Fundamentals of Cisco Networking

Networking is at the heart of the digital transformation. The network is essential to many business functions today, including business critical data and operations, cybersecurity, and so much more. A wide variety of career paths rely on the network -- so it's important to understand what the network can do, how it operates, and how to build and manage it.

The foundations of networking: switches, routers, and wireless access points

Switches, routers, and wireless access points are the essential networking basics. Through them, devices connected to your network can communicate with one another and with other networks, like the Internet. Switches, routers, and wireless access points perform very different functions in a network.

Switches

Switches are the foundation of most business networks. A switch acts as a controller, connecting computers, printers, and servers to a network in a building or a campus.

Routers

Routers connect multiple networks together. They also connect computers on those networks to the Internet. Routers enable all networked computers to share a single Internet connection, which saves money.

Routers connect your business to the world, protect information from security threats, and can even decide which computers receive priority over others.

Access Points

An access point allows devices to connect to the wireless network without cables. A wireless network makes it easy to bring new devices online and provides flexible support to mobile workers.

Course Outline

Lesson 1 : Networking

- **Introduction to networking**
- **Internetworking devices**
- **Overview of the OSI reference model**

Lesson 2 : Ethernet

- **Ethernet overview**
- **Ethernet addressing**

- **Ethernet cables**
- **Data encapsulation and the Cisco three-layer model**

Lesson 3 : Introduction to TCP/IP

- **Overview of TCP/IP model**
- **Application/process layer**
- **Transport/host-to-host layer**
- **Internet layer**
- **IP addressing**

Lesson 4 : IP addressing

- **IPv4 address**
- **Classes of IP addresses**
- **Public and private addresses**

Lesson 5 : Cisco InterNetworking operating System (IOS)

- **Introduction to the IOS CLI**
- **Interface and password commands**
- **Basic CLI commands**
- **Administrative configurations**
- **Router and switch interfaces**
- **View, save, and erase configurations**

Lesson 6 : IP Routing

- **Overview of IP routing**
- **The IP routing process**
- **Configure IP routing**
- **Static routing**
- **Default routing**
- **Administrative distances and routing protocols**
- **Overview of Routing Information Protocol (RIP)**
- **Configure RIPv2**
- **Verify RIPv2 routing**

Lesson 7 : Layer 2 Switching

- **Overview of switching services**
- **Configure a Catalyst switch**
- **VLANs and Port Modes**
- **Inter Vlan Routing**

Lesson 8 : Wireless basics

- **Describe and implement foundational wireless theory**
- **Describe and implement basic wireless security and client access**
- **Describe and implement a Cisco wireless network architecture**
- **Configure Cisco centralized wireless networks**