/16-11/23	VPN Management	Chapter 10	Lab 9, for Chapter 10: Configuring a VPN Server with pfSense Chapter 10 Quiz 11/24/1015

Week 14 11/23-11/30	VPN Technologies	Chapter 11	Lab 10, for Chapter 11: Configuring a VPN Client for Secure File Transfers Chapter 11 Quiz 12/1/2025
Week 15 11/30-12/7	VPN Implementation Test 3	Chapter 12	Lab 11, for Chapter 12: Attacking a Virtual Private Network Chapter 12 Quiz 12/8/2025 Test 3: Chapters 9-12 12/4/2025
Week 16 12/7-12/10	Hands-on Project Final Exam	Final Exam	Hands-on Firewall Project Final Exam: Chapters 1-12 12/9/2025

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

- Chapter Quizzes 10%
- Labs 25%
- Tests 25%
- Hands-on Project 10%
- Final Exam 30%

GRADE SCALE

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

LIT does not use +/- grading scales

A grade of 'C' or better must be earned in this course for credit toward degree requirement.

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the Student Catalog & Handbook at http://catalog.lit.edu/content.php?catoid=3&navoid=80#academic-dishonesty.

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be 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. 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. 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

EAGLE LEARNING ESSENTIALS

Eagle Learning Essentials (ELE) https://lit.edu/student-success/eagle-learning-essentials is an affordable textbook rental program through the Barnes and Noble Bookstore. Through this program, students can receive required textbooks, lab manuals, access codes and electronic books conveniently before the first day of class.
The ELE bundle will provide the needed learning materials at $14 per credit hour (added to your student account), saving students up to 35-50% on the cost of course materials. The cost can be paid by financial aid or by the student. If a student enrolls in a payment plan, this charge will be included in the payment plan calculations. Supplies are not included in this program and will need to be purchased separately.
LIT students are automatically enrolled in the program at the time of registration and will begin receiving emails about selecting their preferred delivery method.

Certification Requirement
Cyber Security majors are required to earn certification in one of the following areas prior to graduation. **Students are responsible for scheduling and paying for the certification through the LIT Testing Center.**

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

Course Policies
1. **Email is the preferred method of communication (sljoiner@lit.edu).** I cannot respond to Blackboard Messages, I can see them, but I have no way to respond. I will respond within 48 hours except for weekends and holidays.
2. No food, drinks, use of tobacco products, or vaping products in class.
3. 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.
4. Do not bring children to class.
5. A grade of 'C' or better must be earned in this course for credit toward degree requirement.
6. All assignment due dates are indicated in the Blackboard course for this class and the course calendar above. Any work submitted after the assigned due date will receive a **10-point deduction the first 2 days and 15 points after 2 days. There is a one-week limit for late work, after one week it will be a 0.**

7. Exams are assigned a due date and must be completed on that date in class to receive full credit. **There will be no makeup exams.**
8. Grades for assignments may be accessed in the Gradebook in Blackboard. Each assignment shows your grade and any grading comments made on your assignment.
9. All work is due before the final exam date. Nothing will be graded after the final exam.