

Hands-On

# ICND1 - Interconnecting Cisco Network Devices 1



## Course Description

In this Hands-On 5-day course, you'll develop a practical understanding of the operation of modern TCP/IP networks built with Cisco hardware. As you learn the commands and techniques used to troubleshoot host connections and configure Cisco switches and routers, you'll also practice backing up and restoring configuration files and managing network equipment.

## Students Will Learn

- **How networks function**
- **Network components and their functions**
- **The Open Systems Interconnection (OSI) reference model**
- **Binary, decimal, and hexadecimal numbering**
- **Switching theory and operations**
- **Host-to-Host packet delivery process through a switch and through a router**
- **TCP/IP network addressing and routing**
- **IP subnetting**
- **Providing Local Area Network (LAN), Wide Area Network (WAN), and remote access services**
- **How Wireless LANs (WLANs) work, including the latest IEEE 802.11n standard**
- **Introduction to Cisco Internetwork Operating System (IOS)**
- **Configuration of Cisco Catalyst Switches and Cisco Routers**
- **Using your router as a Dynamic Host Configuration Protocol (DHCP) server and/or client and to provide Port Address Translation (PAT) functionality**
- **Network discovery and management using Cisco Discovery Protocol (CDP), Link Layer Discovery Protocol (LLDP), Telnet, secure shell (SSH), and Trivial FTP (TFTP)**

## Target Audience

Our Networking Fundamentals course or equivalent knowledge.

## Prerequisites

Our Networking Fundamentals course or equivalent knowledge.

## Course Outline

### 1. Building a Simple Network

- Functions of Networking
- Securing the Network
- Host-to-Host Communication Model
- TCP/IP's Internet Layer
- TCP/IP's Transport Layer
- Packet Delivery Process (between Hosts)
- Understanding Ethernet
- Connecting to an Ethernet LAN

### 2. Ethernet LANs

- Challenges of Shared LANs
- Solving Network Challenges with Switched LAN Technology
- Packet Delivery Process (through a Switch)
- Operating Cisco IOS Software
- Starting a Cisco Switch
- Switch Security
- Maximizing the Benefits of Switching
- Troubleshooting Switch Issues

### 3. Wireless Local Area Networks

- Exploring Wireless Networking (including IEEE 802.11n)
- WLAN Security
- Implementing a WLAN
- Voice over IP (VoIP) Requirements

### 4. LAN Connections

- Functions of Routing
- Binary Basics
- Constructing a Network Addressing Scheme
- Starting a Cisco Router
- Configuring a Cisco Router
- Packet Delivery Process (through a Router)
- Cisco Router Security
- Using Cisco Router and Security Device Manager (SDM)
- Using a Router as a DHCP Server
- Accessing Remote Devices

### 5. Wide Area Networks

- WAN Technologies
- Enabling the Internet Connection
- Enabling Static Routing
- Configuring Serial Encapsulation
- Enabling Routing Information Protocol (RIP)

### 6. Network Environment Management

- Discovering Neighbors on the Network

- Managing Router Startup and Configuration
- Managing Cisco Devices

## Delivery Method

Instructor-Led with numerous Hands-On labs and exercises.

## Equipment Requirements

**(This apply's to our hands-on courses only)**

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

## Course Length

5 Days