

Syllabus

Online IT 230 (CRN #57113) Computer Networking

Instructor: James Hart / hart56@unm.edu

Office Room Number: B 123

Instructor's Campus Phone: 505.925.8720 / Mobile 505.239.3435

Office Hours: MW 12:30AM – 2:30 PM, TTh 10:30 AM – 12:30PM or ARR

Computer Networking. (4) Students will learn the fundamentals of network technology, technical concepts of network environments, identify the basic characteristics for local and wide area networks, list and describe the layers of the OSI networking model, list and identify the use of common network devices, describe the procedure for installing and configuring network adapters, list common network protocols, identify the best network protocol, describe the physical characteristics of a LAN, identify inter-network connectivity hardware by sight, define the roles of clients, servers, and peers on a network, list the most common network operating systems, identify potential network bottlenecks, and list fault tolerance procedures. Prerequisites: IT 125 and IT 131.

COURSE STUDENT LEARNING OUTCOMES: See in course's learn.unm.edu

TEXTBOOK: Instructor issues individual student account for the Cisco Academy. From this account: <https://www.netacad.com> students have access to quizzes, tests and labs.

ATTENDANCE POLICY: Students are required to do a weekly “check in” through ZOOM or WebEx to address course materials and questions for the week. Time and dates of these “check in” sessions will be determined after class starts. Attendance to these sessions, live or recorded, is mandatory. Unless with instructor permission four missed weekly sessions will result in student being dropped.

GRADING POLICY

Weekly “Check in”	10%
Chapter Quizzes	10%
Chapter Tests	20%
Hands on Skills	10%
PT Skills Exam	10%
IP Skills	20%
Final	20%
Total	100%

LETTER GRADE DETERMINATION

A	90 +
B	80 -89
C	70 - 79
D	60 - 69
F	<60

The Cisco Academy breaks this curriculum into 11 chapters in the *Module Tab*. Each chapter is composed of chapter readings (*Launch Tab*), Terms and Concept Practices, Quizzes, and Chapter Exam. Instructor will determine due dates. Due dates are enforced unless instructor is notified prior to the due date. Late work is penalized 10%

Academic Integrity

Having academic integrity is paramount to your success in any class. Plagiarism or cheating is not tolerated. Any instance of this will result in a grade of zero for that assignment. Here is the link to the UNM Academic Dishonesty Policy:

<https://policy.unm.edu/regents-policies/section-4/4-8.html>. The policy states:

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or who otherwise fails to meet the expected standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.

Academic Dishonesty is defined as:

"Academic dishonesty" includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

LIBRARY USAGE: Be sure to always check out the library if you feel you need additional reading materials. They are open for any order suggestions you may have.

STUDENTS WITH DISABILITIES:

If you have a documented disability, the Equal Access Services office will provide me with a letter outlining your accommodations. I will then discuss the accommodations with you to determine the best learning environment. If you feel that you need accommodations, but have not documented your disability, please contact Jeanne Lujan, the coordinator for Equal Access Services at 925-8910 or jmlujan@unm.edu.

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see page 15 - <http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>.

EMAIL: Be sure to check your contact information in Banner and keep it updated. UNM email as our official form of course communication.

Dates for Reference :

August 31 Enrollment Cancellation for non-payment
September 7 Last Day to Drop for 100% Tuition Refund/Last Day to Drop Without a “W”
December 7 Last Day to Change Grading Options
November 9 Last Day to Withdraw Without Student Services Permission
December 7 Last Day to Withdraw with Student Services Permission

COURSE OUTLINE references <https://www.netacad.com> :

Week 1 / Aug. 20

Modules / Launch Course Introduction

- **Weekly “Check in”**
- In Modules “click” ***Launch Introduction to Networks***
- In Modules “click” ***First Time in This Course***
- In Modules “click” ***Student Resources***
- Review Binary, Hex, Decimal
- Take Pretest Exam

Week 2 / Aug 27

Modules / Chapter 1 (Explore the Network)

- **Weekly “Check in”**
- ***Launch Chapter 1***
- ***Chapter 1 Terms and Concepts Practice***
- Review Binary, Hex, Decimal
- Take Chapter 1 Quiz
- Take Chapter 1 Exam

Week 3 / Sept. 3

Labor Day Sept. 3

Modules / Chapter 2 (Configuring a Network Operating System)

- **Weekly “Check in”**
- ***Launch Chapter 2***
- ***Chapter 2 Terms and Concepts Practice***
- Download Cisco’s ***Packet Tracer*** (*Instructor recommends Packet Tracer tutorial also*)
- In ***Packet Tracer*** construct a small network
- Review Binary, Hex, Decimal

Week 4 / Sept. 10

Modules / Chapter 2 (Configuring a Network Operating System)

- **Weekly “Check in”**
- More on Chapter 2
- More ***Packet Tracer***
- Take Chapter 2 Quiz
- Take Chapter 2 Exam
- Review Binary, Hex, Decimal

Week 5 / Sept. 17

Modules / Chapter 3 (Network Protocols and Communications)

- *Weekly “Check in”*
- *Launch Chapter 3*
- *Chapter 3 Terms and Concepts Practice*
- More *Packet Tracer*
- Take Chapter 3 Quiz
- Take Chapter 3 Exam
- Review Binary, Hex, Decimal

Week 6 / Sept. 24

Modules / Chapter 4 (Network Access)

- *Weekly “Check in”*
- *Launch Chapter 4*
- *Chapter 4 Terms and Concepts Practice*
- More *Packet Tracer*
- Review Binary, Hex, Decimal

Week 7 / Oct 1

Modules / Chapter 4 (Network Access)

- *Weekly “Check in”*
 - More on Chapter 4
 - More *Packet Tracer*
 - Take Chapter 4 Quiz
 - Take Chapter 4 Exam
- Modules / Chapter 5 (Ethernet)*
- *Launch Chapter 5*
 - *Chapter 5 Terms and Concepts Practice*
 - Review Binary, Hex, Decimal

Week 8 / Oct 8

Fall Break Oct. 11 & 12

Modules / Chapter 5 (Ethernet)

- *Weekly “Check in”*
- More Chapter 5
- More *Packet Tracer*
- Take Chapter 5 Quiz
- Take Chapter 5 Exam
- Review Binary, Hex, Decimal

Week 9 / Oct 1

Modules / Chapter 6 (Network Layer)

- **Weekly “Check in”**
- ***Launch Chapter 6***
- ***Chapter 6 Terms and Concepts Practice***
- More ***Packet Tracer***
- Take Chapter 6 Quiz
- Take Chapter 6 Exam
- Review Binary, Hex, Decimal

Week 10 / Oct 22

Modules / Chapter 7 (IP Addressing)

- **Weekly “Check in”**
- ***Launch Chapter 7***
- ***Chapter 7 Terms and Concepts Practice***
- More ***Packet Tracer***
- Take Chapter 7 Quiz
- Take Chapter 7 Exam
- Review Binary, Hex, Decimal

Week 11 / Oct 29

Modules / Chapter 8 (Subnetting IP Networks)

- **Weekly “Check in”**
- ***Launch Chapter 8***
- ***Chapter 8 Terms and Concepts Practice***
- More ***Packet Tracer***
- Review Binary, Hex, Decimal

Week 12 / Nov 5

Modules / Chapter 8 (Subnetting IP Networks)

- **Weekly “Check in”**
- More Chapter 8
- More ***Packet Tracer***
- Review Binary, Hex, Decimal
- Take Chapter 8 Quiz
- Take Chapter 8 Exam

Week 13 / Nov 12

Modules / Chapter 9 (Transport Layer)

- **Weekly “Check in”**
- ***Launch Chapter 7***
- ***Chapter 8 Terms and Concepts Practice***
- More ***Packet Tracer***
- Take Chapter 9 Quiz
- Take Chapter 9 Exam
- Review Binary, Hex, Decimal

Week 14 / Nov 19

Thanksgiving Nov. 22 & 23

Modules / Chapter 10 (Application Layer)

- **Weekly “Check in”**
- ***Launch Chapter 10***
- ***Chapter 10 Terms and Concepts Practice***
- ***More Packet Tracer***
- **Take Chapter 10 Quiz**
- **Take Chapter 10 Exam**
- **Review Binary, Hex, Decimal**

Week 15 / Nov 26

Modules / Chapter 11 (Build a Small Network)

- **Weekly “Check in”**
- ***Launch Chapter 11***
- ***Chapter 11 Terms and Concepts Practice***
- ***More Packet Tracer***
- **Take Chapter 11 Quiz**
- **Take Chapter 11 Exam**
- **Review Binary, Hex, Decimal**

Week 16 / Dec. 3

- ***Practice Final / Practice Skills***

Week 16 / Dec. 3

ONLINE FINAL

General Course Objectives

By the end of the course, students will be able to:

- Explain network technologies.
- Explain how devices access local and remote network resources.
- Describe router hardware.
- Explain how switching operates in a small to medium-sized business network.
- Design an IP addressing scheme to provide network connectivity for a small to medium-sized business network.
- Configure initial settings on a network device.
- Implement basic network connectivity between devices.

- Configure monitoring tools available for small to medium-sized business networks.

This instructor-led course is the 1st of 4 courses in the Cisco CCNA Routing and Switching curriculum. The course includes activities using Packet Tracer, hands-on lab work, and a wide array of assessment types and tools.

Detailed Course Objectives:

Chapter 1 Explore the Network

- 1.1 Globally Connected Explain how multiple networks are used in everyday life.
- 1.2 LANs, WANs, and the Internet Explain how topologies and devices are connected in a small to medium-sized business network.
- 1.3 The Network as a Platform Explain the basic characteristics of a network that supports communication in a small to medium-sized business.
- 1.4 The Changing Network Environment Explain trends in networking that will affect the use of networks in small to medium-sized businesses.

Chapter 2 Configure a Network Operating System

- 2.1 IOS Bootcamp Explain the features and functions of the Cisco IOS Software.
- 2.2 Basic Device Configuration Configure initial settings on a network device using the Cisco IOS Software.
- 2.3 Address Schemes Given an IP addressing scheme, configure IP address parameters on devices to provide end-to-end connectivity in a small to medium-sized business network.

Chapter 3 Network Protocols and Communications

- 3.1 Rules of Communication Explain how rules facilitate communication.
- 3.2 Network Protocols and Standards Explain the role of protocols and standards organizations in facilitating interoperability in network communications.
- 3.3 Data Transfer in the Network Explain how devices on a LAN access resources in a small to medium-sized business network.

Chapter 4 Network Access

- 4.1 Physical Layer Protocols Explain how physical layer protocols and services support communications across data networks.
- 4.2 Network Media Build a simple network using the appropriate media.
- 4.3 Data Link Layer Protocols Explain the role of the data link layer in supporting communications across data networks.
- 4.4 Media Access Control Compare media access control techniques and logical topologies used in networks.

Chapter 5 Ethernet

- 5.1 Ethernet Protocol Explain the operation of Ethernet.
- 5.2 LAN Switches Explain how a switch operates.
- 5.3 Address Resolution Protocol Explain how the address resolution protocol enables communication on a network.

Chapter 6 Network Layer

- 6.1 Network Layer Protocols Explain how network layer protocols and services support communications across data networks.
- 6.2 Routing Explain how routers enable end-to-end connectivity in a small to medium-sized business network
- 6.3 Routers Explain how devices route traffic in a small to medium-sized business network.
- 6.4 Configuring a Cisco Router Configure a router with basic configurations.

Chapter 7 IP Addressing

- 7.1 IPv4 Network Addresses Explain the use of IPv4 addresses to provide connectivity in small to medium-sized business networks.
- 7.2 IPv6 Network Addresses Configure IPv6 addresses to provide connectivity in small to medium-sized business networks.
- 7.3 Connectivity Verification Use common testing utilities to verify and test network connectivity.

Chapter 8 Subnetting IP Networks

- 8.1 Subnetting an IPv4 Network Implement an IPv4 addressing scheme to enable end-to-end connectivity in a small to medium-sized business network
- 8.2 Addressing Schemes Given a set of requirements, implement a VLSM addressing scheme to provide connectivity to end users in a small to medium-sized network.
- 8.3 Design Considerations for IPv6 Explain design considerations for implementing IPv6 in a business network.

Chapter 9 Transport Layer

- 9.1 Transport Layer Protocols Explain how transport layer protocols and services support communications across data networks.
- 9.2 TCP and UDP Compare the operations of transport layer protocols in supporting end-to-end communication.

Chapter 10 Application Layer

- 10.1 Application Layer Protocols Explain the operation of the application layer in providing support to end-user applications.
- 10.2 Well-Known Application Layer Protocols and Services Explain how well-known TCP/IP application layer protocols operate.

Chapter 11 Build a Small Network

- 11.1 Network Design Explain how a small network of directly connected segments is created, configured and verified.
- 11.2 Network Security Configure switches and routers with device hardening features to enhance security.
- 11.3 Basic Network Performance Use common show commands and utilities to establish a relative performance baseline for the network.
- 11.4 Network Troubleshooting Troubleshoot a network.

