

COURSE OUTLINE

Revision: Carol Koepke - Date: January, 2009

DEPARTMENT: Technical Education
CURRICULUM: Computing Technology
COURSE TITLE: Cisco IV, Network Administration
COURSE NUMBER: CTN 285
TYPE OF COURSE: Vocational Preparatory
COURSE LENGTH: 1 Quarter
CREDIT HOURS: 5
LECTURE HOURS: 55
LAB HOURS: 0
CLASS SIZE: 24
PREREQUISITES: CTN 284

COURSE DESCRIPTION:

CCNA Semester IV: Most recent Cisco release of instruction introduces Wide Area Networks (WANs), ATM, DSL, NAT, Integrated Services Data Networks (ISDN) and Point-to-Point Protocols (PPP) and Frame Relay technologies, configuration and troubleshooting. Network administration and troubleshooting including SNMP; MIBs; are taught. Many hands-on labs and case study required.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Information Literacy - Use various sources to access the most current information on computer networks.
2. Critical Thinking and Problem Solving – Analyze test questions to obtain a clear interpretation of the problem presented.
3. Technology - Use the technological skills learned to interpret and answer conceptual questions.

PROGRAM OUTCOMES ADDRESSED:

- 1c Identify network devices and operating systems combinations.
- 2a Install and properly configure network devices and related operating systems.
- 2c Build, configure, and prepare a network server for a given role.
- 3a Select, implement appropriate troubleshooting tools and methods for problem solving.
- 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 prepared to take the CCNA Cisco Exam.
- 2. Have a completed documented complex network design that meets or exceeds Cisco's specifications for its WAN case study.
- 3. Demonstrate successful troubleshooting of equipment that is configured for DHCP, BOOTP, and NAT.
- 4. Be able to configure and manage routers to utilize Frame Relay and ISDN
- 5. Technology Outcome: Demonstrate problem solving of networks failures and routers, and switches by utilizing critical thinking skills.
- 6. Personal Responsibility: Demonstrate time management skills and independent work habits.
- 7. Demonstrate decision-making techniques by gathering and comparing data, selecting an appropriate action, and evaluating the decision made.

TOPICAL OUTLINE:	APPROX. HOURS
I. WAN Technologies:	5.0
A. Protocols	
B. WAN Link options: Dedicated, Lease Line; Packet/Cell-Switched; Analog dialup; X.25; Frame Relay; ATM; DSL; Cable modems.	
II. Scaling Networks:	5.0
A. NAT and PAT; DHCP and BOOTP	
III. WAN Design:	10.0
A. Steps in WAN design	
B. 3- layer model; considerations	
C. Case Study begins	
IV. Point-to-Point Protocol (PPP):	5.0
A. PPP Elements	
B. PPP Link Negotiation	
C. PPP Authentication	
V. Integrated Services Digital Network (ISDN):	10.0
A. ISDN standards, services and configurations	
B. Components/ reference points	
C. Access options and switch types	
D. DDR configuration and profiles	
VI. Frame Relay:	5.0
A. Frame Relay terminology; configuration; protocols and standard	
B. Static maps; switching; sub-interfaces	
VII. Network Administration and Management:	10.0
A. Workstations; Servers; Client-server relationship	
B. Introduction to NOS: 2000, and .NET; UNIX, Sun, HP, LINUX; Apple	
C. Server services	
D. OSI and network management model; MIBs	
E. SNMP protocol, standards and operation; Configuring SNMP	
F. RMON; Syslog	
VIII. Review CCNA for the CCNA #640-801 exam:	5.0
A. Practice submitting	
B. Practice Access Lists including ipx ACL's	
C. Study X.25; Frame Relay; ppp; ISDN for greater understanding.	
D. Study and compare OSI model; TCP/IP and IPX/SPX protocol stacks	
E. Study and compare routed protocols' characteristics	
Total	<u>55.0 Hrs</u>

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