



COMMUNITY COLLEGE OF RHODE ISLAND

Networking 1 CNVT 1810 Section 001 Spring 2023

Instructor John Mowry
Telephone 401-825-2138

E-mail jmowry@ccri.edu If you put @my.ccri.edu, you will be sending an email to a student at CCRI and not to me. Any time you want to email me for this class, you **must** have **CNVT-1810-001** in the subject. If you do not do this, I may not give you a response within 24 hours. I do not answer emails between 9 pm and 8 am on Monday to Saturday; or on weekends at any time.

Office Hours See Office Door (Knight Campus Office 2126)
Class Sections 001 Monday and Wednesday 12:00 PM-1:50 PM, starts 1/23 ends 5/10
Credit Hours 3 Credit Hours, 2 Lecture Hours & 2 Laboratory Hours per week, based on a fifteen-week schedule.

Administrative Assistant Donna Scattone (825-2155)

Instructional Material and Web Sites

- 1 CCRI Lesson Web Site www.netacad.com (Introduction to Networks 7.02)
- 2 Cisco Academy Assessment <http://netacad.com>
Web Site
- 3 J Mowry CCRI Website https://www.ccri.edu/faculty_staff/comp/jmowry
- 4 Blackboard www.blackboard.ccri.edu Material including PowerPoint slides and Grading will be also available here. Detailed material as well as full-instructional material will be available on the Cisco Netacad website listed above. All exams will be administered through the Netacad website.

Mission of the Computer Science Department:

The mission of the Computer Studies and Information Processing Department at the Community College of Rhode Island is to provide high quality education in the areas of computer science and information technology to a diverse student population. We offer programs of study that provide our students with the skills necessary for transfer, career success, and lifelong learning. With programs in: Cybersecurity, Computer Support Specialist, Networking Technology, Computer Programming, and Web Technologies we offer a variety of options in the fields of computer science and information technology.

Course Description:

Introduction to Networks covers the architecture, structure, functions and components of the Internet and other computer networks. Students achieve a basic understanding of how networks operate and how to build simple Local Area Networks (LAN), perform basic configurations for routers and switches, and implement Internet Protocol

Course Delivery Mode: The course is comprised of both Lecture and Laboratory. There will be both an on-line final as well as a Practical, Hands-On final. All exams will be taken In-Person.

Course Expectations: Students are to follow the rules and regulations as outlined in the Student Handbook, available on-line at:

http://www.ccri.edu/advising/student_services/handbook.html

Additional Learning Material:

Textbook, (Not Required) (All reading material is available on the Netacad website.)



Introduction to Networks Companion Guide (CCNAv7)

By Cisco Networking Academy

Published Jul 14, 2020 by Pearson. Part of the [Companion Guide](#) series.

- ISBN-10: 0-13-663366-8
- ISBN-13: 978-0-13-663366-2

Grading Policies

Skills:

Journal-Entries	5%	Due: Day of assigned Practical Exam
Labs and Class	10%	
Participation		
Practical Final	45%	
Research Paper	10%	Due: May 1, 2023 @ 12:00 PM

Academic:

Quizzes	10%
Final	20%

Final Grades: Final grades will be calculated using a mathematical scale utilizing statistical Standard-Deviation methods. **The following chart is for reference purposes only!** Your instructor reserves the right to evaluate and adjust final grades.

Grading Scale:

Percentage	Letter Grade
94% - 100%	A
90% - less than 94%	A-
87% - less than 90%	B+
84% - less than 87%	B
80% - less than 84%	B-
77% - less than 80%	C+
70% - less than 77%	C
67% - less than 70%	D+
60% - less than 67%	D
Below 60%	F

Verification of Enrollment: Per federal financial aid regulations, CCRI is required to verify student enrollment. All faculty members are required to complete a verification of enrollment per the dates in the College Calendar. Students can confirm enrollment through attendance at any academically related activity, a sign-in sheet will be available each class, or by emailing me explaining why you have not attended class or completed the labs in the first week.

Incomplete Grade:

This temporary grade designation is awarded at the end of a course. It is awarded only when a student is **PASSING**, has completed at least 75 percent of the course and is unable to complete the course due to extenuating circumstances (e.g., illness, death, unforeseeable accident, unavoidable circumstance).

Late Assignments:

Since this course would meet 4-hours in person and have 8-hours of reading or homework per-week, you are expected to be putting in 12-hours on this course per college policy. All assignments to be turned in to the instructor will have a due-date prescribed and late assignments will be graded at 75% accordingly at the discretion of your instructor.

Course Outcomes:

As a result of this course, a student will be able to:

- describe the use of Open Systems Interconnection (OSI) and Transmission Control Protocol/Internet Protocol (TCP/IP) layered models
- explain how physical and data link layer protocols support the operation of Ethernet in a switched network
- explain how the upper layers of the OSI and TCP/IP model support network application
- configure and secure devices (switches, routers, and end devices) to provide access to local and remote network resources
- create Internet Protocol version 4 (IPv4) and Internet Protocol version 6 (IPv6) addressing schemes and verify network connectivity between device
- build simple LANs by applying cabling and addressing schemes with security best practices

Time Management

1. Course will meet for two (2) Lecture Hours and, two (2) laboratory hours per week of instruction. Based on a 15-week schedule. Shorter courses will meet respective to the number of class meetings
2. Course will meet for sixty (60) hours of combined instruction and laboratory exercises.
3. Students are expected to spend an equal amount of time (60 hours) in reading the curriculum, and studying related material in addition to the required lecture/laboratory.
4. All Packet Tracer lab activities are to be completed as homework assignments

Practical Exam

1. The practical exam will encompass a majority of concepts and procedures developed during the laboratory experiments and required readings.
2. The practical exam will be totally "hands-on" including routing and switching equipment as well as IP Addressing and programs specifically related to the remote configuration of networking devices.
3. Absolutely no forms of electronic media or other forms of notes or assistance are permitted.

Research Paper:

In a business environment, employees might be requested to deliver a presentation to prospective or current business partners, to outline services, projects, status of an ongoing project, or other presentations requested by management. The target group of this presentation might be knowledgeable in the technical aspects or possibly not, such as presenting to management.

The research paper must detail how to prepare a professional presentation toward a target audience. The subject of the presentation is not the item to be discussed, but rather the development of a presentation, including tools such as PowerPoint or other presentation software, the use of colors, background, font size, etc.

This is a research paper, so all sources must be documented and footnoted. Use 12pt font single-sided and include a cover page.

Journal-Entries:

The Journal is your **Notebook**. The Notebook is to be **Hand-Written** and presented to your instructor on the date specified. The Notebook must have your name clearly printed on the front cover, either inside or outside, or if using a binder on the first page.

Examinations

1. All exams, excluding the practical exam, will be a combination of multiple choice, fill-in the blank, matching as well as simulations.

Other Policies

1. The student expected to complete the On-Line lessons outside of class time.
2. All quizzes must be taken in class and will not be available from the student web site
3. After the listed due date, late submissions (up to one week) will be graded at 75%
4. Assignments submitted more than one week after the listed due date will receive a grade of zero.
5. All assignments must be completed using a word processor.
6. Students are responsible to see the instructor about any work missed due to absence.
7. Students who miss a quiz must take the quiz within two classes of the original quiz date.
8. Students are expected to participate as a member of teams
9. Students must pass both the Skills based portion in addition to the Academic portion of the curriculum to pass the course.
10. Student's final grade can only raise one letter grade above the on-line final exam score based on other class assignments.
11. Students are allowed a **maximum** of three (3) re-takes of chapter quizzes per the semester.

12. Department policy is that if you miss the equivalent of two (2) weeks of classes your final grade will drop by one (1) letter grade.

Services for Students with Disabilities:

Any student with a documented disability may arrange reasonable accommodations. As part of this process, students are encouraged to contact the office of Disability Services for Students as early in the semester as possible (<http://www.ccri.edu/dss/index.shtml>).

Enabling Closed Caption:

All embedded videos on the Cisco Academy website have the ability to display closed captioning in multiple languages. The procedure to enable this feature is as follows;

Video - The Cisco Networking Academy Learning Experience

World changers aren't born. They are made. Since 1997 Cisco Networking Academy has been working towards a single goal: the educating and skill building of the next generation of talent required for the digital economy.

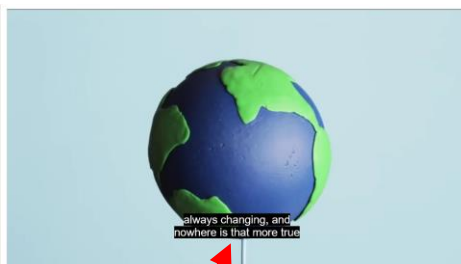
Click Play to how Cisco Networking Academy to learn how we use technology to make the world a better place.



Closed Caption Option



When selected the user can choose what language they would like to see displayed from available languages.



After selecting "English" the appropriate text is now displayed. ***This needs to be done for each embedded video individually.***

Netiquette Policy:

- Respect others and their opinions. In online learning, students from various backgrounds come together to learn. It is important to respect their feelings and opinions though they may differ from your own.
- Tone down your language. Given the absence of face-to-face clues, written text can easily be misinterpreted. Avoid the use of strong or offensive language and the excessive use of exclamation points. Review before posting to remove any strong language.
- Keep personal discussions off the class discussion board.
- Do not type all capitals, which is difficult to read, and has come to be considered the electronic version of "shouting."
- Do be courteous, even when you disagree, with your instructors as well as your classmates, and always provide clear, logical support for your views.
- Avoid inappropriate material.
- Be forgiving. If someone states something that you find offensive, mention this directly to the instructor. Remember that the person contributing to the discussion might be new to this form of communication. What you find offensive may quite possibly have been unintended and can best be cleared up by the instructor.
- Think before you hit the send button. Think carefully about the content of your message before contributing it. Once sent to the group there is no taking it back. Grammar and spelling errors reflect on you and your audience might not be able to decode misspelled words or poorly constructed sentences. It can also adversely affect your grade.
- Escalate your issues privately via email versus discussion forums. Should you have a disagreement with an instructor or classmate it is best to send an individual email to that individual. Do not argue your case in the discussion forum.
- Brevity is best. Be as concise as possible when contributing to a discussion. Your points might be missed if hidden in a flood of text.

Avoid disciplinary action. Any type of online behavior that is perceived as disrespectful to a fellow student or instructor, or anything that has the potential to be perceived as less than courteous is unacceptable and can be subject to disciplinary action by the Chair of the department. Repetition of such behavior can result in expulsion from the class.

Technical Requirements:

Learning requires certain technical requirements to participate actively and be successful. At the minimum, students must have access to a computer and stable Internet connection. Many courses at CCRI require certain technical requirements to participate actively and be successful. View [Set Up Your Tech](#) to learn more about technical requirements.

CISCO Netacad:

Students need a stable Internet connection. Chrome, Firefox, or Edge web browsers can be used. You should clear your web browser cache, which is found in the settings of the web browser. If you do not do this, some of your labs will not work correctly. Chromebooks will not work for your labs. You must have a computer/laptop running Windows 10 or better or MAC.

CCRI Computer Labs:

The academic computer lab is available for CCRI students and allows access to computers with required software. Information regarding CCRI's academic computer labs is available at the following link: [Academic Computer Labs](#).

MS Office 365:

Microsoft Office 365 is available for all CCRI students to download. This version of Office will be accessible as long as you are actively enrolled at CCRI. It is recommended that students [download MS 365 to their computers](#) for access to MS Word, PowerPoint, and Excel offline. If you use other programs, I may not be able to open the files.

MS OneDrive:

[OneDrive](#) is a clouded-based storage system that lets CCRI students store, share and organize files, photos and favorites on Windows servers, and access them from any computer with an Internet connection. You will need and know how to use a computer or mobile device with Internet access. You will also need one of the following web browsers: Edge, Firefox, Chrome, or Safari (Mac only). However, if you put something into OneDrive, you must give me permission to access the file. Once I click on allow, you will get an email that you give permission again before I can view the data.

Academic Integrity:

Academic integrity is vital to an institution of higher education. The integrity of your work – that it represents your independent thought and effort and that it properly acknowledges the work of others – is essential to the awarding of credit and to the development of your academic potential. As such, instances of academic dishonesty – cheating, plagiarism, etc., – are extremely serious academic offenses that should not be overlooked. Students should be aware and regularly cautioned that violations of academic integrity may result in suspension or expulsion from the college. For more information, go to the CCRI's Policy on Academic Integrity.

Managing Life Crisis and Finding Support:

Should you encounter an unexpected crisis during the semester (i.e., securing food or housing, addressing mental health concerns, personal safety, managing a financial crisis, and/or dealing with a family emergency, etc.), please reach out to the office of [Community and Social Resources](#). If you are uncomfortable doing so on your own, please know that I can

submit a referral on your behalf—just email me or schedule a meeting with me during my office hours.

Veteran Services:

[CCRI Veteran Services Office](#) is committed to being a resource to all VA education beneficiaries. Our mission is to assist veterans, service members, and dependents in the pursuit of their educational goals by maintaining up-to-date information on current programs and resources. Through a combination of experience with the educational system and contacts within the VA, we can help you with any aspect of your higher education.

Mental Health Services:

CCRI is committed to advancing the mental health and wellbeing of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available.

CCRI has partnered with MySSP (My Student Support Service) to provide 24/7 mental health and well-being support to students, including real-time and scheduled access to professional counselors. All services are confidential and 100% FREE to CCRI students! In addition to MySSP, the Advising and Counseling Center provides one-on-one and group counseling for a variety of problems ranging from typical difficulties students experience (e.g., adjustment to the college setting) to problems associated with acute or long-standing psychological disturbances. For a listing of mental health services on and off campus, visit [Mental Health Services](#).

Student Success Center:

[The Student Success Center](#) provides academic assistance through tutoring services; coordinate information and referrals to college resources; seek ways to improve student satisfaction and retention; and help students achieve their goals. Student Success Center staff members help students understand their individual learning needs, develop better study habits and behaviors, and create plans to achieve their goals. For more information about our services, email successcenter@ccri.edu or visit the [website](#). Watch this [video](#), to learn how to book Free CCRI tutoring appointments through Starfish.

Writing Center:

The Writing Center offers a variety of free services, including online and in-person help with prewriting, organization, thesis statements, topic sentences, research papers, revision/editing, and answers to questions. Online help at [Writing Center](#) includes:

- Zoom links for Writing Center Virtual Drop-in Tutoring Sessions
- Virtual Zoom appointments
- Email responses to questions and help with papers
- Website content, such as handouts, practice quizzes, literature analysis, PowerPoint presentations, reading resources, and information about research papers (MLA, APA, and Chicago systems)

In-person appointments can be made by contacting writingcenter@ccri.edu. The Writing Center is available at three of our four campuses to assist CCRI students, faculty, and staff members with different kinds of writing and revision tasks.

Religious & Cultural Observance:

Persons who have religious or cultural observances that coincide with this class should let me know in an email during the first two weeks of the semester. However, if I do not hear from you by the end of the second week of school, I will assume you plan on doing the work for the week.

Explicit Content:

If you are aware of cognitive or emotional triggers that could disrupt your intellectual or mental health, please let me know so that I can be aware in terms of course content.

Title IX and Gender Pronouns:

This course affirms equality and respect for all gendered identities and expressions. Please don't hesitate to correct me regarding your preferred gender pronoun and/or name if different from what is indicated on the official class roster. Likewise, I am committed to nurturing an environment free from discrimination and harassment. Consistent with Title IX policy, please be aware that I, as a responsible employee, am obligated to report information that you provide to me about a situation involving sexual harassment or assault.

Exam Breakdown:

Module	Chapter/Section/Topic Titles	% Coverage
0.1.0	Explain the advances in modern network technologies.	13%
0.2.0	Implement initial settings including passwords, IP addressing, and default gateway parameters on a network switch and end devices.	46%
0.3.0	Explain how network protocols enable devices to access local and remote network resources.	41%
Module Group Exam	Basic Network Connectivity and Communications	100%

0.4.0	Explain how physical layer protocols, services, and network media support communications across data networks.	23%
0.5.0	Calculate numbers between decimal, binary, and hexadecimal systems.	0%
0.6.0	Explain how media access control in the data link layer supports communications across networks.	33%
0.7.0	Explain how Ethernet operates in a switched network.	44%
Module Group Exam	Ethernet Concepts	100%
0.8.0	Explain how routers use network layer protocols and services to enable end-to-end connectivity.	34%
0.9.0	Explain how ARP and ND enable communication on a network.	25%
0.10.0	Implement initial settings on a router and end devices.	41%
Module Group Exam	Communicating Between Networks	100%
0.11.0	Calculate an IPv4 subnetting scheme to efficiently segment a network.	38%
0.12.0	Implement an IPv6 addressing scheme.	43%
0.13.0	Use various tools to test network connectivity.	18%
Module Group Exam	IP Addressing	100%
0.14.0	Compare the operation of transport layer protocols in supporting end-to-end communication.	51%
0.15.0	Explain the operation of the application layer in providing support to end-user applications.	49%
Module Group Exam	Network Application Communications	100%
0.16.0	Configure switches and routers with device hardening features to enhance security.	44%
0.17.0	Troubleshoot connectivity in a small network.	56%
Module Group Exam	Building and Securing a Small Network	100%

Final Exam Breakdown:

Module	Chapter/Section/Topic Titles	% Coverage
0.1.0	Explain the advances in modern network technologies.	3%
0.2.0	Implement initial settings including passwords, IP addressing, and default gateway parameters on a network switch and end devices.	6%
0.3.0	Explain how network protocols enable devices to access local and remote network resources.	6%
0.4.0	Explain how physical layer protocols, services, and network media support communications across data networks.	7%
0.5.0	Calculate numbers between decimal, binary, and hexadecimal systems.	0%
0.6.0	Explain how media access control in the data link layer supports communications across networks.	8%
0.7.0	Explain how Ethernet operates in a switched network.	9%
0.8.0	Explain how routers use network layer protocols and services to enable end-to-end connectivity.	9%
0.9.0	Explain how ARP and ND enable communication on a network.	5%
0.10.0	Implement initial settings on a router and end devices.	6%
0.11.0	Calculate an IPv4 subnetting scheme to efficiently segment a network.	8%
0.12.0	Implement an IPv6 addressing scheme.	8%
0.13.0	Use various tools to test network connectivity.	5%
0.14.0	Compare the operation of transport layer protocols in supporting end-to-end communication.	5%
0.15.0	Explain the operation of the application layer in providing support to end-user applications.	5%
0.16.0	Configure switches and routers with device hardening features to enhance security.	6%
0.17.0	Troubleshoot connectivity in a small network.	6%

Introduction to Networks (ITN) 7.02

Class	Lesson	Module Group Exam	Subjects	Labs/Projects
Jan 23	1		Module 1: Networking Today Lab Due January 31, 2023 @ Midnight	Video 1.1.2 The Cisco Networking Academy Learning Experience Video 1.5.5 Download and Install Packet Tracer Video 1.5.6 Getting Started in Cisco Packet Tracer Video 1.7.5 Cisco WebEx for Huddles Lab 1.5.7 Packet Tracer - Network Representation
Jan 25			Laboratory Exercises	Binary, Decimal, Hexadecimal Numbering systems
Jan 30	2		Module 2: Basic Switch and End Device Configuration	Video 2.2.3 IOS CLI Primary Command Modes Video 2.2.5 Navigate Between IOS Modes Video 2.3.4 Context Sensitive Help and Command Syntax Check Video 2.3.6 Hot Keys and Shortcuts Video 2.4.6 Secure Administrative Access to a Switch Video 2.5.3 Alter the Running Configuration
Feb 1			Laboratory Exercises	Lab 2.3.8 Navigate the IOS Lab 2.9.2 Basic Switch and End Device Configuration
Feb 6	3		Module 3: Protocols and Models	Video 3.1.1 Devices in a Bubble
Feb 8			Laboratory Exercises	Lab 3.7.10 Use Wireshark to View Network Traffic
Feb 13	4	1 (1-3)	Module 4: Physical Layer Lab Due February 19, 2023 @ Midnight	Lab 4.7.1 Packet Tracer - Connect the Physical Layer
Feb 15			Laboratory Exercises	Lab 4.6.6 View Wired and Wireless NIC Information
Feb 20	5		Module 5: Number Systems	Video 5.1.2 Converting Between Binary and Decimal Numbering Systems Video 5.2.2 Converting Between Hexadecimal and Decimal Numbering Systems
Feb 22	6 & 7		Module 6: Data Link Layer Module 7: Ethernet Switching	Video 7.3.4 MAC Address Tables on Connected Switches Video 7.3.5 Sending the Frame to the Default Gateway
Feb 27			Laboratory Exercises	Lab 7.1.6 Use Wireshark to Examine Ethernet Frames Lab 7.2.7 View Network Device MAC Addresses Lab 7.3.7 View the Switch MAC Address Table

Class	Lesson	Module Group Exam	Subjects	Labs/Projects
March 1	8	2 (4-7)	Module 8: Network Layer	Video 8.2.3 Sample IPv4 Headers in Wireshark Video 8.3.5 Sample IPv6 Headers in Wireshark Video 8.5.5 IPv4 Routing Router Tables
March 6	9		Module 9: Address Resolution Labs Due March 12, 2023 @ Midnight	Video 9.2.3 ARP Operation - ARP Request Video 9.2.4 ARP Operation - ARP Reply Video 9.2.5 ARP Role in Remote Communications Video 9.3.1 IPv6 Neighbor Discovery Lab 9.1.3 Packet Tracer - Identify MAC and IP Addresses Lab 9.2.9 Packet Tracer - Examine the ARP Table Lab 9.3.4 Packet Tracer - IPv6 Neighbor Discovery
March 8	10		Module 10: Basic Router Configuration Labs Due March 14, 2023 @ Midnight	Video 10.4.1 A Network Device Differences: Part 1 Video 10.4.1 B Network Device Differences: Part 2 Lab 10.3.5 Packet Tracer - Troubleshoot Default Gateway Issues
March 20			Laboratory Exercises	Lab 10.4.4 Build a Switch and Router Network
March 22	11	3 (8-10)	Module 11: IPv4 Addressing	Video 11.1.5 Network, Host and Broadcast Addresses Video 11.3.5 The Subnet Mask Video 11.5.4 Subnet with the Magic Number Video 11.6.4 Subnet Across Multiple Octets Video 11.8.1 VLSM Basics Video 11.8.2 VLSM Example Activity 11.2.4 Unicast, Broadcast, or Multicast Activity 11.3.3 Pass or Block IPv4 Addresses Activity 11.3.7 Public or Private IPv4 Address
March 27			Laboratory Exercises	Lab 11.6.6 Calculate IPv4 Subnets Lab 11.10.2 Design and Implement a VLSM Addressing Scheme
March 29	12		Module 12: IPv6 Addressing	
April 3			Laboratory Exercises	Lab 12.7.4 Identify IPv6 Addresses Lab 12.9.2 Configure IPv6 Addresses on Network Devices
April 5	13		Module 13: ICMP	
April 10			Laboratory Exercises	Lab 13.3.2 Use Ping and Traceroute to Test Network Connectivity
April 12	14	4 (11-13)	Module 14: Transport Layer	Video 14.5.5 TCP 3- Handshake Video 14.6.2 TCP Reliability- Sequence Numbers and Acknowledgments Video 14.6.4 TCP Reliability - Reliability and Flow control

Class	Lesson	Module Group Exam	Subjects	Labs/Projects
April 12 continued			Lab Due April 18, 2023 @ Midnight	Lab 14.8.1 Packet Tracer - TCP and UDP Communications
April 17	15		Module 15: Application Layer	
April 19			Laboratory Exercises	Lab 15.4.8 Observe DNS Resolution
April 24	16	5 (14 & 15)	Module 16: Network Security Fundamentals	
April 26			Laboratory Exercises	Lab 16.4.7 Configure Network Devices with SSH Lab 16.5.2 Secure Network Devices
May 1	17		Module 17: Build a Small Network Labs Due May 7, 2023 @ Midnight	Lab 17.7.7 Packet Tracer - Troubleshoot Connectivity Issues Lab 17.8.2 Packet Tracer - Skills Integration Challenge Research Paper Due
May 1 - May 10		6 (16 & 17) On-Line Additionally: All Chapter Exams will be active from May 1, 2023 @ 2:00 PM until Monday May 10, 2023 @ 11:00 AM As a reminder, each student is allowed three (3) retakes total of all Chapter Exams.		
May 3	Two (2) Hour Practical / On-Line Final Exam (2 Hours) / Notebook			
May 8	Two (2) Hour Practical / On-Line Final Exam (2 Hours) / Notebook			
May 10	Two (2) Hour Practical / On-Line Final Exam (2 Hours) / Notebook			

This Syllabus is subject to change!