

Community College of Rhode Island

One (1) Week Network + Training Schedule & Syllabus

- Dates:** *To be determined as training is ongoing*
- Instructor:** *Qualified and Certified Instructors will be chosen on a rotating basis. Instructor information will be provided at the first class meeting.*
- Location:** *Room 257, Newport Campus, Community College of Rhode Island, One John H. Chafee Blvd, Newport, RI 02840*
- Telephone:** *401-851-1600*
- Delivery:** *In-person*
- Overview:** *This training is an intensive training program to prepare students to take the CompTIA Network + exam.*
- Resources:** *PowerPoint slides for each chapter can be accessed at:*
- <http://faculty.ccri.edu/jmowry/CompTIA%20Network+%20Delux%20Page%201.htm>
- Boson Test Prep Simulation is provided at the Newport campus in Room 257. A schedule for accessibility will be provided by your instructor.*
- On-line accessible network equipment (Username & Password Required) at:*
- <http://netlab.ccri.edu>

Syllabus (1 week)

The following is a suggested outline:

- Day 1: Chapters 1-5
- Day 2: Chapters 6 - 8
- Day 3: Chapters 9 - 12
- Day 4: Chapters 13 - 15
- Day 5: Chapters 16 – 20 final review

Day 1

Teaching this whole book, covering every topic in detail, will be a nearly impossible task. However, it is possible to teach this class in 5 days covering every topic so each student will receive a comprehensive look at CompTIA's Network+ objectives. I have put together a sample timeframe. I anticipate you will have to slide a little of the timing one-way or the other depending on student interaction. This is okay, but try to stay close to make sure you give each topic an appropriate delivery, and again, have fun (the students will if you do)!

Session 1.0

Administrative

In this session you will welcome the students to the class, obtain a roster (if required) and discuss the various administrative details needed. You should provide an introduction of yourself and your company, the location of the facility restrooms, break room, and emergency procedures. You should also conduct a student introduction during which the students will state their name (what you should call them), organization, networking background, and their goals/objectives in attending this class. You should also go over the courseware and how the class will be conducted.

This is usually a good time to take your first break and have everyone get ready for the big show.

Day 1 topics include an introduction to networks and the OSI model. This is the foundation for most topics covered in the remainder of class. You will go on to cover network topologies and cabling, Ethernet, and finish up with networking devices.

Session 1.1

Chapter 1: Introduction to Networks

- Identify common physical network topologies
- Explain common logical network topologies and their characteristics

Session 1.2

Chapter 2: OSI Specifications

- Explain the function of each layer of the OSI model

Session 1.3

Chapter 3: Network Topologies, Connectors, and Wiring Standards

- Categorize standard cable types and their properties
- Identify common connector types
- Differentiate and implement appropriate wiring standards
- Install components of wiring distribution

Lunch

Session 1.4

Chapter 4: Ethernet

- Categorize LAN technology types and properties

Session 1.5

Chapter 5: Networking Devices

- Install, configure and differentiate between common network devices
- Identify the functions of specialized network devices

Day 2

Day 2 will be spent with the students learning IP addressing. This will include a solid introduction to IP, followed by IP addressing, subnetting, and NAT. You will also go through basic troubleshooting of IP networks.

Session 2.1

Chapter 6: Introduction to IP

- Explain the function of common networking protocols
- Identify commonly used TCP and UDP default ports
- Explain the proper use of DHCP APIPA and addressing schemes

Session 2.2

Chapter 7: IP Addressing

- Identify the IPv4 and IPv6 address formats
- Evaluate the proper use of addressing technologies and addressing schemes

Lunch

Session 2.2 IP Addressing (Continued)

Session 2.3

Chapter 8: Subnet Troubleshooting and NAT

- Evaluate the proper use of Subnetting, Classful vs. classless, NAT, and PAT

Day 3

Day 3 expands the IP topic into routing and routing protocols. You will now start to explore layer two switching and VLANs with the students and finish up the day discussing wireless technologies. You may want to review the structure of IP addressing as an introduction into IP routing.

Session 3.1

Chapter 9: Introduction to IP Routing

- Explain the purpose and properties of routing
 - IGP vs. EGP
 - Static vs. dynamic

Session 3.2

Chapter 10: Routing Protocols

- Identify common IPv4 and IPv6 routing protocols
 - Link state
 - Distance vector

Lunch

Session 3.3

Chapter 11: Switching and VLANs

- Explain the advanced features of a switch

Session 3.5

Chapter 12: Wireless Technologies

- Compare the characteristics of wireless communication standards
- Implement a basic wireless network

Day 4

Day four topics are centered around security fundamentals of the network. The first piece is authentication and access control. The discussion moves into network threats and mitigation and a solid discussion various attacks. Day four concludes with physical and hardware security topics.

Session 4.1

Chapter 13: Authentication and Access Control

- Explain the methods of network access security
- Explain methods of user authentication

Session 4.2

Chapter 14: Network Threats and Mitigation

- Identify common security threats and mitigation techniques

Lunch

Session 4.2 Network Threats and Mitigation (Continued)

Session 4.3

Chapter 15: Physical and Hardware Security

- Identify common security threats and mitigation techniques

Day 5

Day five concludes the class with a discussion of WAN technologies and topics covering troubleshooting network issues. Command line tools as well as software/hardware tools are discussed. An overview of network troubleshooting methodologies and management/monitoring/optimization items are also covered.

A moderate review of the CompTIA Network+ objectives and student review practices would also be nice to present at the completion.

Session 5.1

Chapter 16: Wide Area Networks (WANs)

- Categorize WAN technology types and properties

Session 5.2

Chapter 17: Command Line Tools

- Select the appropriate command line interface tool to interpret the output to verify functionality

Session 5.3

Chapter 18: Software and Hardware Tools

- Explain the purpose of network scanners
- Utilize appropriate hardware tools

Lunch

Session 5.4

Chapter 19: Network Troubleshooting

- Implement network troubleshooting methodology
- Troubleshoot common connectivity issues and select an appropriate solution
- Troubleshoot Wireless Issues

Session 5.5

Chapter 20: Management, Monitoring, and Optimization

- Identify types of configuration management documentation
- Evaluate the network based on configuration management documentation
- Identify performance and connectivity issues
- Explain methods and rationales for network performance optimization