



# CCNA Route & Switch Syllabus

## General Information

### Description

CCNA R&S course teaches learners how to install, operate, configure, and verify a basic IPv4 and IPv6 network, including configuring a LAN switch, configuring an IP router, identifying basic security threats, understanding redundant topologies, troubleshooting common network issues, connecting to a WAN, configuring EIGRP and OSPF in both IPv4 and IPv6, understanding wide-area network technologies, and getting familiar with device management and Cisco licensing.

Step	Paper	Required Exam
1	*ICND -1	100-101
2	*ICND -2	200-101
3	CCNA version 2 (Composite)	200-120

Note: CCNA composite exam (200-120) includes ICND-1 and ICND-2. Candidates completing 200-120 need not do 100-101 or 200-101.

## Course Deliverables

### Classroom Training

Instructor led classroom training will be given. All classes are demonstration based. We don't teach just theory. We teach every concept using real-time case studies. All our classrooms are digital classrooms.

### Lab

Students can practice all the concepts taught in classrooms at our Lab facility. Each student will be given individual setup to practice the lab. They need not combine and do labs. Our lab coordinators will help you when you are doing the labs

### Books and workbooks

Students will be a given textbooks and workbooks for the course.

## Course Toipics (CCNA 200-120)

Heading	Topic
Operation of IP Data Networks	Operation of IP Data Networks
	Recognize the purpose and functions of various network devices such as Routers, Switches, Bridges and Hubs.
	Select the components required to meet a given network specification.
	Identify common applications and their impact on the network
	Describe the purpose and basic operation of the protocols in the OSI and TCP/IP models.
	Predict the data flow between two hosts across a network.
	Identify the appropriate media, cables, ports, and connectors to connect Cisco network devices to other network devices and hosts in a LAN

Heading	Topic
LAN Switching Technologies	Determine the technology and media access control method for Ethernet networks
	Identify basic switching concepts and the operation of Cisco switches.
	Configure and verify initial switch configuration including remote access management.
	Verify network status and switch operation using basic utilities such as ping, telnet and ssh.
	Identify enhanced switching technologies
	Describe how VLANs create logically separate networks and the need for routing between them.
	Configure and verify VLANs
	Configure and verify trunking on Cisco switches
	Configure and verify PVSTP operation

Heading	Topic
IP addressing (IPv4 / IPv6)	Describe the operation and necessity of using private and public IP addresses for IPv4 addressing
	Identify the appropriate IPv6 addressing scheme to satisfy addressing requirements in a LAN/ WAN environment.
	Identify the appropriate IPv4 addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment.
	Describe the technological requirements for running IPv6 in conjunction with IPv4 such as dual stack
	Describe IPv6 addresses

Heading	Topic
IP Routing Technologies	Describe basic routing concepts
	Describe the boot process of Cisco IOS routers
	Configure and verify utilizing the CLI to set basic Router configuration
	Configure and verify operation status of a device interface, both serial and ethernet
	Verify router configuration and network connectivity
	Configure and verify routing configuration for a static or default route given specific routing requirements
	Manage Cisco IOS Files
	Differentiate methods of routing and routing protocols
	Configure and verify OSPF (single area)
	Configure and verify EIGRP (single AS)
	Configure and verify interVLAN routing (Router on a stick)
	Configure SVI interfaces

Heading	Topic
IP Services	Configure and verify DHCP (IOS Router)
	Describe the types, features, and applications of ACLs
	Configure and verify ACLs in a network environment
	Identify the basic operation of NAT
	Configure and verify NAT for given network requirements
	Configure and verify NTP as a client
	Recognize High availability (FHRP)
	Configure and verify Syslog
	Describe SNMP v2 & v3

Heading	Topic
Network Device Security	Configure and verify network device security features
	Configure and verify Switch Port Security features
	Configure and verify ACLs to filter network traffic
	Configure and verify an ACLs to limit telnet and SSH access to the router

Heading	Topic
WAN Technologies	Identify different WAN Technologies
	Configure and verify a basic WAN serial connection
	Configure and verify a PPP connection between Cisco routers
	Configure and verify Frame Relay on Cisco routers
	Implement and troubleshoot PPPoE