

COURSE OUTLINE

Revision: Carol Koepke - January, 2009

DEPARTMENT: Technical Education
CURRICULUM: Computing Technology
COURSE TITLE: Cisco I, Network Administration
COURSE NUMBER: CTN 282
TYPE OF COURSE: Vocational Preparatory
COURSE LENGTH: 1 quarter
CREDIT HOURS: 5
LECTURE HOURS: 55
LAB HOURS: 0
CLASS SIZE: 24
PREREQUISITES: CSC 100 and CTN 101 (or CTN170)

COURSE DESCRIPTION:

This course is the official "Semester 1" curriculum of the four semester sequence Cisco training program which prepares the student for the Certified Cisco Network Associate certification exam. The content of this class introduces the student to networking terminology; devices; addressing; media; protocols; design; regulations; and network management.

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.
- 1c Identify network devices and operating systems combinations.
- 2a Install and properly configure network devices and related operating systems.
- 3a Select, implement appropriate troubleshooting tools and methods for problem solving.
- 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.
- 4d Develop logical thinking skills.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Be qualified to proceed to the Semester 2 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 build correctly pinned network cables and install patch panels.
5. Be able to determine IP addresses for a network, subnetworks and the related hosts.
6. Be able to explain the OSI model and its 7 layers.

| TOPICAL OUTLINE: | APPROX. HOURS |
|---|---------------|
| I. Basics of Computer Hardware | 2.0 |
| II. OSI Model | 3.0 |
| a. Comparison of OSI model to TCP/IP model/ protocol overview | |
| III. Basic LAN Devices | 2.0 |
| IV. Electronics and Signals | 5.0 |
| a. Basics of electricity; Digital Multimeters; Signals and Noise; Encoding | |
| V. Layer 1: Media, Connections, and Collisions | 5.0 |
| a. Most Common LAN Media; Cable Specification and Termination | |
| VI. Layer 2 Concepts | 5.0 |
| a. LAN Standards; Hexadecimal Numbers; MAC Addressing; Frames | |
| VII. Layer 2 : Technologies | 5.0 |
| a. Token ring; FDDI; Ethernet and IEEE 802.3; devices; data flow | |
| VIII. Design and documentation: | 5.0 |
| a. Basic Network Design; Planning Structured Cabling; Power Line Problems; Wiring Closet Specifications | |
| b. Structured cabling project | |
| c. Project Planning: network installation and documentation; wiring installs | |
| IX. Layer 3: Routing and Addressing | 10.0 |
| a. Path Determination; IP Header; Subnetting | |
| b. Layer 3 protocols | |
| c. Devices; ARP; Ratable Protocols / Routing Protocols; IGP / EGP | |
| X. Layer 4: Transport layer | 5.0 |
| a. TCP and UDP; TCP Connection Methods | |
| XI. Layer 5: Session Layer functions | 2.0 |
| XII. Layer 6: Presentation Layer functions | 2.0 |
| XIII. Layer 7: Application Layer functions | 2.0 |
| XIV. Domain Name System; examples | 2.0 |
| Total | 55.0 Hrs |

REVISED BY: Carol Koepke
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