Networking I

2023-2024 Catal

[ARCHIVED CATALOG]

NETI 109 - Networking I

PREREQUISITES: Demonstrated readiness for college-level English and Demonstrated readiness in TECH Math, QUANT Math, or STEM Math Path Ready
PROGRAM: Network Infrastructure
CREDIT HOURS MIN: 3
LECTURE HOURS MIN: 1.5
LAB HOURS MIN: 3
DATE OF LAST REVISION: N/A

Networking I is the first of three courses in the Cisco CCNAv7 curriculum. This course includes activities using Packet Tracer, hands-on lab work, and a wide array of assessment types and tools. The content covers the architecture, structure, functions and components of the Internet and other computer networks. Students achieve a basic understanding of how networks operate and how to build simple local area networks (LAN), perform basic configurations for routers and switches, and implement Internet Protocol (IP).

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course the student will be expected to:

1. Configure switches and end devices to provide access to local and remote network resources.
2. Explain how physical and data link layer protocols support the operation of Ethernet in a switched network.
3. Configure routers to enable end-to-end connectivity between remote devices.
4. Create IPv4 and IPv6 addressing schemes and verify network connectivity between devices.
5. Explain how the upper layers of the OSI model support network applications.
6. Configure a small network with security best practices.
7. Troubleshoot connectivity in a small network.

COURSE CONTENT: Topical areas of study include -

- Cisco IOS
- Protocols
- Integrity and Availability
- Routing
- IP Addressing
- Security
- Local Area Networks (LAN)
- TCP/IP Model
- Network Operating Systems
- Standards and the OSI Model
- Network Hardware
- Transmission Basics and Networking Media
- Troubleshooting

DELIVERY METHOD:

This course requires a dedicated classroom in which students have administrator privileges to the computers. Campuses a sites that offer this course must also provide students with access to a datacenter that meets the requirements of the Cisco Networking Academy (see below).

Minimum Pod Configuration

Qty	Product Number	Description	Notes
2	ISR 4221/K9	Cisco ISR 4221 (2GE, 2NIM, 8G Flash, 4G RAM, IPB)	Should be ordered with IOS-XE Image with Payload Encryption
2	WS-C2960+24TC-L	Catalyst 2960 Plus 24 10/100 +2T/SFP LAN Base Image	
1	Wireless Router	Wireless router (generic brand) with WPA2 support.	

Ideal Pod Configuration

Qty	Product Number	Description	Notes
3	ISR 4321/K9	Cisco ISR 4321 (3GE, 2NIM, 1SM, 4G Flash, 4G RAM, IPB)	Should be ordered with IOS-XE Image with Payload Encryption
3	WS-C2960+24TC-L	Catalyst 2960 Plus 24 10/100 +2T/SFP LAN Base Image	
1	Wireless Router	Wireless router (generic brand) with WPA2 support.	
3	NIM-2T	2-Port Serial WAN Interface card	Not required for labs, but recommended if you want to avoid doing labs in Packet Tracer
3	ACS-4220-RM-19	19 inch rack mount kit for Cisco ISR 4221 series	
3	CAB-SS-V35MT	V.35 Cable, DTE Male to Smart Serial, 10 Feet	For use with the NIM-2T Serial cards
3	CAB-SS-V35FC	V.35 Cable, DCE Female to Smart Serial, 10 feet	For use with the NIM-2T Serial cards

Hardware		
Qty	**Description**	**Notes**
1	(optional) PC acting as an application server (MS Windows Server or Windows 7 or later)	
3	Desktop PCs acting as clients (MS Windows 7 or later)	
2	Wireless LAN Adapters for the client PCs	
--	Ethernet cables and Serial Cables as required	

Software		
Qty	**Description**	**Notes**
--	Packet Tracer v7.3	
--	Tera Term source SSH client software for lab PCs.	
--	Oracle VirtualBox, most recent version.	
--	Wireshark version 2.5 or higher.	
--	Open-source server software: For various services and protocols, such as Telnet, SSH, HTTP, DHCP, FTP, TFTP, etc.	

Course Addendum - Syllabus (Click to expand)