

**COURSE OUTLINE**

Revision: C. Koepke, January, 2009

DEPARTMENT: Technical Education

CURRICULUM: Computing Technology

COURSE TITLE: Cisco II, Network Administration

COURSE NUMBER: CTN 283

TYPE OF COURSE: Vocational Preparatory

COURSE LENGTH: 1 quarter

CREDIT HOURS: 5

LECTURE HOURS: 30

LAB HOURS: 25

CLASS SIZE: 20

PREREQUISITES: CTN 282 and pass Cisco's Semester I final

**COURSE DESCRIPTION:**

CCNA 2: Routers and Routing Basics is the second of four CCNA courses leading to the CCNA designation. CCNA 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, managing Cisco IOS software, configuring routing protocol on routers, and set the access lists to control access to routers. Prereq: CTN 282 and pass Cisco's CCNA I finals.

**STUDENT LEARNING OUTCOMES ADDRESSED:**

1. Technology Outcome: Demonstrate problem solving and network design by utilizing critical thinking skills.
2. Personal Responsibility: Demonstrate time management skills and independent work habits.

STUDENT LEARNING OUTCOMES ADDRESSED (Cont.):

3. Critical Thinking: Demonstrate decision-making techniques by gathering and comparing data, selecting an appropriate action, and evaluating the decision made
4. Human Relations - Use social interactive skills to work in teams effectively
5. Information literacy - Access and evaluate information from a variety of sources and contexts

PROGRAM OUTCOMES ADDRESSED:

- 1b Identify network devices and OSI components and systems purposes.
- 2a Install and properly configure network devices and related operating systems.
- 3a Select, implement appropriate troubleshooting tools and methods for problem solving.
- 3c Troubleshoot and solve problems occurring at any level of the OSI layers in a network.
- 3e Setup, configure, insert, and provide basic security and traffic control Cisco routers and switches.
- 3f Be able to secure and monitor activities on computers and networks.
- 4a Use critical thinking for analysis of hardware, OS, or network problems.
- 4b Access information efficiently and accurately to resolve computer problems.
- 4c Work effectively with others to accomplish complex tasks.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Be qualified to proceed to the Semester 3 Cisco Curriculum.
2. Be able to demonstrate simple network design.
3. Understand the purpose, main functions and protocols used for Cisco switches and routers.
4. Be able to install setup and configure a router.
5. Be able to install setup and configure a switch.
6. Be able to explain switch and router protocols with respect to the OSI model and its 7 layers.

TOPICAL OUTLINE:	APPROX. HOURS
I. Review of the OSI Model	1.0
II. LAN Devices and Technologies	1.0
III. TCP/IP Addressing and Environments	2.0
IV. WAN Concepts and Technologies	2.0
V. Overall Purpose of WAN and WAN Standards	1.0
VI. Function of a router in a WAN and router basics	2.0
VII. Router Command Line Interface (CLI)	5.0
VIII. Router Components: modes, configuration, testing at different layers	3.0
IX. Router Boot Sequence and Setup Mode	3.0
X. Router configuration files and storage locations	1.0
XI. Configuration methods	2.0
XII. IOS Images	2.0
XIII. Router Recovery	2.0
XIV. TCP/IP Protocol Stack including: handshakes, windowing; TCP and UDP segment formats, message protocol	4.0
XV. More IP Addressing and the role of DNS in router configurations	4.0
XVI. Routing Basics and Path Determination including: static vs. dynamic routing; metrics; convergence ; distance vector routing; routing loops; link state routing; hybrid protocols	5.0
XVII. Interior and Exterior Routing Protocols	5.0
XVIII. RIP and IGRP	5.0
XIX. Troubleshooting a Router Network	5.0
Total	55.0 Hrs

REVISED BY: Carol Koepke

DATE: January, 2009