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Course Outline for CNT 7210

CCNP BOOTCAMP CERTIFICATION PREP

Effective: Fall 2010

I. CATALOG DESCRIPTION:
CNT 7210 — CCNP BOOTCAMP CERTIFICATION PREP — 4.00 units

This accelerated bootcamp course covers preparation for the CCNP—Cisco Certified Networking Professional exams. All Cisco certification exam objectives are covered conceptually, practically, and specifically as they relate to the exams. Effective troubleshooting and Cisco recommended methods and nomenclature are reviewed and practiced. Topics include: EIGRP, OSPF, IS-IS, and BGP Optimizing routing. IP multicast, IPv6, VLANs, Spanning Tree, InterVLAN routing, Layer 3 redundancy, Wireless LANs, VoIP in campus networks, Campus network security, Frame-mode MPLS, IPsec, Cisco device hardening, Cisco IOS® threat defenses, Cisco VoIP, QoS and AutoQos, Wireless scalability. This course can be used to prepare for one or more of the following CCNP exams: 642-892 Composite BSCI BCMSN, 642-901 BSCI, 642-812 BCMSN, 642-825, ISCW, 642-845 ONT.

3.00 Units Lecture 1.00 Units Lab

Strongly Recommended
CNT 62B - Cisco Networking Academy CCNA II
or

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Grading Methods:
Letter or P/NP

Discipline:

	MIN
Lecture Hours:	54.00
Lab Hours:	54.00
Total Hours:	108.00

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. CNT62B

IV. MEASURABLE OBJECTIVES:

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

A. demonstrate the steps of VLAN implementation;
B. demonstrate understanding of and describe Cisco IOS® threat defenses;
C. determine the correct VLSM, CIDR and IP numbering for a WAN network;
D. assemble Cisco routers and switches into a working WAN Internetwork with Spanning Tree, InterVLAN routing, Layer3 redundancy;
E. describe and implement Cisco device hardening;
F. describe the concepts and configuration of QoS and AutoQos;
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 Wireless LAN and configure Cisco VoIP;
J. identify network problems using debug and show commands;
K. configure WAN and LAN for optimized routing using EIGRP, OSPF, IS-IS, and BGP;
L. demonstrate the ability to configure Cisco routers and switches Frame-mode MPLS and IP multicast;
M. utilize access control lists to control traffic and implement IPsec VPNs.

V. CONTENT:
A. Networking Fundamentals for CCNP
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. IP, TCP, and UDP

B. Cisco Network Devices for CCNP
1. Cisco Routers
2. Cisco LAN switches
3. Router and switch configuration and operation
4. Switching concepts
5. VLANs, Spanning Tree, and Trunking
6. LAN cabling, standards and topology

C. Routing Protocols (RIP, EIGRP, OSPF, IS-Is, and BGP)
1. Routing and the different classes of routing protocols
2. IP addressing and subnetting
3. IP routing protocols, operations and configuration
4. VLSM, CIDR
5. IPv6, IP multicast

D. IP traffic management and Access Control Lists (ACL)
1. Access control lists
2. ACL configuration, Standard, Extended and Named ACLs
3. Standard, Extended and Named ACL
4. Frame-mode MPLS
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. Layer 3 redundancy
3. InterVLAN routing

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

H. Frame Relay
1. Frame relay technology
2. LMI: Cisco implementation of frame relay
3. QoS and AutoQos
4. Troubleshooting frame relay

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

J. Network Design and Campus network security
1. IPsec and VPN implementation
2. Network security and performance
3. Optimizing routing
4. Cisco device hardening
5. Network troubleshooting

K. Next Gen Networks
1. Wireless LANs
2. Cisco VoIP in campus networks
3. Cisco IOS® threat defenses

VI. METHODS OF INSTRUCTION:
A. **Lecture** -
B. **Discussion** - discussion of concepts and skills
C. Read text 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. 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. Configure and verify the basic hardware setup on the diagram b. Implement OSPF on the local LAN c. Implement BGP on the remote LAN d. Configure route redistribution between WANs

VIII. EVALUATION:
A. **Methods**

B. **Frequency**

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

IX. TYPICAL TEXTS:
1. - *CCNP Exam Certification Guide.*, Cisco Press, 0.

2. Lammie *CCNP Study Guide*., Sybex, 0.

X. OTHER MATERIALS REQUIRED OF STUDENTS: