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Interconnecting Cisco Network Devices Introduction

Overview

Interconnecting Cisco Network Devices v1.1 (ICND) is an instructor-led course presented by Cisco Systems, Inc., training partners to their end-user customers. This five-day course focuses on using Cisco Catalyst® switches and Cisco routers connected in LANs and WANs typically found at small to medium network sites.

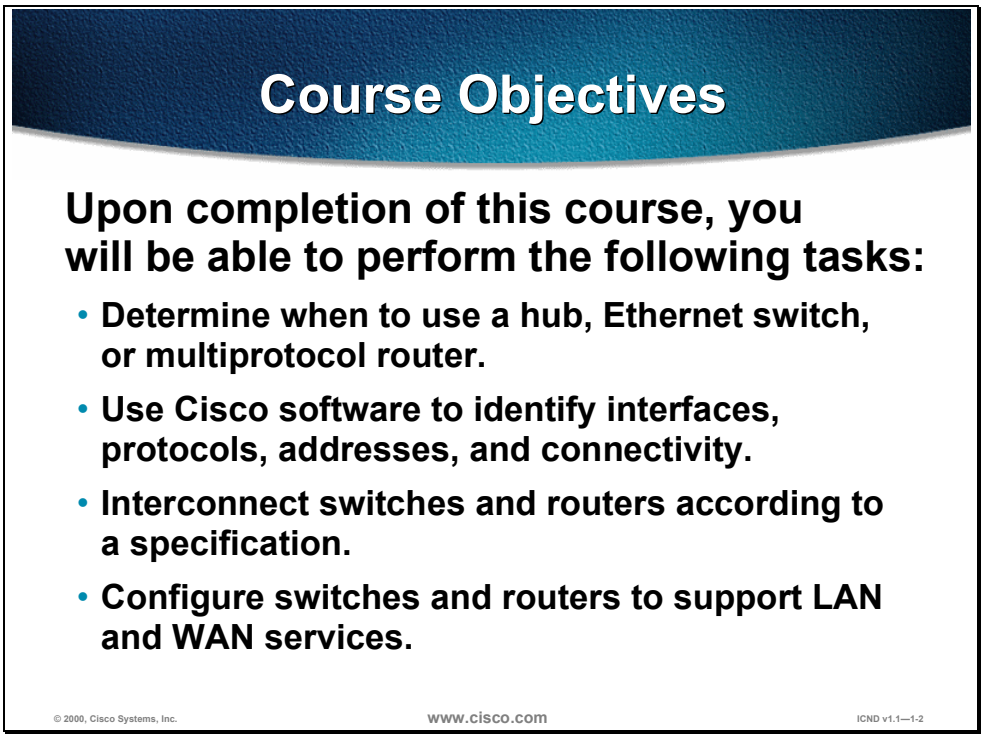
Upon completion of this training course, you will be able to select, connect, configure, and troubleshoot the various Cisco networking devices.

This chapter highlights the course prerequisites and course highlights, as well as some administrative issues. It includes the following topics:

- Course Objectives
- Course Topics
- Prerequisites
- Participant Role
- General Administration
- Sources of Information
- Course Syllabus
- Graphic Symbols

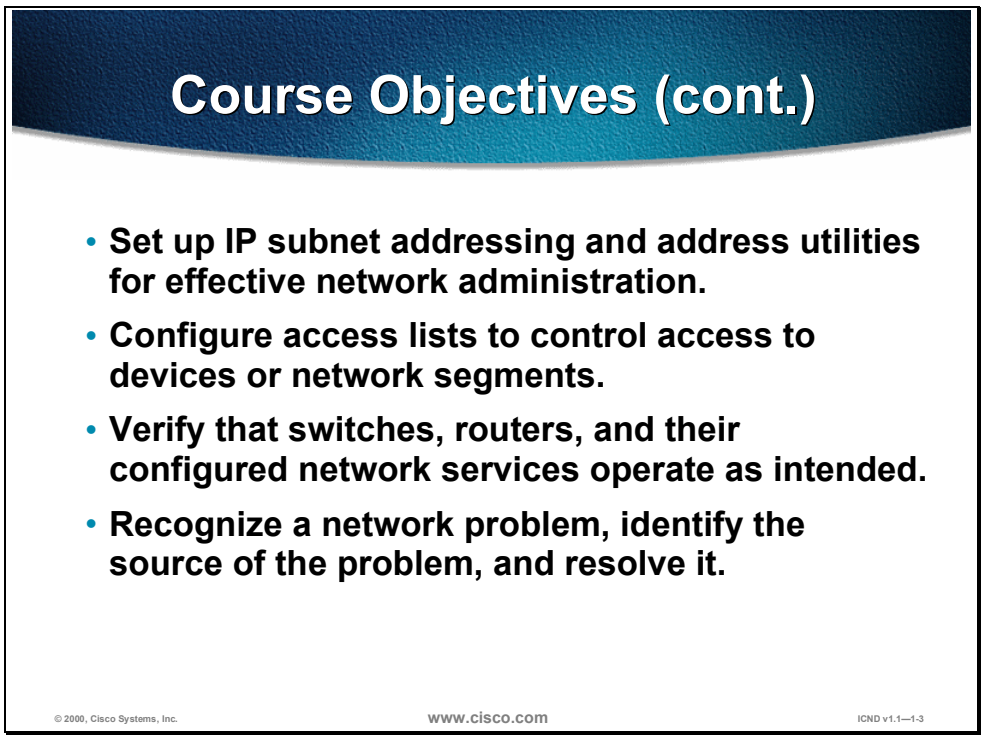
Course Objectives

This section lists the course objectives.



Upon completion of this course, you will be able to perform the following high-level tasks:

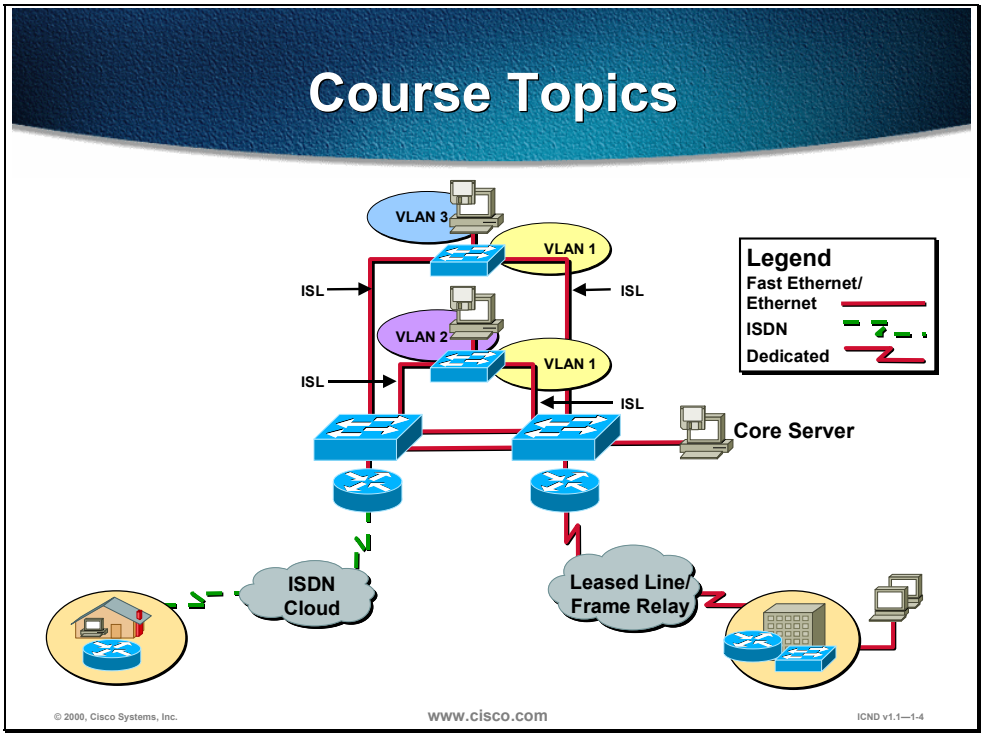
- Select the appropriate device (hub, Ethernet switch, or router) to meet the needs requirement, given a list of specifications.
- Use Cisco software to identify interfaces, protocols, addresses, and connectivity status, given a network containing several interconnected Cisco products.
- Interconnect switches and routers according to the specification, given a network specification.
- Configure the switches and routers to support the listed services and protocols, given a list of services and protocols used in a network.



- Set up a functional subnetting plan and related addressing utilities (for example, static and dynamic name-to-address mapping), given a basic network design and process for administering IP addresses.
- Configure access lists, given a need to control access to devices and general network traffic.
- Verify that the switches and routers and their configured network services and protocols operate as intended, given a network specification.
- Use the available tools to identify the source of the problem and resolve it, given a network problem.

Course Topics

This section lists the topics that will be covered in this course.



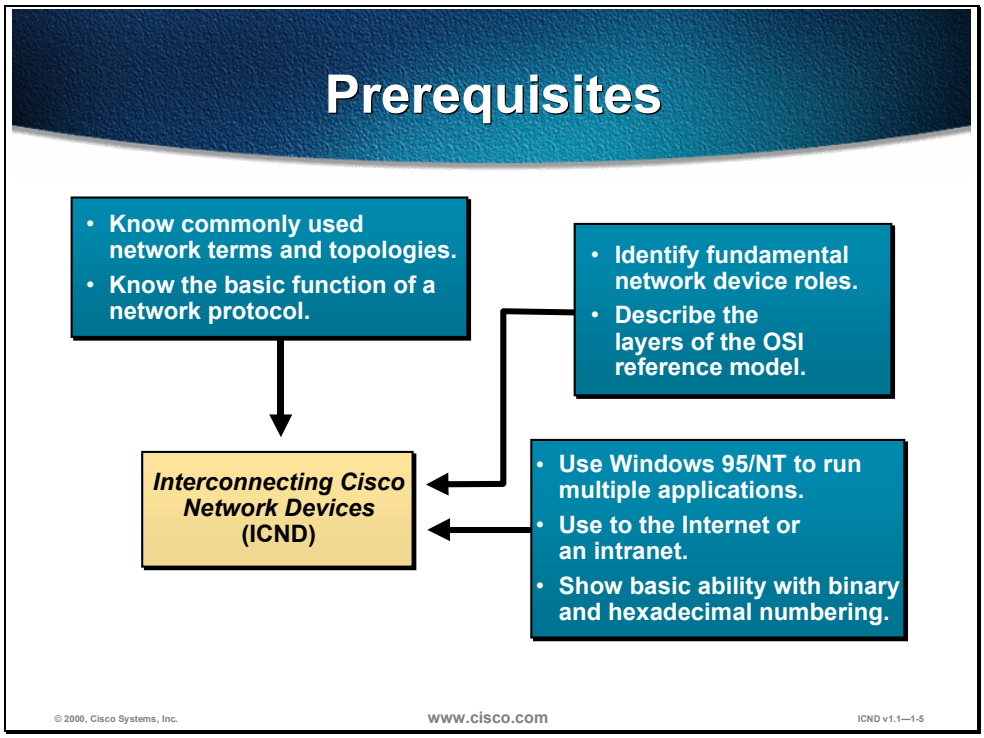
The figure shows a high-level overview of a network that you should be able to build at the end of this class. To accomplish this course goal, you will be taught how to connect Catalyst switches with Ethernet ports, Cisco routers with Ethernet LANs, and serial and ISDN BRI WAN interfaces. You will configure the following on a Cisco device:

- Spanning-Tree Protocol (STP) and virtual LANs (VLANs) with Inter-Switch Link (ISL) on the switched network
- TCP/IP and IP
- Routing Information Protocol (RIP) and Interior Gateway Routing Protocol (IGRP)
- Novell Internetwork Packet Exchange (IPX) routing
- Access lists to control IP and IPX traffic
- Serial WAN connections over interfaces that use High-Level Data Link Control (HDLC) and Point-to-Point Protocol (PPP); with PPP, the Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP)
- Serial WAN connections over subinterfaces that use Frame Relay encapsulation
- ISDN BRI for calls initiated by dial-on-demand routing (DDR)

Configuration, verification, and troubleshooting are done with Cisco IOS® software.

Prerequisites

This section lists the course prerequisites.

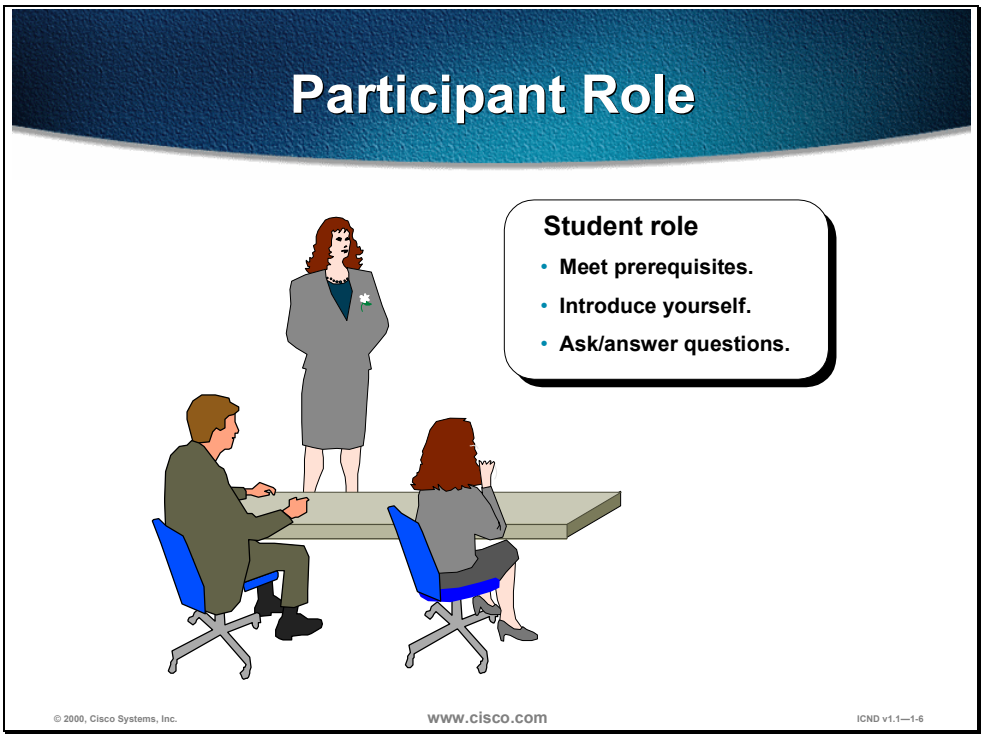


To fully benefit from the ICND course, you should already possess certain prerequisite skills. The skills are presented in the figure and outlined below. They can be gained from completing the Cisco Certified Network Associate (CCNA) Essentials CD-ROM or e-learning course, or through work experience. You should have a working knowledge of the following:

- Commonly used networking terms and topologies
- The basic functions of a network protocol
- Fundamental network device roles (for example, hub, bridge, router, and switch)
- The Open System Interconnection (OSI) reference model
- Use of Windows 95/NT to run multiple applications
- Exposure to accessing the Internet or an intranet
- Basic knowledge of binary and hexadecimal numbering

Participant Role

This section discusses your responsibilities as a student.

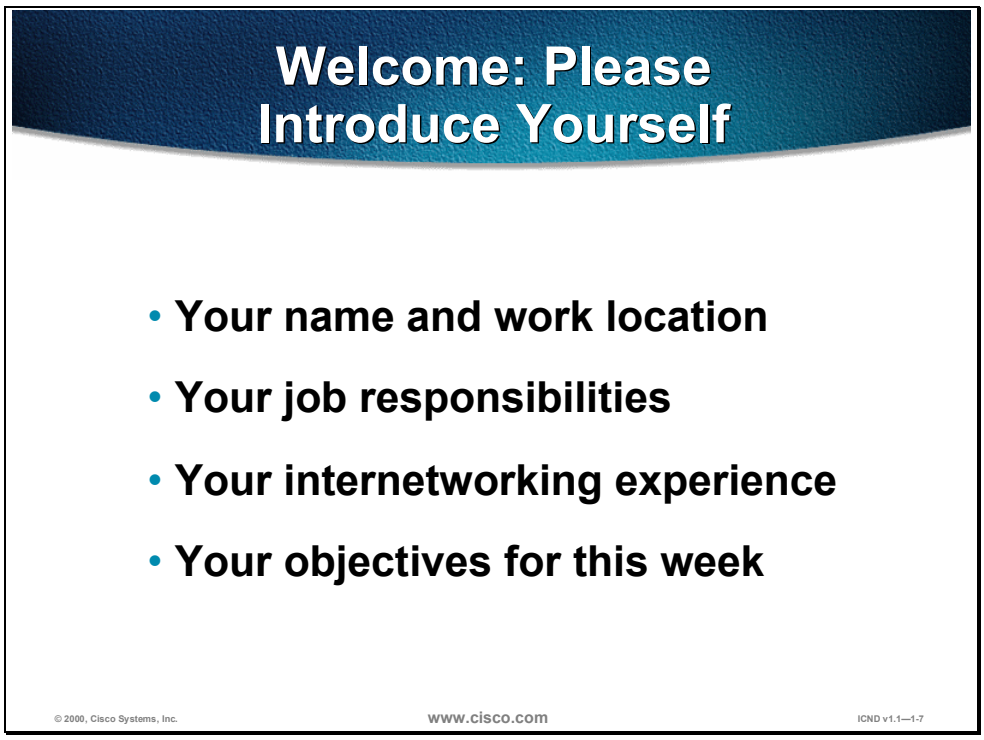


To take full advantage of the information presented in this course, you should meet the prerequisites for this class.

Introduce yourself to the instructor and other students who will be working with you during the five days of this course.

You are encouraged to ask any questions relevant to the course materials.

If you have pertinent questions concerning other Cisco features and products not covered in this course, please bring these topics up during breaks or after class and the instructor will try to answer the questions or direct you to an appropriate information source.



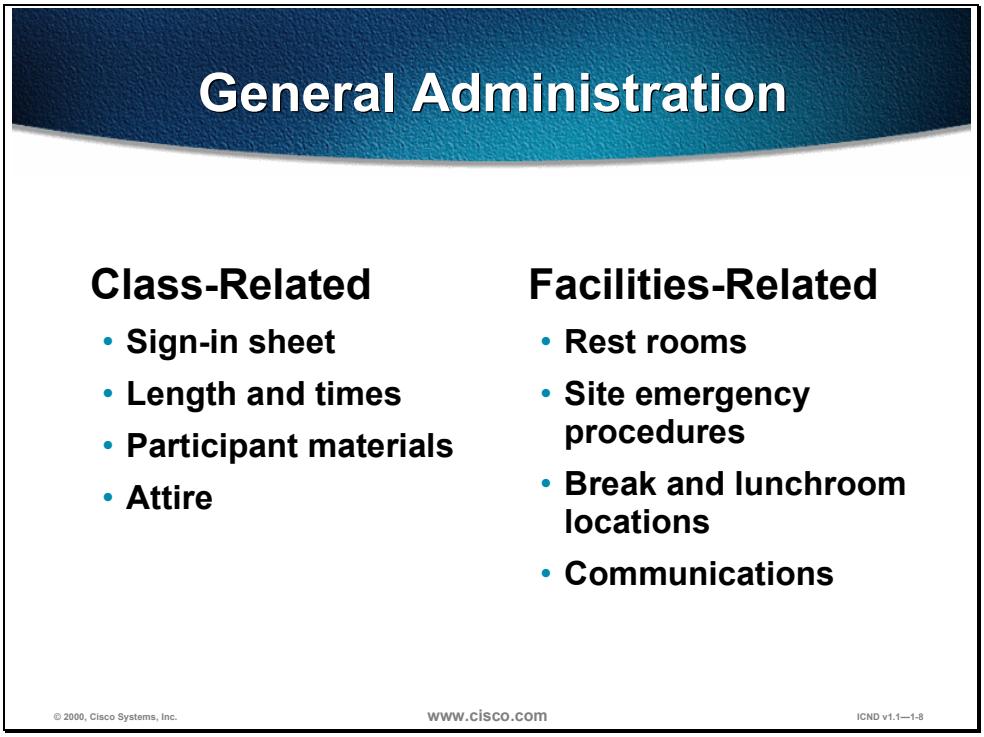
Introduce yourself, stating your name and the job function you perform at your work location.

Briefly describe what exposure you have to installing and configuring Cisco network devices and with internetworking in general, and also how your experience helped you meet the prerequisites highlighted earlier.

You should also state what you expect to learn from this course.

General Administration

This section highlights miscellaneous administrative tasks that must be addressed.

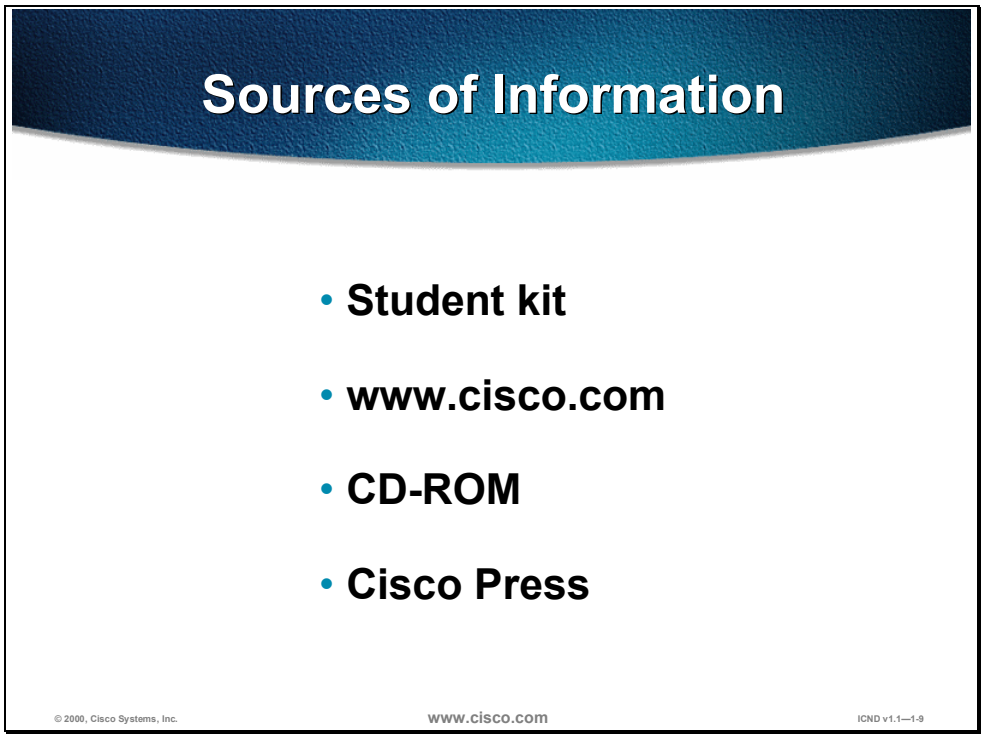


The instructor will discuss the administrative issues in detail so you will know exactly what to expect from both the class and facilities. The following items will be discussed:

- Recording your name on a sign-in sheet
- The starting and anticipated ending time of each class day
- What materials you can expect to receive during the class
- The appropriate attire during class attendance
- Rest room locations
- What to do in the event of an emergency
- Class breaks and lunch facilities
- How to send and receive telephone, e-mail, and fax messages

Sources of Information

This section identifies additional sources of information.



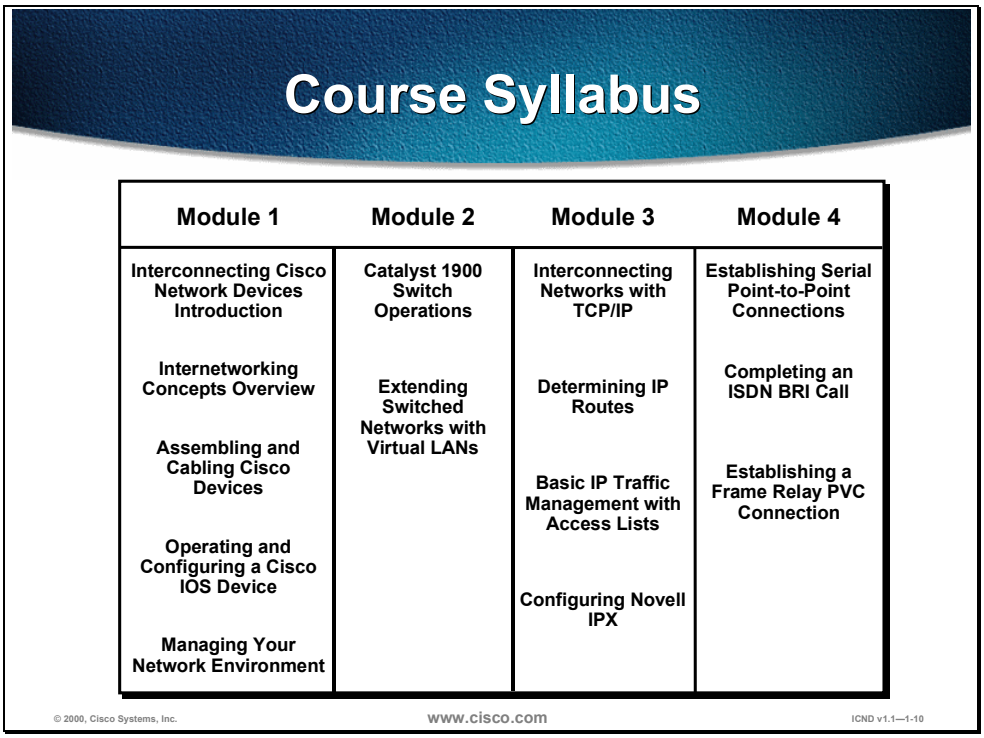
Most of the information presented in this course can be found on the Cisco Systems Web site or on CD-ROM. These supporting materials are available in HTML format, and as manuals and release notes.

To learn more about the subjects covered in this course, feel free to access the following sources of information:

- *Cisco Documentation CD-ROM*
- www.cisco.com
- *Cisco IOS 12.0 Configuration Guide and Command Reference Guide*
- *Catalyst 1900 Series Installation and Configuration Guide*

Course Syllabus

This section discusses the week's schedule.



The following schedule reflects the recommended structure for this course. This structure allows enough time for your instructor to present the course information to you and for you to work through the laboratory exercises. The exact timing of the subject materials and labs depends on the pace of your specific class.

Module 1, Getting Started with Cisco Networks

The purpose of the module is to introduce you to the training room and the ICND network environment. This section provides a review of networking fundamentals. You will also cable a network, and perform some initial, fundamental configurations on your switch and router.

Module 1 includes the following chapters:

- Chapter 1—Interconnecting Cisco Network Devices Introduction
- Chapter 2—Internetworking Concepts Overview
- Chapter 3—Assembling and Cabling Cisco Devices
- Chapter 4—Operating and Configuring a Cisco IOS Device
- Chapter 5—Managing Your Network Environment

Module 2, Interconnecting Catalyst Switches

The purpose of the module is to introduce you to switching fundamentals. You will learn to configure a Catalyst 1900 switch, spanning tree, VLANs, and ISL.

Module 2 includes the following chapters:

- Chapter 6—Catalyst 1900 Switch Operations
- Chapter 7—Extending Switched Networks with Virtual LANs

Module 3, Interconnecting Cisco Routers

The purpose of the module is to introduce you to the router and network layer concepts. In this section, you will learn about the TCP/IP protocol stack, the IP and IPX routed protocols, and routing protocols such as RIP and IGRP. You will also learn how to control network access using access lists.

Module 3 includes the following chapters:

- Chapter 8—Interconnecting Networks with TCP/IP
- Chapter 9—Determining IP Routes
- Chapter 10—Basic IP Traffic Management with Access Lists
- Chapter 11—Configuring Novell IPX

Module 4, Extending the Network to WANs

The purpose of this module is to teach you how to configure and verify a router's WAN connectivity using a serial point-to-point connection, a Frame Relay connection, and an ISDN BRI connection.

Module 4 includes the following chapters:

- Chapter 12—Establishing Serial Point-to-Point Connections
- Chapter 13—Completing an ISDN BRI Call
- Chapter 14—Establishing a Frame Relay PVC Connection