

U701-327: Introduction to Networking

Course Format: Online

Course Author: Xue (Nancy) Ning, PhD

Course credits: 3

Prerequisites: No specific prerequisites. However, basic calculation, logical thinking, and critical thinking are necessary skills required throughout this course. Coding skills are not required, but will be helpful in this course.

Course Level: Introductory; appropriate for first-year or higher college students and high school students

Course Description: This course introduces the fundamentals of computer network, including communication and computation technologies. In this course, students will learn the most important concepts around IT infrastructure, such as TCP/IP, five layers of TCP/IP stack layers, data transmission, networking, security, computing infrastructure, and managerial issues. These concepts are reinforced by real-world examples in multiple hands-on exercises and example cases analysis that apply the knowledge and skills learned from this course. The critical thinking and IT infrastructure design exercises will deepen students' understanding of the IT infrastructure capabilities and supports their business problem solving ability regarding IT infrastructure components and solutions. Through interactive learning experience, students can be well-prepared for the dynamic networking industry.

Required Course Materials

Title: Business Data Communications & IT Infrastructures (3rd edition, 2020)

Authors: Manish Agrawal & Clinton Daniel

ISBN-13: 978-1943153794

Technology Requirements: You will need a reliable computer, internet connection, webcam, speakers, and a microphone.

Course Learning Objectives: After completing this course, students will:

- Understand the fundamentals of computer networking, including communication and computation technologies.
- Apply course concepts in hands-on exercises and analysis of example cases.
- Identify the efficient network through critical thinking and IT infrastructure design exercises.

Course Overview

MODULES	TOPICS	EVALUATED ACTIVITIES
1	Introduction to Networking	Module 1: Quiz Module 1: Chapter 1 Virtual Machine Labs 1 & 2 Module 1: IT Infrastructure Design Exercise 1 - Identifying Uses
2	Physical Layer	Module 2: Quiz Module 2: Chapter 2 Virtual Machine Labs 1 & 2 Module 2: IT Infrastructure Design Exercise 2 - Media Selection
3	Data-Link Layer	Module 3: Quiz Module 3: Chapter 3 Virtual Machine Labs 1 & 2 Module 3: IT Infrastructure Design Exercise 3 - Ethernet Diagram
4	Network Layer	Module 4: Quiz Module 4: Chapter 4 Virtual Machine Labs 1 & 2 Module 4: IT Infrastructure Design Exercise 4 - Estimating CIDR Requirements
5	Transport Layer	Module 5: Quiz Module 5: Chapter 5 Virtual Machine Labs 1 & 2 Module 5: IT Infrastructure Design Exercise 5 - Estimating Data Requirements
6	Application Layer	Module 6: Quiz Module 6: Chapter 6 Virtual Machine Labs 1 & 2 Module 6: IT Infrastructure Design Exercise 6 - Identifying Market Leaders
7	Support Services	Module 7: Quiz Module 7: Critical Thinking Exercise 1 - Nissan Computer Corporation Module 7: IT Infrastructure Design Exercise 7 - Start Infrastructure Diagram
8	Routing	Module 8: Quiz Module 8: Critical Thinking Exercise 2 - Smart Cities Infrastructure Module 8: IT Infrastructure Design Exercise 8 - Failover
9	Subnetting	Module 9: Quiz Module 9: Critical Thinking Exercise 3 - Subnet Design Module 9: IT Infrastructure Design Exercise 9 - Subnet Design
10	Wide-Area Networks	Module 10: Quiz Module 10: Critical Thinking Exercise 4 - Unmanned Aerial Vehicles Module 10: IT Infrastructure Design Exercise 10 - WAN Design
11	Network Security	Module 11: Quiz Module 11: Critical Thinking Exercise 5 - Identifying Threats Module 11: IT Infrastructure Design Exercise 11 - Adding Security

12	Computing Infrastructures	Module 12: Quiz Module 12: Critical Thinking Exercise 6 - Nanoscale Computers Module 12: IT Infrastructure Design Exercise 12 - Using the Cloud
13	DevOps	Module 13: Quiz Module 13: Critical Thinking Exercise 7 - Stage Management Module 13: IT Infrastructure Design Exercise 13 - Using DevOps
14	Managerial Issues	Module 14: Quiz Module 14: Critical Thinking Exercise 8 - Patents Module 14: IT Infrastructure Design Exercise 14 - Hire Yourself
15	Review and Final Exam	Final Exam

Evaluation Methods: The final grade of this course will be based on your performance in assignments, lab work, quizzes, the Mid-Course Exam, and the Final Exam. Your lowest quiz score will be dropped for final grading. Grades will be weighted as followed:

Type of Evaluation	Percentage of Grade
IT Infrastructure Design Exercises (14)	28%
Virtual Machine Labs (12)	12%
Critical Thinking Exercises (8)	16%
Quizzes (14)	28%
Final Exam	16%
TOTAL	100%

Exam Method: The exam method for this course is online without proctoring. This course requires all students to complete exams online. Students receive one attempt on each exam.

Grading Scale: The following grading scale is used to evaluate all course requirements and determine your final grade:

A = 93–100	B = 83–87.9	C = 70–77.9	F = Below 60
AB = 88–92.9	BC = 78–82.9	D = 60–69.9	

Pass/Fail Option

Students who enroll in an Independent Learning (IL) course under the pass/fail option will receive a final grade of S in place of a final grade equivalent to an A, AB, B, BC, or C and a final grade of U in place of a final grade equivalent to a D or F.