COURSE DESCRIPTION

ITN 253 - Centers on instruction in troubleshooting tools and techniques appropriate to the network communications environment. Course content includes workstation troubleshooting software, communication equipment troubleshooting options, and typical problems related to Switching, WAN, and routing technologies.

Lecture – 4 credit hours per week

PRE-REQUISITES

Student should have completed one of the following:
- Cisco Certified Network Associate (CCNA)
- ITN 157 WAN Technologies – Cisco
- TEL 251 Internetworking
- CCNA semester 4 training at a Cisco Network Academy
- Instructor permission.

COURSE OBJECTIVES

Upon completion of this course the student will be able to:
- Document and Baseline the Network
- Troubleshooting Methodologies and Tools
- Troubleshooting at the Physical layer
- Layer 2 Troubleshooting
- Layer 3 Troubleshooting
- Layer 4 Troubleshooting
- Layers 1-7 Troubleshooting

COURSE CONTENT

Upon completion of this course, the student will be able to:
- Troubleshooting Methodologies
- Management and Diagnostic Tools
- Protocol Overview
- Troubleshooting TCP/IP
- Troubleshooting a LAN Switch Environment
- Troubleshooting VLAN Issues
- Routing and Switching Processes
- Troubleshooting Frame Relay
- Troubleshooting ISDN
- Novell IPX
- AppleTalk
- Troubleshooting EIGRP
- Troubleshooting OSPF
- Troubleshooting BGP
STUDENT LEARNING OUTCOMES

Troubleshooting methodologies
- Be able to describe an efficient problem-solving method when troubleshooting and
documenting internetwork problems

Management and diagnostic tools
- Be able to describe the types and purposes of tools commonly used for network
troubleshooting processes
- Be able to describe and use information resources that can assist with troubleshooting
processes.
- Be able to use troubleshooting tools and minimize their impact on a network device’s
performance and data flow
- Be able to use Cisco IOS software commands and debug utilities to filter, capture and
display protocol traffic flows.

Protocol overview
- Be able to demonstrate knowledge of troubleshooting targets for connection-oriented and
connectionless protocols

Troubleshooting tcp/ip
- Be able to demonstrate knowledge of connection sequences and key troubleshooting
targets within TCP/IP
- Be able to use proven problem isolation techniques to list the symptoms of common
TCP/IP problems
- Apply diagnostic tools to solve network problems that include systems running TCP/IP
with Windows client and/or server software

Troubleshooting a LAN switch environment
- Be able to use proven isolation techniques to list the symptoms of Catalyst switch and
VLAN problems on switch Ethernet networks.

Troubleshooting VLAN Issues
- Be able to apply diagnostic VLAN tools to switched and routed VLAN configuration
problems

Routing and Switching Processes
- Be able to use Cisco IOS router troubleshooting commands with Catalyst switch
troubleshooting commands.

Troubleshooting Frame Relay
- Be able to demonstrate knowledge of Frame Relay and key troubleshooting targets likely
to be found in a WAN environment
- Be able to use Cisco IOS commands and problem isolation techniques to identify the
symptoms of common WAN and Frame Relay problems.

Troubleshooting ISDN
- Be able to demonstrate knowledge of ISDN and key troubleshooting targets likely to be
found in a WAN environment
- Be able to use Cisco IOS commands and problem isolation techniques to identify the
symptoms of common ISDN BRI problems.

Novell IPX
- Be able to demonstrate knowledge of connection sequences and key troubleshooting
targets within Novell IPX
- Be able to use proven problem isolation techniques to list the symptoms of common
Novell IPX problems

AppleTalk
- Be able to demonstrate knowledge of connection sequences and key troubleshooting
targets within AppleTalk
- Be able to use proven problem isolation techniques to list the symptoms of common
AppleTalk problems

Troubleshooting EIGRP
- Be able to describe how EIGRP works
- Be able to use Cisco IOS commands to perform EIGRP diagnostics on network devices
- Be able to identify symptoms relating to problems in a EIGRP environment
Troubleshooting OSPF
- Be able to describe how OSPF works
- Be able to use Cisco IOS commands to perform OSPF diagnostics on network devices
- Be able to identify symptoms relating to problems in a OSPF environment

Troubleshooting BGP
- Be able to describe how BGP works
- Be able to use Cisco IOS commands to perform BGP diagnostics on network devices
- Be able to identify symptoms relating to problems in a BGP environment