Routing and Switching Fundamentals Series Training
5 Sessions –
15 Hours of Interactive On Line Training
And
Routing and Switching Fundamentals Part II Training
4 Sessions –
12 Hours of Interactive On Line Training

The Routing and Switching Fundamentals Series from ExamForce has in one package the training courses a certification candidate needs to successfully complete both ICND1® and ICND2®, providing more than 29 hours of instruction by expert Tom Carpenter. At the conclusion of this instruction, you will be confident in your ability to master the CCENT and CCNA exams.

Benefits
- Gain a competitive edge with the Cisco CCENT and Cisco CCNA exams.
- You will increase your earning potential with your proven IT credibility.
- ExamForce courses meet the requirements to pass 640-822 ICND1® and 640-816 ICND2®.

### Routing and Switching Fundamentals Part I

#### Session 1
- **Section A: Introduction**
  - Series Objectives
  - Icons and Symbols
- **Section B: Computer Networking Concepts**
  - What is a Network?
  - Common Physical Components
  - Resource Sharing
  - User Applications
- **Section C: Overview of OSI Model and TCP/IP**
  - Why a Layered Model?
  - The Seven Layers
  - Encapsulating Data
  - Peer-to-Peer Communication
  - Evolution of TCP/IP
  - Mapping TCP/IP to OSI
- **Section D: TCP/IP Transport and Applications**
  - Protocol Characteristics
  - IP Packet Delivery
  - IP Datagram Header
  - Protocol Field
- **Section E: Modern Ethernet LANs**
  - Ethernet Evolution
  - Ethernet Breakdown
  - Fast Ethernet
  - Gigabit Ethernet

#### Session 2
- **Section A: Wide Area Networks**
  - WAN Overview
  - Need for WANs
  - WAN vs. LAN
- **Section B: WAN Concepts**
  - WAN Technologies and Devices
  - Physical Layer
  - Data-link Protocols
  - Link Options
  - HDLC and Cisco HDLC
  - PPP
  - Point-to-Point Considerations
- **Section C: Transmission Protocols**
  - Circuit Switching
  - PSTN
  - ISDN
  - Packet Switching
  - WAN with X.25
  - Frame Relay
  - ATM and Cell Switching
  - DSL
  - Cable-Based WANs
  - IP Services for Internet Access
- **Section D: WAN Configuration**
  - Configure HDLC
  - Verify Data-link Protocol
  - Configuring NAT
- **Section E: Connecting to a Network**
  - Network Interface Card
  - Comparing Media Requirements
  - Different Connections
  - 1000Base-T GBIC
  - Fiber-Optic GBICs
  - Unshielded Twisted Pair
  - RJ-45 Connector and Jack
  - UTP Implementation
  - Loops vs. Spanning Tree

### Session 3
- **Section A: Communications**
  - Transport Layer
  - Reliable vs. Best Effort
  - Protocol Characteristics
  - Port Numbers
  - Transport Headers
  - Establishing a Session
  - Flow Control
  - Fixed vs. Sliding Windows
  - TCP Sequence and Acknowledgment
  - TCP/IP Applications
  - QoS Needs and TCP/IP Application Impact
  - WWW, HTTP, and SSL URLs
- **Section B: IP Addressing**
  - IP Address Overview
  - IP Addressing Classes
  - Subnet Mask
  - Address Scheme
  - Reserved Addresses
  - Other Reserved
- **Section C: Subnetting**
  - Design Requirements
  - Subnetting Example
  - Classful Subnetting
  - Subnet Calculator
  - Determine Scheme
  - Subnet Class B
  - Mask Subnet
  - Block Value
- **Section D: Routers**
  - Router Functions
  - IP Packet Delivery
  - Path Determination
  - Routing Tables
  - Routing Metrics
  - Distance-Vector Protocols
  - Link-State Protocols
- **Section E: IP Routing Concepts**
  - Route Determination