Course Outline for CNT 66

CISCO CCNP SEMESTER 8 INTERNETWORKING TROUBLESHOOTING

Effective: Fall 2014

I. CATALOG DESCRIPTION:
   CNT 66 — CISCO CCNP SEMESTER 8 INTERNETWORKING TROUBLESHOOTING — 4.00 units

   This is one of the four courses in the Certified Cisco Network Professional (CCNP) curriculum. This course is designed to provide students a combination of both lectures and laboratory experience in current and emerging networking technology. This will prepare them for the Cisco Certified Networking Professional (CCNP) exam: Internetworking Troubleshooting and Support Exam. This advanced course provides networking professionals with the troubleshooting processes on Cisco Routers and Catalyst Switches. Students are taught how to baseline and troubleshoot an environment using Cisco routers and switches for multi-protocol client hosts and servers connected with: Ethernet, Fast Ethernet, Token Ring, Serial, Frame Relay, and ISDN BRI. Recommend students take courses in order and only one CCNP course at a time.

   3.00 Units Lecture 1.00 Units Lab

   Prerequisite
   -
   with a minimum grade of C
   or

   -
   and

   CNT 63 - Cisco CCNP Semester 5 Advanced Routing

   CNT 64 - Cisco CCNP Semester 6 Remote Access
   and

   CNT 65 - Cisco CCNP Semester 7 Multilayer Switching
   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: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:
   Before entering the course a student should be able to:
   A. CNT63
   B. CNT64
   C. CNT65

IV. MEASURABLE OBJECTIVES:
   Upon completion of this course, the student should be able to:
   A. identify support resources for troubleshooting;
   B. use troubleshooting methods;
   C. perform InterVLAN routing;
   D. identify and interpreting troubleshooting targets;
   E. apply and compare Cisco troubleshooting tools;
   F. explain and discuss the workgroup discovery lab and CCO;

G. explain and discuss the protocol analyzer lab;
H. compare and contrast troubleshooting methods;
 I. explain and identify documenting symptoms, actions and results;
 J. explain and configure baseline discovery lab;
K. apply and configure tracking log-ins and connections;
 L. apply, explain and configure Cisco show and debug commands;
M. compare and contrast routing and routed protocol troubleshooting methods;
N. diagnose and correct campus TCP/IP problems;
O. diagnose and correct Novell networking problems;
P. diagnose and correct Appletalk problems;
Q. diagnose and correct catalyst problems troubleshooting VLANS on routers and switches;
R. diagnose and correct frame relay problems;
S. diagnose and correct ISDN BRI problems.
 T. diagnose and correct catalyst problems troubleshooting VLANS on routers and switches;

V. CONTENT:
  A. Troubleshooting Methodologies
       1. General consideration in troubleshooting
       2. General problem-solving model
  B. Management and Diagnostic Tools
       1. Network troubleshooting tools and basic network management concepts
       2. Network management software
       3. Router diagnostic commands
       4. Logging and error message format
       5. Interacting with technical support
  C. Protocol Overview
       1. Network services
       2. Layer 2 protocol overview (LAN protocols)
       3. Layer 2 protocol overview (WAN protocols)
  D. Troubleshooting TCP/IP
       1. TCP/IP theory
       2. Common problems with TCP/IP
       3. Troubleshooting in a Windows environment
       4. TCP/IP diagnostic tools
       5. TCP/IP show commands
       6. TCP/IP debug commands
  E. Troubleshooting in a LAN switch environment
       1. Spanning tree and V-LANS
       2. Common LAN switching problems
       3. Switch troubleshooting tools
       4. Show commands to verify switch settings
       5. Show commands for switch configuration information
  F. Troubleshooting V-LAN Issues
       1. V-LAN review
       2. V-LAN troubleshooting scenarios
       3. General V-LAN troubleshooting issues
       4. Router V-LAN show and debug commands
  G. Routing and Switching Process
       1. Tracking packets through a router
       2. Packet switching paths
       3. Performance issues affecting packet switching
       4. Low-level troubleshooting
  H. Troubleshooting Frame Relay
       1. Frame relay overview
       2. Frame relay troubleshooting-steps and scenarios
       3. Frame relay show and debug commands
  I. Troubleshooting ISDN
       1. ISDN overview
       2. ISDN troubleshooting-problem isolation and scenarios
       3. ISDN show commands
       4. ISDN debugging
  J. Novell IPX
       1. Novell overview
       2. IPX configuration
       3. Troubleshooting IPX
       4. IPX show commands
       5. IPX debug commands
  K. AppleTalk
       1. AppleTalk overview
       2. AppleTalk configuration
       3. Troubleshooting AppleTalk
       4. AppleTalk show commands
       5. AppleTalk debug commands
  L. Troubleshooting EIGRP
       1. EIGRP overview
       2. Troubleshooting common EIGRP problems
       3. EIGP troubleshooting commands
  M. Troubleshooting OSPF
       1. OSPF overview
       2. Troubleshooting neighbor problems with OSPF
       3. Troubleshooting OSPF-missing routes
       4. OSPF case study
       5. OSPF show commands
       6. Debugging OSPF
  N. Troubleshooting BGP
       1. BGP overview
       2. Basic BGP configuration
       3. Troubleshooting networking negotiations and propagation
       4. BGP show commands

VI. METHODS OF INSTRUCTION:
    A. **Lecture** -
    B. **Lab** -
    C. **Discussion** -
    D. **Demonstration** -

VII. TYPICAL ASSIGNMENTS:

A. Reading: 1. Read on-line curriculum chapter 8. Discuss troubleshooting Frame-Relay B. Demonstration: 2. Troubleshoot Frame-Relay.

VIII. EVALUATION:
    A. **Methods**

      1. Exams/Tests
    B. **Frequency**

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IX. TYPICAL TEXTS:
    1. - *CCNP Cisco Networking Academy Program: Semester Eight Companion Guide.*, Cisco Press, 2000.
    2. Cisco Academy on-line curriculum.

X. OTHER MATERIALS REQUIRED OF STUDENTS: