

Saint Leo University
COM 215
Principles of Networking

Course Description:

This course will introduce the fundamental computer networking concepts. Students will gain knowledge in the following areas: network media, the Open System Interconnection (OSI) model, the TCP/IP protocol stack, the configurations of switches and routers, and networking protocols.

Prerequisite:

COM 203

Textbooks:

Networking Essentials: A CompTIA Network+ N10-007 Textbook (5th Edition); Jeffrey S. Beasley, Piyasat Nilkaew.
ISBN-13: 978-0-13-42-9974-7, Pearson IT Certification; 2018.

Learning Outcomes:

Students will be able to:

1. Describe network topologies, the OSI model, TCP/IP model, protocols, and local area networks.
2. Describe cabling, UTP, STP, and concepts for planning a cable installation.
3. Describe network media: wired and wireless.
4. Describe network devices and their interfaces.
5. VALUES OUTCOME: Network concepts are critical to information security. Students need to strive to achieve EXCELENCE core value to advance further in this field.

Evaluation:

A. Weekly Discussions:

Students will engage in weekly discussions on topics related to topics on big data and data analytics. Students may be provided assigned reading, asked to research an assigned topic, or discuss assigned business cases. Each student will be required to post a discussion question and respond to two others posted by other students in the class. Section V of this syllabus contains specific details of the topics and reading assignments for each module's discussion.

B. Quizzes:

Multiple choice questions will be given to assess student knowledge of the material learned previously.

C. Exams:

A minimum of two exams will be given in this course. The exams will comprise of multiple choice questions that covers subjects learned from the last 4 modules.

D. Labs:

Students will reinforce their knowledge with hands-on sessions included in the textbook. Each chapter will have lab. Students submit their findings in the lab for assessment.

- A: Discussion Questions and Comments (10%)
- B: Quizzes (30%)
- C: Exams (40%)
- D: Labs (20%)

Assessment of the Learning Outcomes:

Course Learning Outcome	Assessment Method
1	Exam, Quiz, Lab, Discussion
2	Exam, Quiz, Lab, Discussion
3	Exam, Quiz, Lab, Discussion
4	Exam, Quiz, Lab, Discussion
5	Discussion

The following distribution will be used in assigning grades (decimal points will be rounded to the nearest whole number at semester's end):

95-100%	A	Exceptional
90-94%	A-	Excellent
86-89%	B+	Very Good
83-85%	B	Good
80-82%	B-	Fair
75-79%	C	Marginal
< 75%	F	Failure

Course Schedule:

Module 1 Introduction to Computer Networking

Objectives

When you complete this module, you should be able to:

- Describe network topologies
- Summarize the layers of the OSI model
- Describe Ethernet LAN
- Described home networking and office LAN

Readings

Chapters 1

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework 1	Sunday 11:59 PM EST/EDT
Complete M1: Lab Exercise	Sunday 11:59 PM EST/EDT

Module 2 Physical Cabling

Objectives

When you complete this module, you should be able to:

- Describe different types of network cables
- Define the cable properties
- Understand optical component and networking
- Summarize safety issues

Readings

Chapters 2 & 3

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework 2	Sunday 11:59 PM EST/EDT
Complete Quiz 1	Sunday 11:59 PM EST/EDT

Module 3 Wireless Networking

Objectives

- When you complete this module, you should be able to:
- Understand wireless networking and its standards
 - Evaluate different types of wireless communications
 - Outline wireless LAN security

Readings Chapters 4

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework 3	Sunday 11:59 PM EST/EDT

Module 4 **Introduction to the LANs**

Objectives

When you complete this module, you should be able to:

- Understand bridges, switches, routers
- Configure routers, network interface

Readings

Chapters 5

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework 4	Sunday 11:59 PM EST/EDT
Complete M4: Lab Exercise	Sunday 11:59 PM EST/EDT
Complete Midterm	Sunday 11:59 PM EST/EDT

Module 5 **TCP/IP**

Objectives

When you complete this module, you should be able to:

- Understand TCP/IP layers
- Explain number conversion
- Understand IP addressing and subnet masks

Readings

Chapters 6

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework 5	Sunday 11:59 PM EST/EDT

Module 6 Router & Switch Configuration

Objectives

When you complete this module, you should be able to:

- Understand router fundamentals
- Configure routers
- Understand switches and VLANs
- Understand Spanning-Tree protocol, network management, and power over Ethernet

Readings

Chapters 7 & 8

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework 6	Sunday 11:59 PM EST/EDT
Complete M6: Lab Exercise	Sunday 11:59 PM EST/EDT
Complete 2	Sunday 11:59 PM EST/EDT

Module 7 Routing Protocols

Objectives

When you complete this module, you should be able to:

- Identify static routing and dynamic routing
- Understand distance vector and link state protocols
- Configure RIP, RIPv2, and OSPF

Readings

Chapters 9

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework 7	Sunday 11:59 PM EST/EDT
Complete M7: Lab Exercise	Sunday 11:59 PM EST/EDT

Module 8 **Internet Technologies**

Objectives

When you complete this module, you should be able to:

- Define line connection, remote access, metro/carrier Ethernet
- Understand network services and Internet routing

Readings

Chapters 10

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least two classmates	Sunday 11:59 PM EST/EDT
Submit Homework 8	Sunday 11:59 PM EST/EDT
Final	Sunday 11:59 PM EST/EDT