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Course Outline for CNT 72

CCNA BOOTCAMP CERTIFICATION PREP

Effective: Fall 2008

I. CATALOG DESCRIPTION:
CNT 72 — CCNA BOOTCAMP CERTIFICATION PREP — 3.00 units

This course covers preparation for the CCNA - Cisco Certified Networking Associate exam. All Cisco certification exam objectives are covered conceptually, practically and specifically as they relate to the exam. Effective troubleshooting and Cisco recommended methods and nomenclature are reviewed and practiced. Topics include: basic characteristics of ethernet networks, LANs and WANs, Cisco router and switch configuration and IOS, RIP, OSPF, IGRP and EIGRP routing protocols, PPP, ISDN and Frame Relay concepts and configuration, IP network addressing, Switching, VLANS, VLSM, CIDR and network troubleshooting using Cisco methods and router and switch commands, and certification test methods, practice and preparation.

3.00 Units Lecture

Strongly Recommended
CNT 62A - Cisco Networking Academy CCNA I

CNT 62B - Cisco Networking Academy CCNA II
or

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Grading Methods:
Letter or P/NP

Discipline:

	MIN
Lecture Hours:	54.00
No Unit Value Lab	18.00
Total Hours:	72.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 2

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering this course, it is strongly recommended that the student should be able to:

A. CNT62A
B. CNT62B

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. demonstrate the steps of network design and configuration
B. demonstrate understanding of and describe primary types of network media
C. determine the correct IP numbering for a network system
D. assemble Cisco routers and switches into a working internetwork
E. describe the process of analyzing network problems to determine, test, and implement a solution using Cisco methodology
F. describe the concepts and characteristics of ethernet networks
G. demonstrate the ability to configure and troubleshoot ISDN and Frame Relay links
H. describe the OSI model and the functions of each layer
I. create a router configuration using multiple routing protocols
J. identify network problems using debug and show commands
K. create an IP addressing scheme using VLSM and CIDR
L. demonstrate the ability to configure Cisco routers and switches for LAN and WAN connectivity
M. utilize access control lists to control traffic

V. CONTENT:
A. Networking Fundamentals
1. Computer Networking Concepts

2. TCP/IP and OSI Networking Models
3. The physical layer
4. The data link layer
5. The network layer
6. The upper layers
7. Fundamentals of IP, TCP and UDP

B. Cisco Network Devices
1. Cisco Routers
2. Cisco LAN switches
3. Router and switch configuration and operation
4. Switching Concepts
5. VLANS and Trunking
6. LAN cabling, standards and topology

C. Interior Gateway Routing Protocols (RIP, IGRP, EIGRP, OSPF)
1. Routing and the different classes of routing protocols
2. IP addressing and subnetting
3. IP routing protocols, operations and configuration
4. VLSM
5. CIDR

D. IP traffic management and Access Control Lists (ACL)
1. Access control lists
2. ACL configuration
3. Standard, Extended and Named ACLs
4. Placing and Verifying ACLs
5. NAT / PAT / DHCP

E. WANs
1. WAN technologies
2. WAN devices
3. WAN encapsulation formats
4. WAN link options

F. WAN design
1. WAN communication issues
2. Steps in WAN design
3. How to identify and select networking capabilities
4. Point-To-Point Protocol and Integrated Services Digital Network

G. Point-to-point protocol (PPP)
1. PPP authentication
2. ISDN
3. How ISDN relates to the OSI model
4. ISDN services: BRI & PRI
5. ISDN configuration and routing
6. Troubleshooting ISDN

H. Frame Relay
1. Frame relay technology
2. LMI: Cisco implementation of frame relay
3. LMI features
4. Configuration of basic frame relay
5. Troubleshooting frame relay

I. CCNA Certification Exam Review
1. Certification test methods
2. Best practices for tests
3. Mneumonics and association
4. Scenario questions

J. Network Design and Management Best Practices
1. Network documentation
2. Network security
3. Network performance
4. Server administration
5. Network troubleshooting

K. Legal and Ethical Issues
1. Code of Ethics
2. Personal Information Integrity
3. Forensics and investigations

VI. METHODS OF INSTRUCTION:
A. **Lecture** -
B. **Discussion** - Discussion of concepts and skills
C. Read texts and other sources
D. **Lab** - Laboratory experience: hands-on lab projects with routers and switches
E. **Demonstration** - Computer demonstrations with overhead display panel
F. Hands-on explanation utilizing routers, switches and computers
G. **Audio-visual Activity** - Powerpoint presentations and online resources

VII. TYPICAL ASSIGNMENTS:
A. Lecture 1. Routing and routed network protocols 2. Distance Vector routing protocols B. Homework assignments from textbook 1. Read the chapter on VLSM and CIDR 2. Examine the case study diagram and answer the relevant questions for discussion in class C. Skill building lab exercises and projects 1. WAN Design lab a. Wire and verify the basic hardware setup on the diagram b. Implement IGRP on the local LAN c. Implement EIGRP on the remote LAN d. Configure route redistribution between LANS

VIII. EVALUATION:
A. **Methods**

B. **Frequency**

1. Frequency
a. Weekly quizzes, mid-term and a final examination
b. Weekly lab assignments to develop and demonstrate understanding, problem solving and troubleshooting skills

IX. TYPICAL TEXTS:

1. Lammle *CCNA Study Guide*., Sybex, 0.
2. CCNA Exam Certification Guide, Cisco Press

X. OTHER MATERIALS REQUIRED OF STUDENTS: