



Cert Prep: CCNA

IT 293 502 / CRN# 56114

Spring '21

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Flexible Contact Hours

MWTTTh 10:00 AM – 2:00 PM

or ARR

COURSE DESCRIPTION

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.

Student Learning Outcomes/Course Objectives

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

Part 1:

- *Configure switches and end devices to provide access to local and remote network resources.*
- *Explain how physical and data link layer protocols support the operation of Ethernet in a switched network.*
- *Configure routers to enable end-to-end connectivity between remote devices.*
- *Create IPv4 and IPv6 addressing schemes and verify network connectivity between devices.*
- *Explain how the upper layers of the OSI model support network applications.*
- *Configure a small network with security best practices.*
- *Troubleshoot connectivity in a small network.*
- *Configure VLANs and Inter-VLAN routing applying security best practices.*
- *Troubleshoot inter-VLAN routing on Layer 3 devices.*
- *Configure redundancy on a switched network using STP and EtherChannel.*
- *Troubleshoot EtherChannel on switched networks.*
- *Explain how to support available and reliable networks using dynamic addressing and first-hop redundancy protocols.*
- *Configure dynamic address allocation in IPv6 networks.*
- *Configure WLANs using a WLC and L2 security best practices.*
- *Configure switch security to mitigate LAN attacks.*
- *Configure IPv4 and IPv6 static routing on routers.*

- *Configure single-area OSPFv2 in both point-to-point and multiaccess networks.*
- *Explain how to mitigate threats and enhance network security using access control lists and security best practices.*
- *Implement standard IPv4 ACLs to filter traffic and secure administrative access.*
- *Configure NAT services on the edge router to provide IPv4 address scalability.*
- *Explain techniques to provide address scalability and secure remote access for WANs.*
- *Explain how to optimize, monitor, and troubleshoot scalable network architectures.*
- *Explain how networking devices implement QoS.*
- *Implement protocols to manage the network.*
- *Explain how technologies such as virtualization, software defined networking, and automation affect evolving networks*

Prerequisites and Co-requisites

IT 125 and 230 recommended

TECHNICAL SKILLS

In order to participate and succeed in this class, you will need to be able to perform the following basic technical tasks:

- Use UNM Learn (help documentation located in "How to Use Learn" link on left course menu, and also at [Online Student Documentation](#)). Also, UNM-Valencia provides a Blackboard Learn Jumpstart self-learning module to give you practice with the most commonly used tools in UNM Learn. Ask your instructor if you do not see the UNM-Valencia Blackboard Learn Jumstart in your list of classes in UNM Learn.
- Use email – including attaching files, opening files, downloading attachments
- Copy and paste within applications including Microsoft Office
- Open a hyperlink (click on a hyperlink to access a website or online resource)
- Create, download, update, save and upload MS Word documents
- Use the in-course web conferencing tool (Collaborate Web Conferencing software in UNM Learn) or use Zoom or other web conferencing tool
- Download and install an application or plug in – required for participating in web conferencing sessions

TECHNICAL REQUIREMENTS

Computer

- A high-speed Internet connection is highly recommended.
- Supported browsers include: [Detailed Supported Browsers and Operating Systems](#)
- Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor

speed, amount of RAM and Internet connection speed can *greatly* affect performance.

- For the best experience when using the Kaltura Media Tools inside UNM Learn, be sure to use a [supported browser](#) on a desktop.
- Microsoft Office products are available free for all UNM students (more information on the [UNM IT Software Distribution and Downloads page](#))
- Please update your contact information in LoboWeb: [MyUNM Login](#). When you log into MyUNM, Enter LoboWeb. Click on the Personal Information link to make sure your contact information is up to date.

Web Conferencing

Web conferencing will be used in this course during the following times and dates:

For the online sessions, you will need:

- *A USB headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore or online.*
- *A high-speed internet connection is highly recommended for these sessions. A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.*
- *You should also dress as you would when attending an in-person class, even if you do not turn on your video camera.*

Technical Support

- For UNM Learn Technical Support: (505) 277-0857 (24/7) or use the “Create a Tech Support Ticket” link in your course.
- For UNM-Valencia IT Support: (505)925-8911
- For UNM Web Conference Technical Help: (505) 277-0857
- Any Cisco Academy problems **CONTACT ME**

TEXTBOOK AND SUPPLEMENTAL MATERIALS

Required Textbooks:

All relevant class materials are located on the <https://cisco.netacad.net> website

Supplementary Materials:

There are several self-paced study books for the CCNA exam. Consult me for a recommendation.

COURSEWORK AND PARTICIPATION

Instructor Response Time

*I routinely check the course for postings or emails, Monday through Friday between 7:00 and 10:00 AM. You can anticipate a 24 to 48 hour response from me. If you **MUST** contact me, please text, but don't forget I sleep too.*

Procedures for Completing Coursework

- *Once I enable the Cisco Academy module tests, you have 1 week to complete. If you want to retake a test, notify me and I'll enable it again.*
- *Packet Tracer labs must be submitted by email*
- *If you have difficulty with any of the module tests or Packet Tracer **BE SURE** to notify me immediately*

Course Schedule

There will be one to two recorded lectures per week. Each lecture will have a phrase (ex. It's hot). Who knows where it will appear. To get credit for the lecture you must email me the phrase. The phrase could be anywhere in the lecture.

Expectations for Participation

- *time required (9-12 hrs per week)*
- *students are expected to learn how to navigate in Learn*
- *students are expected to keep abreast of course announcements*
- *students are expected to use the Learn course email as opposed to a personal email address*
- *students are expected to keep instructor informed of class related problems, or problems that may prevent the student from full participation*
- *students are expected to address technical problems immediately*
- *students are expected to observe course netiquette at all times*

Netiquette

- [Netiquette document](#)

NOTES TO STUDENTS ABOUT PARTICIPATION IN A COURSE USING UNM LEARN:

Tracking Course Activity

UNM Learn and Cisco Academy automatically records all students' activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty

Grading Scale

| | | | |
|--------------------|-----|---|---------|
| Lecture Attendance | 10% | A | 90 + |
| Module Exams | 30% | B | 80 - 89 |
| PT Skills | 20% | C | 70 - 79 |
| Practice Finals | 10% | D | 60 - 69 |

| | | |
|--------|------|--------|
| Finals | 30% | F < 60 |
| Total | 100% | |

UNM POLICIES

Equal Opportunity and Non-Discrimination

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 pg. 15). 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](#).

[Read more about campus policy regarding sexual misconduct.](#)

Copyright Issues

All materials in this course fall under copyright laws and should not be downloaded, distributed, or used by students for any purpose outside this course.

[The UNM Copyright Guide](#) has additional helpful information on this topic.

Accessibility and Accommodations

The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact:

- [UNM-Valencia Student Services](#) if you are a Valencia campus student. The phone number is 505-925-8560
- [UNM Accessibility Resource Center](#) in 2021 Mesa Vista Hall if you are a main campus student. The phone number is 505-277-3506.

Information about your disability is confidential and your instructor cannot refer you for accommodations. Be aware that you will need to provide documentation. If you need assistance in obtaining documentation, the offices above can assist you.

Academic Integrity

You should be familiar with UNM's [Policy on Academic Dishonesty](#) and the [Student Code of Conduct](#) which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

Drop Policy:

[This section states your departmental policy for dropping students – edit or include your own statement.]

UNM Policies: This course falls under all UNM policies for last day to drop courses, etc. Please see or the UNM Course Catalog for information on UNM services and policies. Please see the UNM academic calendar for course dates, the last day to drop courses without penalty, and for financial disenrollment dates.

UNM RESOURCES

- [Learning Center](https://valencia.unm.edu/campus-resources/the-learning-center/learning-center.html)
<https://valencia.unm.edu/campus-resources/the-learning-center/learning-center.html>
- [Form to request a tutoring Appointment](https://esurvey.unm.edu/opinio/s?s=131505)
<https://esurvey.unm.edu/opinio/s?s=131505>
- [UNM Libraries](#) – See Links on Class Learn Page
- [Student support and Services](#) – See Link “Student Support and Services” on Class Learn Page

FOR MILITARY-CONNECTED STUDENTS

There are resources on campus designed to help you succeed. You can approach any faculty or staff for help with any issues you may encounter. Many faculty and staff have completed the GREEN ZONE training to learn about the unique challenges facing military-connected students. If you feel that you need help beyond what faculty and/or staff can give you, please reach out to the Veterans Resource Center on main campus at 505-277-3181, or by email at vrcc@unm.edu. The Veterans Coordinator at UNM-Valencia is in the Student Services Office, at 505-925-8560.

SEMESTER DEADLINES

Spring 2021 – 16-week classes (deadlines will be different for first and second 8-week classes)

- Monday, January 18: First day of class and Dr. Martin Luther King Day
- Friday, January 29, by 5:00 PM: Last day to add a class or to change Sections
- Friday, February 5: Last day to drop without “W” grade and with 100% refund
Tuition and fees for courses dropped after the above deadlines will Not be refundable
- Friday February 12: Last Day to Change Grading Options
- March 14 - 20: Spring Break
- Friday April 16: Last Day to Withdraw Without Student Services Permissions
- Friday May 7. Last Day to Withdraw With Student Services Permission
- Saturday May 8: Last day of instruction
- May 10 – 15: Finals Week

COURSE OUTLINE references <https://contenthub.netacad.com/itn> on the Academy site
(Please note that this course outline is subject to change. If changes occur, you will be notified)

Cisco's Intro to Networks V7 (Intro to Networks)

Week 1 / January 18

Modules 1 – 3 Basic Network Communication

- Packet Tracer

Week 2 / January 25

Module 4 – 7 Ethernet Concepts

- Module 1 – 3 TEST
- Packet Tracer

Week 3 / February 1

Modules 8 -10 Communicating Between Networks

- Module 4 – 7 TEST
- Packet Tracer

Week 4 / February 8

Modules 11 – 13 IP Addressing

- Module 8 -10 TEST
- Packet Tracer

Week 5 / February 15

Modules 14 – 15 Network Application Communications

- Module 11 -13 TEST
- Packet Tracer

Week 6 / February 22

Modules 14 – 15 Network Application Communications

- Module 14 – 15TEST
- Packet Tracer

Week 7 / March 1

Cisco's Intro to Networks V7 (Intro to Networks) Final

Switching, Routing, and Wireless Essentials

Week 8 / March 8

Modules 1 -4 VLANs, and Inter VLAN routing.

- Fundamentals of Switching
- Module 1 – 4 TEST
- Packet Tracer

Week 9 / March 15

Modules 5 – 6 Redundant Networks Modules 7 – 9 Available and Reliable Networks

- Module 5 – 6 TEST
- Module 7 – 9 TEST

Week 10 / March 22

Modules 10 – 13 L2 Security and WLANs Module 14 – 16 Routing Concepts and Configuration

- Modules 10 - 13 TEST
- Module 14 – 16 TEST

Week 11 / March 29

CCNA Prep 2 (Switching, Routing, and Wireless Essentials) Final

CCNA: Enterprise Networking, Security, and Automation

Week 12 / April 5

- **Enterprise Networking, Security, and Automation Tests**

Week 13 / April 12

- **Enterprise Networking, Security, and Automation Tests**

Week 14 / April 19

- **Enterprise Networking, Security, and Automation Tests**

Week 15 / April 26

- **Enterprise Networking, Security, and Automation Tests**

Week 16 / May 3

- **Enterprise Networking, Security, and Automation Tests**

Week 17 / May 10

- **Enterprise Networking, Security, and Automation Final**