

CST230 Networking Fundamentals (3 credit hours) Course Syllabus

Course Description

This course provides an overview of network hardware, operating systems, and applications with a focus on design, implementation, and management of the network environment inside an organization.

Course Learning Outcomes

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

- **1.** Describe the hardware, software and services that comprise an enterprise network to integrate to form a network solution
- 2. Explain key networking protocols in relationship to conceptual models such as the OSI and TCP/IP framework
- 3. Design a network to meet specific performance requirements
- 4. Compare and contrast network terminology and protocols

Required Textbook(s) and Resources

West, J. (2021). CompTIA Network+ Guide to Networks. (9th ed.). Cengage.

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 <u>Tiffin University Library</u>.

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

Assessment for CST230 relies on a large variety of activities. Each week you will be graded on your efforts in forum discussions, hands-on virtual machine labs or simulations, and other assignments, to include two papers (in weeks 1 and 6) and a culminating networking project in Week 7 using Wireshark, open source software that allows you to perform offline or real-time network analysis.

Grading

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Total
Forums Activity 1.1 (n/a)	Forums Activity 2.1 (30)	Forums Activity 3.1 (30)	Forums Activity 4.1 (30)	Forums Activity 5.1 (30)	Forums Activity 6.1 (30)	Forums Activity 7.1 (30)	180
Labs Activity 1.2 (30) Activity 1.3 (40) Activity 1.4 (25)	Labs Activity 2.2 (30) Activity 2.3 (120)	Labs Activity 3.2 (60)	Labs Activity 4.2 (40) Activity 4.3 (40) Activity 4.4 (40)	Labs Activity 5.2 (40)	Labs Activity 6.2 (40)	Labs Activity 7.2 (40)	545
				Quiz Activity 5.3 (30)			30
Assignments		Assignments	Assignments		Assignments	Assignments	245

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

Activity 1.5 (60)		Activity 3.3 (40)	Activity 4.5 (35)		Activity 6.3 (60)	Activity 7.3 (50)	
155	180	130	185	100	130	120	1000

Undergraduate Grading Scale

A: 90-100%

B: 80-89%

C: 70-79%

D: 60-69%

F: <60%

Course Schedule and Weekly Checklist

Start Here

MON: Activity 1.1: Driving Force - Introductory Post

Week 1 – Introduction to Real World Networking

- U WED: Activity 1.2: Smartphone Networking Simulation (LAB)
- □ SAT: Activity 1.3: Introduction to the OSI Model (LAB)
- □ SAT: Activity 1.4: Network Management (LAB)
- □ SUN: Activity 1.5: Research Paper

Week 2 - Routing and Addressing

- □ WED: Activity 2.1: Routers, Switches, Oh My!
- □ SAT: Activity 2.1: Routers, Switches, Oh My! Follow-Up Post
- □ SAT: Activity 2.2: Analyze and Resolve IP Address Duplication (LAB)
- □ SUN: Activity 2.3: Network Services and Protocols (LAB)

Week 3 - Physical and Wireless Media

- □ WED: Activity 3.1: What Cable Should I Use?
- □ SAT: Activity 3.1: What Cable Should I Use?– Follow-Up Post
- □ SAT: Activity 3.2: Test a LAN's Speed and Throughput (LAB)
- □ SUN: Activity 3.3: Public Network Analysis

Week 4 – Network Architecture

- □ WED: Activity 4.1: The Cloud. . . No it isn't in the Sky
- □ SAT: Activity 4.1: The Cloud. . . No it isn't in the Sky Follow-Up Post
- □ SAT: Activity 4.2: Network Architecture (LAB)
- □ SAT: Activity 4.3: Configuring Switching Features (LAB)

- □ SAT: Activity 4.4: Cloud Concepts (LAB)
- □ SUN: Activity 4.5: Compare Google and Amazon Cloud Offerings

Week 5 – Subnetting and the World of VLANs

- □ WED: Activity 5.1: IPv4 vs IPv6
- □ SAT: Activity 5.1: IPv4 vs IPv6 Follow-Up Post
- □ SAT: Activity 5.2: Configure VLANs on a Linksys Switch (LAB)
- □ SUN: Activity 5.3: Subnetting Quiz

Week 6 – Network Risk and Security

- □ WED: Activity 6.1: Firewalls
- □ SAT: Activity 6.1: Firewalls Follow-Up Post
- □ SAT: Activity 6.2: General Network Attacks (LAB)
- □ SUN: Activity 6.3: Network Security Paper

Week 7 – Network Performance and WANs

- □ WED: Activity 7.1: Wide Area Networks
- □ SAT: Activity 7.1: Wide Area Networks Follow-Up Post
- □ SAT: Activity 7.2: Networking Device Monitoring (LAB)
- □ SUN: Activity 7.3: Wireshark Exercises

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 <u>Support, Policies, and Procedures</u> addendum.