CCNA210: ICND1 - Interconnecting Cisco Networking Devices Part1

CCNA210: ICND1 is a comprehensive 5-day Authorized Cisco course, develop a practical understanding of the operation of modern TCP/IP networks built with Cisco hardware. Learn the commands and techniques used to troubleshoot host connections, interact with Cisco switches and routers, backup and restore configuration files, and manage network equipment. If you are new to networking, need a good understanding for management or sales responsibilities, or are starting along the path to achieve CCNA certification, this is the right course for you. This class prepares students for Cisco Exam: 640-822 ICND1 CCENT/CCNA certification. ICND 1 is also the primary class for those seeking Cisco Certified Entry Networking Technician (CCENT) certification.

AUDIENCE

Network technicians who configure and support internetworks; Individuals seeking CCNA certification; Management and salespeople who need a working knowledge of modern networking.

PREREQUISITES

We do not require previous Cisco experience although students should be comfortable navigating Microsoft Windows operating systems. Basic networking knowledge is helpful but not required.

WHAT YOU WILL LEARN

- » How networks function
- » Network components and their functions
- » Open Systems Interconnection (OSI) reference model
- » Binary, decimal, and hexadecimal numbering
- » Switching operations and theory
- » Host-to-Host packet delivery process
- » TCP/IP network addressing and routing
- » IP subnetting
- » Providing Local Area Network (LAN), Wide Area Network (WAN), and remote access services
- » Advanced network theory, including Virtual Private Networks (VPN), Content
- » Delivery Networks (CDN), Intranets and extranets, and wireless networking
- » Introduction to Cisco Internet Operating System (IOS)
- » Initial configuration of Cisco Catalyst Switches and Routers
- » Network discovery and management using Cisco Discovery Protocol (CDP), telnet, and Trivial FTP (TFTP)

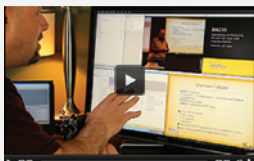"I was very pleased by the way this course was taught"

Cisco Student
Phoenix, AZ

$2495.00

- 5-day course
- CCNA Certification Course
- Promotional and package discounts may apply
- CLC Eligble

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(course outline on back side)

COURSE OUTLINE

CCNA210: ICND1 - Interconnecting Cisco Networking Devices Part1

1. **Building a Simple Network**
   » Exploring the Functions of Networking
   » Securing the Network
   » Host-to-Host Communication Model
   » TCP/IP's Internet Layer
   » TCP/IP's Transport Layer
   » Packet Delivery Process
   » Understanding Ethernet
   » Connecting to an Ethernet LAN

2. **Ethernet LANs**
   » Challenges of Shared LANs
   » Solving Network Challenges with Switched LAN Technology
   » Packet Delivery Process
   » Operating Cisco IOS Software
   » Starting the Switch
   » Understanding Switch Security
   » Maximizing the Benefits of Switching
   » Troubleshooting Switch Issues

3. **Wireless Local Area Networks (WLANs)**
   » Exploring Wireless Networking
   » Understanding WLAN Security
   » Implementing a WLAN

4. **LAN Connections**
   » Functions of Routing
   » Understanding Binary Basics
   » Construct a Network Address Scheme
   » Starting a Router
   » Configuring a Router
   » Packet Delivery Process
   » Understanding Router Security
   » Using Cisco Router and Security Device Manager
   » Using a Router as a DHCP Server
   » Accessing Remote Devices

5. **Wide Area Networks (WANs)**
   » WAN Technologies
   » Enabling the Internet Connection
   » Enabling Static Routing
   » Configuring Serial Encapsulation
   » Enabling Routing Info Protocol (RIP)

6. **Network Environment Management**
   » Discovering Neighbors on the Network
   » Manage Router Startup & Configuration
   » Managing Cisco Devices

Lab 1: Using Host-Based Tools

» Utilize Windows applications and commands to investigate the IP configuration of your PC and the local network.

Lab 2: Observe the TCP 3-Way Handshake

» Use a packet sniffer software app to observe the TCP initial 3-Way Handshake.

Lab 3: Observe Extended PC Network Info

» Use PC Tools, such as ping, traceroute, & ipconfig to gather network-related info.

Lab 4: Building your Initial Pod using LIVE Cisco Hardware

» Begin prep for the subsequent labs. Test and practice the connectivity for your assigned workgroup equipment that will be used for the remaining lab practice exercises.

Lab 5: Switch Startup & Initial Config

» Connect to your workgroup switch and complete the initial configuration.

Lab 6: Enhancing Security of Switch Configuration

» Increase the security of the initial switch configuration.

Lab 7: Operating and Configuring a Cisco IOS Device

» Practice and demo the use of the Command Line Interface (CLI) features.

Lab 8: Convert Decimal to Binary

» Test ability to convert numbers from binary to decimal & decimal to binary.

Lab 9: Classifying Network Addressing

» Classify network addresses & convert addresses from decimal to binary format or binary to decimal format.

Lab 10: Computing Usable Subnetworks and Hosts

» Determine how to create subnets from a given IP address, how many hosts per subnet, and how many subnets per IP address.

Lab 11: Calculating Subnet Masks

» Determine the subnet mask used based on specific criteria provided. Determine the binary & decimal format of the mask, subnet address, number of host addresses, & the Directed Broadcast address.

Lab 12: Initial Router Startup

» Connect to your workgroup router and examine the startup process.

Lab 13: Initial Router Configuration

» Connect to your workgroup router and complete the initial configuration.

Lab 14: Enhancing Security of Initial Router Configuration

» Increase the security of the initial router configuration.

Lab 15: Using Security Device Manager (SDM) to Configure DHCP Server Functions

» Use the Cisco SDM to configure DHCP server functionality on your workgroup router.

Lab 16: Manage Remote Access Sessions

» Utilize Telnet and SSH to create connections to your workgroup devices.

Lab 17: Connecting to the Internet

» Configure the WAN Ethernet Interface to use a DCHP-obtained address and perform Port Address Translation to the inside network.

Lab 18: Connecting to the Main Office

» Configure your workgroup router to connect to another device via a serial interface using PPP and provide a static route to that device.

Lab 19: Enable Dynamic Routing

» Enable the workgroup router to use the dynamic routing protocol RIP.

Lab 20: Using CDP

» Obtain info about your connected Cisco device using Cisco Discovery Protocol (CDP) & disable CDP from running on selected interfaces.

Lab 21: Manage Router Startup Operations

» Make changes to control the router startup behavior, such as boot commands or configuration register settings.

Lab 22: Managing Cisco Devices

» Understand how to use the IOS Copy and Debug commands.

Lab 23: SUPER LAB - Confirming the Re-Configuration of the Branch Network

Using the skills that you have learned, you will assume the management of an incorrectly configured network. You will need to reconfigure or correct the network & then test the new network configuration for accuracy.

Register by phone at 602-266-8585, or online at www.InterfaceTT.com.

CCNA220: ICND2 - Interconnecting Cisco Networking Devices Part2

Whether your goal is to familiarize yourself with Cisco® technology or to eventually become a Cisco® Certified Internetworking Expert - CCIE®, the CCNA® is the place to begin. CCNA220: ICND2 prepares you to take on the real-life challenges that are commonplace within medium-sized switched and routed internetworks in today's business-class systems, properly apply Cisco® solutions, and achieve mastery of CCNA® skills. This 5-day course escalates the scope of the CCNA210 course from a small network to a medium-sized switched and routed internetwork for business-class environments such as SMB. You will be operating in a 'live' dynamic, hands-on networking environment with tons of live Cisco® gear and all of the tools you need to be successful; come prepared to have a great experience and challenge yourself to learn.

AUDIENCE

CCNA220: ICND2 is a very challenging course designed for those candidates who have completed the CCNA210 - Mastering Entry-Level Internetworking', now possessing a firm background in IP data networking, have hands-on experience with Cisco® routers and switches, and are looking to increase their knowledge of installing, maintaining, and troubleshooting medium-sized switched and routed networks in a business-class environment, or for those who are looking to achieve the next level of Cisco® certification, the CCNA®. Note that prerequisite Cisco® experience for the CCNA220 is acquired in the 'CCNA210 - Mastering Entry-Level Internetworking' course and is not reiterated in this course.

PREREQUISITES

Should have completed course *CCNA210: ICND1 - Interconnecting Cisco Networking Devices Part 1* and feel as if they have mastered its content, or, through industry experience, already possess the equivalent skills. Since the CCNA220 builds onto the skills gained in the CCNA210 course and does not reiterate its content, it is critical that such knowledge and skills are already in place. Students new to internetworking and Cisco® hardware or career changers should begin with the *CCNA210 - Mastering Entry-Level Internetworking* course to maximize the return on their training investment.

WHAT YOU WILL LEARN

» Real-world working knowledge and mastery of critical skills required to operate medium-sized business-class networks using Cisco® routers and Cisco® Catalyst™ switches.
» Preparation for Cisco *Exam: 640-816 - ICND2*

   or

» Preparation for Cisco *Exam: 640-802 – CCNA Composite* (if CCNA210 skills are sound) Satisfies requirements to be awarded the Cisco® Certified Network Associate Certification – CCNA®

"The instructor was outstanding and always had everyone's full attention"

Cisco Student
Phoenix, AZ

$2995.00

- 5-day course
- CCNA Certification Course
- Promotional and package discounts may apply
- CLC Eligible

QUESTIONS?
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(course outline on back side)

COURSE OUTLINE

CCNA220: ICND2 - Interconnecting Cisco Networking Devices Part2

1. **Small Network Implementation**
   » Introducing the Review Lab
   » Cisco IOS CLI Functions
   » Configuration Modes of Cisco IOS Software
   » Help Facilities of the Cisco IOS CLI
   » Commands Review

2. **Medium-Sized Switched Network Construction**
   » Implementing VLANs and Trunks
   » Understanding VLANs
   » Understanding Trunking with 802.1Q
   » Understanding VLAN Trunking Protocol
   » Configuring VLANs and Trunks
   » Optimizing Spanning Tree Performance
   » Building a Redundant Switched Topology
   » Recognizing Issues of a Redundant Switched Topology
   » Resolving Issues with STP
   » STP Operation
   » Configuring RSTP
   » Routing Between VLANs
   » Understanding Inter-VLAN Routing
   » Configuring Inter-VLAN Routing
   » Securing the Expanded Network
   » Overview of Switch Security Concerns
   » Secure Switch Devices
   » Troubleshooting Switched Networks
   » Troubleshooting Switches
   » Troubleshooting Port Connectivity
   » Troubleshooting VLANs and Trunking
   » Troubleshooting VTP
   » Troubleshooting Spanning Tree

3. **Medium-Sized Routed Network Construction**
   » Reviewing Routing Operations
   » Reviewing Dynamic Routing
   » Understanding Distance Vector Routing Protocols
   » Understanding Link-State Routing Protocol
   » Implementing VLSM

   » Reviewing Subnets
   » Introducing VLSMs
   » Understanding Route Summarization

4. **Single-Area OSPF Implementation**
   » Implementing OSPF
   » Introducing OSPF
   » Establishing OSPF Neighbor Adjacencies
   » SPF Algorithm
   » Configuring and Verifying OSPF
   » Loopback Interfaces
   » Verifying the OSPF Configuration
   » Using OSPF debug Commands
   » Load Balancing with OSPF
   » OSPF Authentication
   » Troubleshooting OSPF
   » Components of Troubleshooting OSPF
   » Troubleshooting OSPF Neighbor Adjacencies
   » Troubleshooting OSPF Routing Tables
   » Troubleshooting Plaintext Password Authentication

5. **EIGRP Implementation**
   » Implementing EIGRP
   » EIGRP Features
   » Configuring and Verifying EIGRP
   » Load Balancing with EIGRP
   » Configuring EIGRP Authentication
   » Troubleshooting EIGRP Authentication
   » Troubleshooting EIGRP
   » Components of Troubleshooting EIGRP
   » Troubleshooting EIGRP Neighbor Issues
   » Troubleshooting EIGRP Routing Tables

6. **Access Control Lists**
   » Introducing ACL Operation
   » Understanding ACLs
   » ACL Operation
   » Types of ACLs
   » Additional Types of ACLs
   » ACL Wildcard Masking
   » Configuring and

   Troubleshooting ACLs
   » Configuring Numbered Standard IPv4 ACLs
   » Configuring Numbered Extended IPv4 ACLs
   » Configuring Named ACLs
   » Troubleshooting ACLs

7. **Address Space Management**
   » Scaling the Network with NAT and PAT
   » Introducing NAT and PAT
   » Translating Inside Source Addresses
   » Overloading an Inside Global Address
   » Resolving Translation Table Issues
   » Resolving Issues with Using the Correct Translation Entry
   » Transitioning to IPv6
   » Reasons for Using IPv6
   » Understanding the IPv6 Address
   » Assigning IPv6 Addresses
   » Configuring IPv6
   » Routing Considerations with IPv6
   » DNS Considerations with IPv6
   » Strategies for Implementing IPv6

8. **LAN Extension into a WAN**
   » Introducing VPN Solutions
   » VPNs and Their Benefits
   » Types of VPNs
   » Components of VPNs
   » Introducing IPsec
   » IPsec Protocol Framework
   » Establishing a Point-to-Point WAN Connection with PPP
   » Understanding WAN Encapsulations
   » Overview of PPP
   » Configuring and Verifying PPP
   » Establishing a WAN Connection with Frame Relay
   » Understanding Frame Relay
   » Configuring Frame Relay
   » Verifying Frame Relay
   » Troubleshooting Frame Relay WANs
   » Components of Troubleshooting Frame Relay
   » Troubleshooting Frame Relay Connectivity Issues

Register by phone at 602-266-8585, or online at www.InterfaceTT.com.

Implementing Cisco Switched Networks (SWITCH) v1.0

Implementing Cisco Switched Networks (SWITCH) v1.0 is a 5-day instructor-led training course, designed to help students prepare to plan, configure, and verify the implementation of complex enterprise switching solutions for campus environments using the Cisco Enterprise Campus Architecture. These skills are validated in the Cisco CCNP® Routing and Switching certification, a professional-level certification specializing in the routing and switching field.

AUDIENCE

A network professional who will need to correctly implement switch-based solutions given a network design using Cisco IOS services and features. The typical job roles for this type of professional are network engineers, network operations center (NOC) technical support personnel, or help desk technicians.

PREREQUISITES

Knowledge and experience equivalent to having attended the

» *Interconnecting Cisco Networking Devices Part 1 (ICND1)* **and**
» *Interconnecting Cisco Networking Devices Part 2 (ICND2) courses.*

WHAT YOU WILL LEARN

Upon completing this course, the student will be able to meet these overall objectives:

» Analyze campus network designs
» Implement VLANs in a network campus
» Implement spanning tree
» Implement inter-VLAN routing in a campus network
» Implement a highly available network
» Implement high-availability technologies and techniques using multilayer switches in a campus environment
» Implement security features in a switched network
» Integrate WLANs into a campus network
» Accommodate voice and video in campus networks

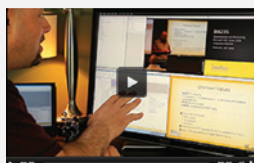> "Very good understanding of material. Great energy and love of the technology!"
>
> Cisco Student
> Phoenix, AZ

$3195.00

- 5-Day Course
- Cisco CCNP Routing and Switching curriculum track
- Promo & package discounts apply

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COURSE OUTLINE

SWITCH: Implementing Cisco Switched Networks

» **Analyzing Campus Network Designs**

» **Implementing VLANs in Campus Networks**

» **Implementing Spanning Tree**

» **Implementing Inter-VLAN Routing**

» **Implementing a Highly Available Network**

» **Implementing Layer 3 High Availability**

» **Minimizing Service Loss and Data Theft in a Campus Network**

» **Accommodating Voice and Video in Campus Networks**

» **Integrating Wireless LANs into a Campus Network**

Implementing Cisco IP Routing (ROUTE) v1.0

This 5-day course is designed to help students prepare for Cisco CCNP® certification. The ROUTE course is designed to provide professionals of medium to large network sites with information on the use of advanced routing in implementing scalability for Cisco routers that are connected to LANs and WANs. The goal is to train professionals to dramatically increase the number of routers and sites using these techniques instead of redesigning the network when additional sites or wiring configurations are added. The ROUTE training reinforces the instruction by providing students with hands-on labs to ensure they thoroughly understand how to implement advanced routing within their networks.

AUDIENCE

Network professionals who want to correctly implement routing-based solutions given a network design using Cisco IOS services and features, where implementation of routing includes planning, configuration, and verification. The typical job roles for this type of network professional are network engineers, network operations center (NOC) technical support personnel, and help desk technicians

PREREQUISITES

Knowledge and skill level equal to Cisco CCNA® certification.

Knowledge of and experience with the implementation and verification of enterprise routing and switching technologies as offered by the *CCNA201: ICND Part 1-Interconnecting Cisco Networking Devices* and *CCNA220: ICND Part 2-Interconnecting Cisco Networking Devices* courses or equivalent skills and knowledge.

WHAT YOU WILL LEARN

» Plan and document the configuration and verification of routing protocols and their optimization in enterprise networks.Identify the technologies, components, and metrics of EIGRP used to implement and verify EIGRP routing in diverse, large-scale internetworks based on requirements.

» Identify, analyze, and match OSPF multiarea routing functions and benefits for routing efficiencies in network operations in order to implement and verify OSPF routing in a complex enterprise network.

» Implement and verify a redistribution solution in a multi-protocol network that uses Cisco IOS features to control path selection and provides a loop-free topology according to a given network design and requirements.

» Evaluate common network performance issues and identify the tools needed to provide Layer 3 path control that uses Cisco IOS features to control the path.

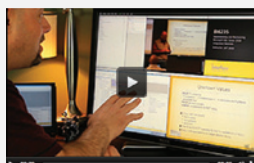» Implement and verify a Layer 3 solution using BGP to connect an enterprise network to a service provider.

> *"Jeremy delivered the course in such a way as to make learning fun."*
>
> Cisco Student
> Phoenix, AZ

$3195.00

- 5-Day Course
- Promo & package discounts apply.
- Cisco CCNP® certification.
- CLC Eligible

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COURSE OUTLINE

Implementing Cisco IP Routing (ROUTE) v1.0

1: Planning Routing Services to Requirements
 » Lab: Assess Skills for Implementing Complex Networks

2: Implementing an EIGRP-Based Solution
 » Lab: Configure and Verify EIGRP Operations
 » Lab: Configure and Verify EIGRP Circuit Emulation and Frame Relay Operations
 » Lab: Configure and Verify EIGRP Authentication
 » Lab: Implement and Verify EIGRP operations

3: Implementing a Scalable Multi area Network OSPF-Based Solution
 » Lab: Configure and Verify OSPF to Improve Routing Performance
 » Lab: Implement and Verify OSPF Multi area Routing
 » Lab: Configure and Verify OSPF Route Summarization for Inter area and External Routes
 » Lab: Configure and Verify OSPF Special Area Types
 » Lab: Configure and Verify OSPF Authentication

4: Implementing an IPv4-Based Redistribution Solution
 » Lab: Configure Route Redistribution Between Multiple IP Routing Protocols

5: Implementing Path Control
 » Lab: Configure and Verify Path Control Between Multiple IP Routing Protocols

6: Connection of an Enterprise Network to an ISP Network
 » Lab: Configure BGP Operations
 » Lab: Manipulate EBGP Path Selections

Troubleshooting and Maintaining Cisco IP Networks (TSHOOT) v1.0

TSHOOT is a new component of the CCNP curriculum. Troubleshooting and Maintaining Cisco IP Networks (TSHOOT) is a 5-day instructor-led course designed for network engineers with at least one year of professional work experience, who are ready to advance their skills and work independently on complex network solutions. Students will learn to (1) plan and perform regular maintenance on complex enterprise routed and switched networks and (2) use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting. Extensive labs provide for hands-on learning and reinforce troubleshooting skills.

AUDIENCE

Network professionals who want to increase their skill level at maintaining and troubleshooting complex Cisco IP networks. The typical job roles for this type of professional are network engineer, network operations center (NOC) technical support personnel, or help desk technicians and any individual that is involved in network maintenance and support.

PREREQUISITES

Cisco CCNA® certification

Knowledge of and experience with the implementation and verification of enterprise routing and switching technologies as offered by the *Implementing Cisco Switched Networks (SWITCH)* and *Implementing Cisco IP Routing (ROUTE)* courses or equivalent skills and knowledge.

WHAT YOU WILL LEARN

» Plan and document the most commonly performed maintenance functions in complex enterprise networks
» Develop a troubleshooting process to identify and resolve problems in complex enterprise networks
» Select tools that best support specific troubleshooting and maintenance processes in large, complex enterprise networks
» Practice maintenance procedures & fault resolution in switching-based environments
» Practice maintenance procedures and fault resolution in routing-based environments
» Practice maintenance procedures and fault resolution in a secure infrastructure
» Troubleshoot and maintain integrated, complex enterprise networks

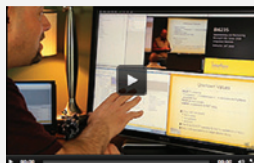### $3295.00

• 5-Day Course
• Promotional and package discounts apply
• CLC Eligible

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COURSE OUTLINE

Troubleshooting and Maintaining Cisco IP Networks (TSHOOT) v1.0

1. **Planning Maintenance for Complex Networks**
   » Applying Maintenance Methodologies
   » Common Maintenance Processes and Procedures
   » Network Maintenance Tools, Applications, and Resources

2. **Planning Troubleshooting Processes for Complex Enterprise Networks**
   » Applying Troubleshooting Methodologies
   » Planning and Implementing Troubleshooting Procedures
   » Integrating Troubleshooting into the Network Maintenance Process

3. **Maintenance and Troubleshooting Tools and Applications**
   » Assembling a Basic Diagnostic Toolkit Using Cisco IOS Software
   » Using Specialized Maintenance and Troubleshooting Tools

4. **Maintaining and Troubleshooting Campus Switching-Based Solutions**
   » Troubleshooting VLANs
   » Troubleshooting Spanning Tree
   » Troubleshooting Switched Virtual Interfaces and Inter-VLAN Routing
   » Troubleshooting FHRPs
   » Troubleshooting Performance Problems on Switches
   » References to Additional Campus Switching Technologies in E-Learning

5. **Maintaining and Troubleshooting Routing-Based Solutions**
   » Troubleshooting Network Layer Connectivity
   » Troubleshooting EIGRP
   » Troubleshooting OSPF
   » Troubleshooting Route Redistribution
   » Troubleshooting BGP
   » Troubleshooting Performance Problems on Routers
   » References to Additional Troubleshooting on NAT and DHCP in E-Learning

6. **Maintaining and Troubleshooting Network Security Solutions**
   » Troubleshooting Security Features
   » Security Features Review
   » References to Additional Security Troubleshooting in E-Learningt