

CDS513 Network Security

(3 credit hours)

Course Syllabus

Course Description

This course is about Telecommunications and Network Security. Telecommunications and Networks are a fundamental part of our modern life. We will focus our time on Telecommunications and Network Security, as the Internet, WWW, online banking, etc., rely on a secure network. Electronic communication and Network Security focus on Confidentiality, Integrity, and Availability (CIA) of data in motion. Security of the data in motion requires a deep understanding of the technology, down to the packets, segments, frames, and their headers.

Course Learning Outcomes

By the end of this course, you will be able to:

1. Describe computer networking concepts, protocols, and security methodologies.
2. Describe communication methods, principles, and concepts that support network infrastructure.
3. Explain how traffic flows across a network.
4. Demonstrate the use of at least two network monitoring tools.
5. Differentiate the major types of network communication (e.g., LAN, WAN, MAN, WLAN, WWAN).
6. Demonstrate control processes related to the use, processing, storage, and transmission of data.
7. Propose a strategy for protecting a network against malware.
8. Design a plan to implement, maintain, and improve established network security practices.
9. Analyze network traffic capacity and performance characteristics.
- 10.

Prerequisites/Corequisites

CDS510 and CDS511

Required Textbook(s) and Resources

Harris, S & Maymi, F. (2019) *CISSP All-in-One Exam Guide, Eighth Edition*.

Be sure to also review the weekly **Explore** sections for additional library or web resources. For access to databases, research help, and writing tips, visit the [Tiffin University Library](#).

Time Commitment

Effective time management is possibly the single most critical element to your academic success. To do well in this online class you should plan your time wisely to maximize your learning through the completion of readings, discussions, and assignments. Because of our accelerated, seven-week term, TU online courses are designed with the expectation that you dedicate a little over **six (6)** hours per credit hour to course activities and preparation **each week**. For example, for successful completion of a three-credit, seven-week online course you should reserve roughly **twenty (20) hours per week**.

To help plan your time and keep on track toward successful course completion, note the distinctive rhythm of assignment due dates:

1. All times assume Eastern Time (GMT-4).
2. Weeks begin at 12:00 a.m. ET on Monday and end at 11:55 p.m. ET on Sunday.
3. Unless otherwise noted, initial assignments or discussion posts are due by **11:55 p.m. ET on Wednesdays**.
4. Additional assignments or follow-up discussion posts are due by **11:55 p.m. ET on Saturdays, and**
5. Major assignments and reflections are typically due by **11:55 p.m. ET on Sundays**.

Learning Activities

During this course there will be aspects of applying, analyzing, evaluating, and creating network security models. Your learning will be a combination of reading material assigned, videos to watch, discussions to post and reply to, quizzes, and a 20-minute job style interview based on your drawing for your end-of-course research paper.

Grading

The chart below identifies the individual contributions from each type of activity, per week.

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Total
Discussions 15 30 30 30	Discussions 25 25	Discussions -	Discussions 30	Discussions 35	Discussions 30 30	Discussions 30 30	340
Assignments -	Assignments 30 30	Assignments 40 40	Assignments 40 40	Assignments 90	Assignments 100	Assignments 100	510
Quiz	Quiz	Quiz 50	Quiz	Quiz	Quiz 50	Quiz 50	150
Reflection (Extra Credit) -	Reflection (Extra Credit) 10	Reflection (Extra Credit) -	Reflection (Extra Credit) 10	Reflection (Extra Credit) -	Reflection (Extra Credit) 10	Reflection (Extra Credit) -	
105	110	130	110	125	210	210	1000

Grading Scale

A: 90-100% | B: 80-89% | C: 70-79% | F: <69%

Course Schedule and Weekly Checklist

Week 1 - Telecommunications and Network Security

- WED: Activity 1.1: Meet Your Peers - Initial Post
- WED: Activity 1.2: TCP 3-Way Handshake - Initial Post
- WED: Activity 1.3: Common TCP/UDP Ports - Initial Post
- WED: Activity 1.4: Identifying an OS - Initial Post
- SAT: Activity 1.2: TCP 3-Way Handshake - Secondary Posts
- SAT: Activity 1.3: Common TCP/UDP Ports - Secondary Posts
- SAT: Activity 1.4: Identifying an OS - Secondary Posts

Week 2 - OSI versus, TCP Model/IPV4 and IPV6

- WED: Activity 2.1: Netstat -na - Initial Post

- WED: Activity 2.2: Netstat - Initial Post
- SUN: Activity 2.3: IPV6 TCP Dump
- SUN: Activity 2.4: IPV4 TCP Dump
- Activity 2.5: Reflection (Extra Credit)

Week 3 - Layer 2 and Converged Protocols

- SUN: Activity 3.1: Plan MAN Development
- SUN: Activity 3.2: Plan WAN Development
- Activity 3.3: Week 3 Quiz

Week 4 - Firewall Architecture, Implementation, and Design

- WED: Activity 4.1: Intranet/Extranet/Internet - Initial Post
- SAT: Activity 4.1: Intranet/Extranet/Internet - Secondary Posts
- SUN: Activity 4.2: Combined Network Diagram
- SUN: Activity 4.3: Final Project: Scenario/Table of Contents
- SUN: Activity 4.4: Select Appointment Time - Initial Post
- Activity 4.5: Reflection (Extra Credit)

Week 5 - Network Topologies

- WED: Activity 5.1: Bluetooth vs. Wireless - Initial Post
- SAT: Activity 5.1: Bluetooth vs. Wireless - Secondary Posts
- SUN: Activity 5.2: Final Project - First Draft

Week 6 - Network Layer Architecture, Topologies and Devices

- WED: Activity 6.1: Firewalls/Application Firewalls - Initial Post
- SAT: Activity 6.1: Firewalls/Application Firewalls - Secondary Posts
- SUN: Activity 6.2: Software Defined/Physical Networks - Initial Post
- Activity 6.3: Describe/Defend Your Network Design
- Activity 6.4: Week 6 Quiz
- Activity 6.5: Reflection (Extra Credit)

Week 7 - Attacks and Threat Actors

- WED: Activity 7.1: Cyber Attacks - Initial Post
- WED: Activity 7.2: Threat Actors - Initial Post
- WED: Activity 7.3: Final Project
- SAT: Activity 7.1: Cyber Attacks - Secondary Posts
- SAT: Activity 7.2: Threat Actors - Secondary Posts
- Activity 7.4: Week 7 Quiz

Tips for Success

Online learning requires self-discipline and self-direction. As seekers of the truth, we should be willing to challenge one another's academic work in a spirit of respectful comradery. Your course is a place for you to grow as you benefit from the expertise, experience, and diverse perspectives of your instructor and peers. Constructive feedback will challenge you to stretch your own thinking, thereby expanding your knowledge and understanding.

To get the most out of your learning experience, you should actively engage (participate) in **ALL** course activities. Course elements are arranged chronologically. To complete a week, simply work your way "down the page" through all of the course materials and activities.

For More Information:

Be sure to review the [Support, Policies, and Procedures](#) addendum.