

# Interconnecting Cisco Networking Devices: Part 1

Course ICND1 • 5 Days

*Knowlogy's Interconnecting Cisco Networking Devices: Part 1 (ICND1) can be purchased using thirty Cisco Learning Credits.*

## ▶ COURSE OVERVIEW

This course focuses on providing the skills and knowledge necessary to install, operate, and troubleshoot a small branch office Enterprise network, including configuring a switch, a router, and connecting to a WAN and implementing network security. A Student should be able to complete configuration and implementation of a small branch office network under supervision.

## ▶ OBJECTIVES

Upon completion of this course, you should be able to:

- Describe how networks function, identifying major components, function of network components and the Open System Interconnection (OSI) reference model.
- Using the host-to-host packet delivery process, describe issues related to increasing traffic on an Ethernet LAN and identify switched LAN technology solutions to Ethernet networking issues.
- Describes the reasons for extending the reach of a LAN and the methods that can be used with a focus on RF wireless access.
- Describes the reasons for connecting networks with routers and how routed networks transmit data through networks using TCP / IP.
- Describe the function of Wide Area Networks (WANs), the major devices of WANs, and configure PPP encapsulation, static and dynamic routing, PAT and RIP routing.
- Use the command-line interface to discover neighbors on the network and managing the routers startup and configuration.

## ▶ COURSE OUTLINE

### **Module 1: Building a Simple Network**

- Lesson 1: Exploring the Functions of Networking
- Lesson 2: Securing the Network
- Lesson 3: Understanding the Host-to-Host Communication Model
- Lesson 4: Understanding TCP/IP's Internet Layer
- Lesson 5: Understanding TCP/IP's Transport Layer
- Lesson 6: Exploring the Packet Delivery Process
- Lesson 7: Understanding Ethernet
- Lesson 8: Connecting to an Ethernet LAN

### **Module 2: Ethernet Local Area Networks**

- Lesson 1: Understanding the Challenges of Shared LANs
- Lesson 2: Solving Network Challenges with Switched LAN Technology
- Lesson 3: Exploring the Packet Delivery Process
- Lesson 4: Operating Cisco IOS Software
- Lesson 5: Starting a Switch
- Lesson 6: Understanding Switch Security
- Lesson 7: Maximizing the Benefits of Switching
- Lesson 8: Troubleshooting Switch Issues

### **Module 3: Wireless Local Area Networks**

- Lesson 1: Exploring Wireless Networking
- Lesson 2: Understanding WLAN Security
- Lesson 3: Implementing a WLAN

### **Module 4: Exploring the Functions of Routing**

- Lesson 1: Exploring the Functions of Routing
- Lesson 2: Understanding Binary Basics
- Lesson 3: Constructing a Network Addressing Scheme
- Lesson 4: Starting a Router
- Lesson 5: Configuring a Router
- Lesson 6: Exploring the Packet Delivery Process
- Lesson 7: Understanding Router Security
- Lesson 8: Using Cisco Router and Security Device Manager
- Lesson 9: Using a Router as a DHCP Server
- Lesson 10: Accessing Remote Devices



105 West Broad Street  
Falls Church, Virginia 22046  
Ph: 703.532.1000  
Fax: 703.532.1001  
Web: [www.Knowlogy.com](http://www.Knowlogy.com)

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## **Module 5: Wide Area Networks**

- Lesson 1: Understanding WAN Technologies
- Lesson 2: Enabling the Internet Connection
- Lesson 3: Enabling Static Routing
- Lesson 4: Configuring Serial Encapsulation
- Lesson 5: Enabling Routing Information Protocol (RIP)

## **Module 6: Network Environment Management**

- Lesson 1: Discovering Neighbors on the Network
- Lesson 2: Managing Router Startup and Configuration
- Lesson 3: Managing Cisco Devices

## **Hands-on Lab Exercises**

- Lab 1-1: Using Windows Applications as Network Tools
- Lab 1-2: Observing the TCP Three-Way Handshake
- Lab 1-3: Observing Extended PC Network Information
  
- Lab 2-1: Connecting to Remote Lab Equipment
- Lab 2-2: Switch Startup and Initial Config
- Lab 2-3: Enhancing Security of Switch Configuration
- Lab 2-4: Operating and Configuring a Cisco IOS Device

- Lab 4-1: Converting Decimal to Binary and Binary to Decimal
- Lab 4-2: Classifying Network Addressing
- Lab 4-3: Computing Usable Subnetworks and Hosts
- Lab 4-4: Calculating Subnet Masks
- Lab 4-5: Initial Router Startup
- Lab 4-6: Initial Router Configuration
- Lab 4-7: Enhancing Security of Initial Router Configuration
- Lab 4-8: Using SDM to Configure DHCP Server Function
- Lab 4-9: Managing Remote Access Sessions
  
- Lab 5-1: Connecting to the Internet
- Lab 5-2: Connecting to the Main Office
- Lab 5-3: Enable Dynamic Routing to Main Office
  
- Lab 6-1: Using CDP
- Lab 6-2: Managing Router Startup Options
- Lab 6-3: Managing Cisco Devices
- Lab 6-4: Cap Stone Lab: Network Environment Management



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