

Cisco 2: Routers and Routing Basics, Version 3.0

Course Outcome Summary

Chippewa Valley Technical College

Information

Course Number: 150-151
Credits: 3
Contact Hours: 64
Developer: Brian Goodman

Types of Instruction

<i>Type of Instruction</i>	<i>Contact Hours</i>	<i>Outside Hours</i>	<i>Credits</i>
Classroom Presentation	32	32	2
On-Campus Lab	32	16	1
Totals	64	48	3

Course Description

This is the second of four courses leading to the Cisco Certified Network Associate (CCNA) certification. Cisco 2 focuses on initial router configuration, Cisco IOS Software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Students will develop skills on how to configure a router, manage Cisco IOS Software, configure routing protocols, and create access control lists controlling access to the router. Prerequisite(s): 150-150 Cisco 1: Networking Basics.

Exit Learning Outcomes Addressed In This Course

Program Outcomes:

1. Install, Configure, and Administer Networking Technologies

Core Abilities (delete those that you are not going to address in the course. Delete the indicator sentences that do not apply)

Think critically

Indicators

1. Learner gathers appropriate information from multiple sources
2. Learner evaluates information

3. Learner makes inferences
4. Learner identifies criteria to evaluate the solution, process, or decision
5. Learner formulates alternative solutions, processes, or decisions and identifies potential consequences

Use Science and Technology

Indicators

1. Learner demonstrates knowledge of scientific technology and principles.
2. Learner uses scientific principles appropriately in problem solving and decision making.
3. Learner applies the scientific method by organizing, analyzing, and interpreting data.
4. Learner employs critical thinking skills to approach and use new technology.

Course Competencies

1. Competency: Set IP address, subnet mask, and default gateway on a workstation computer

Learning domain: cognitive

Linked program outcome: Install, Configure, and Administer Networking Technologies

Linked core abilities: Think Critically; Use Science and Technology

Performance Standards

You will demonstrate your competence: (conditions)

1. In the Cisco Lab area
2. With a functioning router, switch, workstation computers, and cabling
3. With an exam package consisting of directions, configuration information, network diagram, and task check-list.
4. A one-page note sheet (student-provided)
5. A given time limit

Your performance will be successful when: (criteria)

1. Learner issues the correct DOS command to verify the given IP address configuration
2. Learner can successfully PING between workstation computers and to a router
3. Learner can successfully PING to a non-directly-connected router and workstation

Learning Objectives:

What you will learn as you master the competency

- a. Set the IP address, subnet mask, and default gateway address on a networked workstation computer
- b. Open a DOS window on a workstation computer
- c. Issue the DOS command “ipconfig” to verify network settings
- d. Issue the DOS command “PING” and evaluate the response
- e. Importance of a networked computer’s default gateway setting

2. Competency: Communicate with a router using console, telnet, and HTTP sessions.

Learning domain: cognitive

Linked program outcome: Install, Configure, and Administer Networking Technologies

Linked core abilities: Think Critically; Use Science and Technology

Performance Standards

You will demonstrate your competence: (conditions)

1. In the Cisco Lab area
2. With a functioning router, switch, workstation computers, and cabling
3. With an exam package consisting of directions, configuration information, network diagram, and task check-list.
4. A one-page note sheet (student-provided)
5. A given time limit

Your performance will be successful when:

1. Learner can open a Hyperterminal session with a router
2. Learner can telnet to a connected router from a networked workstation computer DOS prompt
3. Learner can use a networked workstation computer’s Web browser to open a router’s Web page

Learning Objectives:

What you will learn as you master the competency

- a. Install a console cable between a workstation computer and a router
- b. Configure Hyperterminal on a workstation computer to communicate with the router
- c. Identify the required setup conditions for a workstation computer-to-router telnet session.
- d. Initiate and complete a telnet session from a workstation computer to a router.
- e. Identify the required setup conditions for a workstation computer-to-router HTTP session.
- f. Initiate and complete a HTTP session from a workstation computer to a router.

3. Competency: Load a router with a basic level configuration file, which includes passwords, port IP addressing, routing protocol, and standard access control list.

Learning domain: cognitive

Linked program outcome: Install, Configure, and Administer Networking Technologies

Linked Core Abilities: Think Critically; Use Science and Technology

Performance Standards

You will demonstrate your competence: (conditions)

1. In the Cisco Lab area
2. With a functioning router, switch, workstation computers, and cabling
3. With an exam package consisting of directions, configuration information, network diagram, and task check-list.
4. A one-page note sheet (student-provided)
5. A given time limit

Your performance will be successful when: (criteria)

1. Learner issues the correct command to view the working status of all configured interfaces
2. Learner issues the correct command to view the router's functioning routing table
3. Learner can ping to a connected router from his/her router
4. Learner can issue the correct command to view the saved configuration file
5. Learner is able to test the configured standard ACL (Attempt to Ping from the denied workstation to either of the learner's workstations. The Ping should fail.)

Learning objectives

What you will learn as you master the competency:

- a. Install LAN, WAN and Console Cabling
- b. Set appropriate router host name
- c. Set an IP Host Table entry for a neighboring router
- d. Set passwords set on all terminal connections and on privileged mode
- e. Configure LAN and WAN interfaces with IP addresses, subnet masks, clock rate, and bandwidth as appropriate
- f. Configure an appropriate routing protocol
- g. Enable/disable domain name lookup function

- h. Enable/disable IP HTTP server function
- i. Save a backup copy of the router configuration file to NVRAM
- j. Create an access control list (ACL) including appropriate source address, wildcard mask, and statement order
- k. Apply and test a standard ACL

4. Competency: Copy a router configuration file to a TFTP server

Learning domain: cognitive

Linked program outcome: Install, Configure, and Administer Networking Technologies

Linked core abilities: Think Critically; Use Science and Technology

Performance Standards

You will demonstrate your competence: (conditions)

- 1. In the Cisco Lab area
- 2. With a functioning router, switch, workstation computers, and cabling
- 3. With an exam package consisting of directions, configuration information, network diagram, and task check-list.
- 4. A one-page note sheet (student-provided)
- 5. A given time limit

Your performance will be successful when: (criteria)

- 1. Learner demonstrates the configuration file backup process
- 2. Learner is able to locate the backup router configuration file on the TFTP server using either Windows Explorer or My Computer

Learning objectives

What you will learn as you master the competency:

- a. Describe the TFTP process
- b. Load TFTP software on a workstation computer
- c. Identify the required setup conditions for a TFTP transfer
- d. Complete a TFTP backup of a router configuration file
- e. Use Windows Explorer or My Computer to navigate to the backup file's location