

CCNA: Introduction to Networks

Course Overview

The first course in the CCNA curriculum introduces the architectures, models, protocols, and networking elements that connect users, devices, applications and data through the Internet and across modern computer networks - including IP addressing and Ethernet fundamentals.

Benefits

By the end of the course, students can build simple local area networks (LAN) that integrate IP addressing schemes, foundational network security, and perform basic configurations for routers and switches.

Learning Components

- 17 modules
- 24 hands-on labs
- 31 Cisco Packet Tracer activities
- 36 videos
- 10 syntax checkers
- 13 interactive activities
- 64 CYU quizzes
- 17 module exams
- 6 module group exams
- 1 final exam



Features

Target Audience: Secondary vocational students, 2-year and 4-year college students in Networking or Engineering

Prerequisites: None

Instructor Training Required: Yes

Languages: English

Course Delivery: Instructor-led

Course Recognitions: Certificate of Completion, Letter of Merit, Digital Badge

Estimated Time to Complete: 70 hours

Recommended Next Course: CCNA: Switching, Routing, and Wireless Essentials

CCNA: Switching, Routing, and Wireless Essentials

Course Overview

The second course in the CCNA curriculum focuses on switching technologies and router operations that support small-to-medium business networks and includes wireless local area networks (WLAN) and security concepts.

Benefits

Students learn key switching and routing concepts. They can perform basic network configuration and troubleshooting, identify and mitigate LAN security threats, and configure and secure a basic WLAN.

Learning Components

- 16 modules
- 14 hands-on labs
- 31 Cisco Packet Tracer activities
- 15 videos
- 19 syntax checkers
- 1 interactive activity
- 36 CYU quizzes
- 16 module exams
- 5 module group exams
- 1 final exam



Features

Target Audience: Secondary vocational students, 2-year and 4-year college students in Networking or Engineering

Prerequisites: None

Instructor Training Required: Yes

Languages: English

Course Delivery: Instructor-led

Course Recognitions: Certificate of Completion, Letter of Merit, Digital Badge

Estimated Time to Complete: 70 hours

Recommended Next Course: CCNA: Enterprise Networking, Security, and Automation

CCNA: Enterprise Networking, Security, and Automation

Course Overview

The third CCNA course describes the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks – including wide area network (WAN) technologies & quality of service (QoS) mechanisms for secure remote access, along with software-defined networking, virtualization, & automation concepts supporting network digitization.

Benefits

Students gain skills to configure and troubleshoot enterprise networks, and learn to identify and protect against cybersecurity threats. They are introduced to network management tools and learn key concepts of software-defined networking, including controller-based architectures and how application programming interfaces (APIs) enable network automation.

Learning Components

- 14 modules
- 12 hands-on labs
- 29 Cisco Packet Tracer activities
- 32 videos
- 13 syntax checkers
- 2 interactive activities
- 53 CYU quizzes
- 14 module exams
- 5 module group exams
- 1 final exam
- 1 practice exam for CCNA certification exam



Features

Target Audience: 2-year and 4-year college students in Networking or Engineering

Prerequisites: None

Instructor Training Required: Yes

Languages: English

Course Delivery: Instructor-led

Course Recognitions: Certificate of Completion, Letter of Merit, Digital Badge

Estimated Time to Complete: 70 hours

Recommended Next Course: CCNP Enterprise Core



Enhanced Course Design

Introducing modules for better organization

- ✓ Topics are grouped together
- ✓ Find content more easily

A **module** is an integrated unit of learning that targets a common set of competencies or skills.

Module size depends on the competency and number of topics.

Introduction to Networks	
Chapter 0 Course Introduction	Section 4.0 Introduction
Chapter 1 Explore the Network	Section 4.1 Physical Layer Protocols
Chapter 2 Configure a Network Operating System	Section 4.2 Network Media
Chapter 3 Network Protocols and Communications	Section 4.3 Data Link Layer Protocols
Chapter 4 Network Access	Section 4.4 Media Access Control
Chapter 5 Ethernet	Section 4.5 Summary

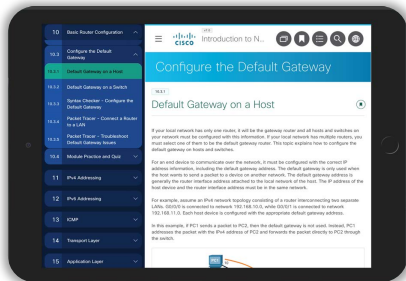
CCNA1 Offering	
1	Network Today
2	Basic Switch and End Device Configuration
3	Protocols and Models
4	Physical Layer
5	Number Systems
6	Data Link Layer
7	Ethernet Switching

Example: CCNA: ITN (Version 6) Chapter 4 is re-organized to CCNA: ITN (Version 7) Modules 4 and 6.



Enhanced Course Design

Accessibility Enhancements



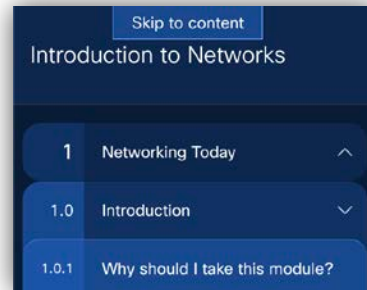
Redesigned User Interface

- ✓ Developed for Web Content Accessibility Guidelines 2.1
- ✓ New sidebar navigation
- ✓ Mobile-friendly
- ✓ Performance enhancements
- ✓ Improved color contrast



Enhancements for Screen Readers

- ✓ Media descriptions and transcripts throughout
- ✓ Descriptions & transcripts tied directly to user interface
- ✓ Conversion to HTML- screen reader can read tables, command windows, Syntax Checkers



Better Keyboard Accessibility

- ✓ 'Skip to Content' sidebar navigation
- ✓ All activities are now keyboard accessible
- ✓ New, accessible header with all user functions



Build Critical Skills for Today - and Tomorrow

Certification Alignment

Associate Level



One Exam



- As of Feb 2020, Cisco has a new, consolidated CCNA certification evolved for the New Network
- NetAcad curriculum has evolved to stay aligned
- In CCNA 7.0, students gain critical networking skills, plus foundations for security and automation
- CCNA 7.0 practice exams and activities prepare learners for the new exam



CCNA 7.0 Course Outlines

Intro to Networks (ITN)
Networking Today
Basic Switch and End Device Configuration
Protocol Models
Physical Layer
Number Systems
Data Link Layer
Ethernet Switching
Network Layer
Address Resolution
Basic Router Configuration
IPv4 Addressing
IPv6 Addressing
ICMP
Transport Layer
Application Layer
Network Security Fundamentals
Build a Small Network

Switching, Routing, and Wireless Essentials (SRWE)
Basic Device Configuration
Switching Concepts
VLANs
Inter-VLAN Routing
STP
Etherchannel
DHCPv4
SLAAC and DHCPv6 Concepts
FHRP Concepts
LAN Security Concepts
Switch Security Configuration
WLAN Concepts
WLAN Configuration
Routing Concepts
IP Static Routing
Troubleshoot Static and Default Routes

Enterprise Networking, Security and Automation (ENSA)
Single-Area OSPFv2 Concepts
Single-Area OSPFv2 Configuration
WAN Concepts
Network Security Concepts
ACL Concepts
ACLs for IPv4 Configuration
NAT for IPv4
VPN and IPsec Concepts
QoS Concepts
Network Management
Network Design
Network Troubleshooting
Network Virtualization
Network Automation



Complementary Options

CCNP Enterprise (ENCOR, ENARSI)

or

CCNA Security / CCNA CyberOps

or

DevNet Associate

or

Python / ETWs

or lead with

IT Essentials

 New/significantly changed content



Accelerated Path to Job Readiness

Module Objectives

Introduction to Networks (ITN)

Module		Module Group Assessments
Module 1	Networking Today	Basic Network Connectivity and Communications
Module 2	Basic Switch and End Device Configuration	
Module 3	Protocol Models	
Module 4	Physical Layer	Ethernet Concepts
Module 5	Number Systems	
Module 6	Data Link Layer	
Module 7	Ethernet Switching	Communicating Between Networks
Module 8	Network Layer	
Module 9	Address Resolution	
Module 10	Basic Router Configuration	IP Addressing
Module 11	IPv4 Addressing	
Module 12	IPv6 Addressing	
Module 13	ICMP	Network Application Communications
Module 14	Transport Layer	
Module 15	Application Layer	
Module 16	Network Security Fundamentals	Building and Securing a Small Network
Module 17	Build a Small Network	

NEW!



Accelerated Path to Job Readiness

Module Objectives

Switching, Routing, and Wireless Essentials (SRWE)

Module		Module Group Assessments
Module 1	Basic Device Configuration	Switching Concepts and VLANs
Module 2	Switching Concepts	
Module 3	VLANs	
Module 4	Inter-VLAN Routing	
Module 5	STP	Redundant Networks
Module 6	Etherchannel	
Module 7	DHCPv4	Available and Reliable Networks
Module 8	SLAAC and DHCPv6 Concepts	
Module 9	FHRP Concepts	
Module 10	LAN Security Concepts	L2 Security and WLANs
Module 11	Switch Security Configuration	
Module 12	WLAN Concepts	
Module 13	WLAN Configuration	
Module 14	Routing Concepts	Routing Concepts and Configuration
Module 15	IP Static Routing	
Module 16	Troubleshoot Static and Default Routes	



Accelerated Path to Job Readiness

Module Objectives

Enterprise Networking, Security, and Automation (ENSA)

Module		Module Group Assessments
Module 1	Single-Area OSPFv2 Concepts	OSPF Concepts and Configuration
Module 2	Single-Area OSPFv2 Configuration	
Module 3	Network Security Concepts	Network Security
Module 4	ACLs Concepts	
Module 5	ACLs for IPv4 Configuration	
Module 6	NAT for IPv4	
Module 7	WAN Concepts	WAN
Module 8	VPN and IPsec Concepts	
Module 9	QoS Concepts	Optimize, Monitor, and Troubleshoot Networks
Module 10	Network Management	
Module 11	Network Design	
Module 12	Network Troubleshooting	
Module 13	Network Virtualization	Network Virtualization and Automation
Module 14	Network Automation	



Improved Outcomes

Check Your Understanding

- Complete a topic with self-assessment
- Gives students the opportunity validate and retain critical knowledge
- Use feedback as review

Check Your Understanding – Ports and Ad

Check Your Understanding – Ports and Address

1. What is the structure of an IPv4 address called?

☐ Dotted-binary format

☒ Dotted-decimal format

☐ Dotted-hexadecimal format

2. How is an IPv4 address represented?

☐ Four binary numbers between 0 and 1 separated by colons.

☒ Four decimal numbers between 0 and 255 separated by periods.

☐ Thirty-two hexadecimal numbers separated by colons.

☐ Thirty-two hexadecimal numbers separated by periods.

3. What type of interface has no physical port associated with it?

☐ Console

☐ Ethernet

☐ Serial

☒ Switch virtual interface (SVI)

Correct

You have successfully identified the correct answers.

1. IPv4 addresses are written in dotted-decimal format. For example: 192.168.1.1.

2. IPv4 addresses are written as four groups of decimal numbers separated by periods. For example: 192.168.1.1.

3. Switch virtual interfaces (SVIs), are virtual and have no physical port. Layer 2 switches use SVIs for remote management.

[Save Configuration](#)

Check Your Understanding – Ports and Addresses

Check Your Understanding – Ports and Addresses

1. What is the structure of an IPv4 address called?

☐ Dotted-binary format

☒ Dotted-decimal format

☐ Dotted-hexadecimal format

2. **▲ How is an IPv4 address represented?**

☐ Four binary numbers between 0 and 1 separated by colons.

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3. **▲ What type of interface has no physical port associated with it?**

☐ Console

☐ Ethernet

☒ Serial

☐ Switch virtual interface (SVI)

[Check](#)

[Show me](#)

[Reset](#)



Improved Outcomes

Dynamic Forms - Administer unique exams to each of your students

- Exams are dynamically generated from pool of questions, maintaining exam integrity and validity
- Available for Module Group exams and Final course exam
- Form and Section Details indicate total items available and selected from the pool for students.
- Module Group exam items, delivered or not, are available for preview with the assessment viewer

Introduction to Networks (Version 7.00) - Ethernet Concepts Exam

Form Details

English FormA Ethernet Concepts Exam

This is the first release of this form for the CCNA1 - Introduction to Networks v7.0 (ITN) curriculum. This exam will be scored using the Weighted Model where each MCSA (Multiple-Choice Single-Answer) is worth two points and each MCMA (Multiple-Choice Multiple-Answer) is worth one point for each correct option. If more options are selected than required, the student will receive a score of zero.

75 items are available.

34 items are selected and delivered to the learner.

Sections are displayed in random sequence.

Section Details

Module 4 - Dynamic

9 items are available.

6 items are selected and delivered to the learner.

Selected items are grouped together.

Selected items are displayed in random sequence.



Improved Outcomes

Secured Activation increases final exam security

New Assessment Launcher

- Final exams remain secure until administered by instructor
- Replaces the Assessment Viewer
- For security & integrity, questions are not visible

Secured Assessment Launcher

Introduction to Networks v7.0 (Version 7.00) - ITN Final Exam

Create Secured Activation
Create secured activations for the assessment.

Manage Activations
Manage the activations for the assessment.

Bulk Deactivation
Disregard incomplete attempts and deactivate available activations for the assessment.

View All Attempts
View all the attempts for the assessment.

Class Performance Summary
View the overall class performance for this assessment.

Email Final Exam Scores
Email the student grades for the assessment.

Secured Assessment Launcher / Create Secured Activation

Introduction to Networks v7.0 (Version 7.00) - ITN Final Exam

Settings **Students**

Current Time: 11/22/2019 01:40 PM EST

Start Time: 11/22/2019 01 : 40 : PM

End Time: 11/22/2019 02 : 40 : PM

Maximum Activation Window: 7 days
Activations that exceed the maximum will be converted to the Maximum Activation Window.

Instructor Must Re-enable Incomplete Assessments: ☐
Checking this option means that the instructor must re-enable any exams that students have started but not completed. Option is unchecked for default activation.

Languages
If an assessment has not been translated into the selected language, the English version of that form will be provided.

☒ English

Exam Duration
Duration indicates the amount of time that students are given to take an assessment after the assessment is started. The default duration is listed, however, this may be edited using 15-minute increments within the minimum and maximum duration permitted. If the requested duration is less than the minimum permitted for the exam, it will default to the minimum value. If the requested duration is more than the maximum permitted, it will be set to the default value.

1:15

Assessment Administration
Please let us know how you plan to administer this assessment. This information will be used for reporting and assessment development only. Please select one of the following options:

☐ This assessment will be administered in a secure, proctored environment with no teamwork or access to learning materials permitted.

☐ This assessment will be administered in a less secure environment and teamwork or access to learning materials will be permitted.

☐ Unsure at this time.

Create Secured Activation



Improved Outcomes

Secured Activation provides useful insights on class performance

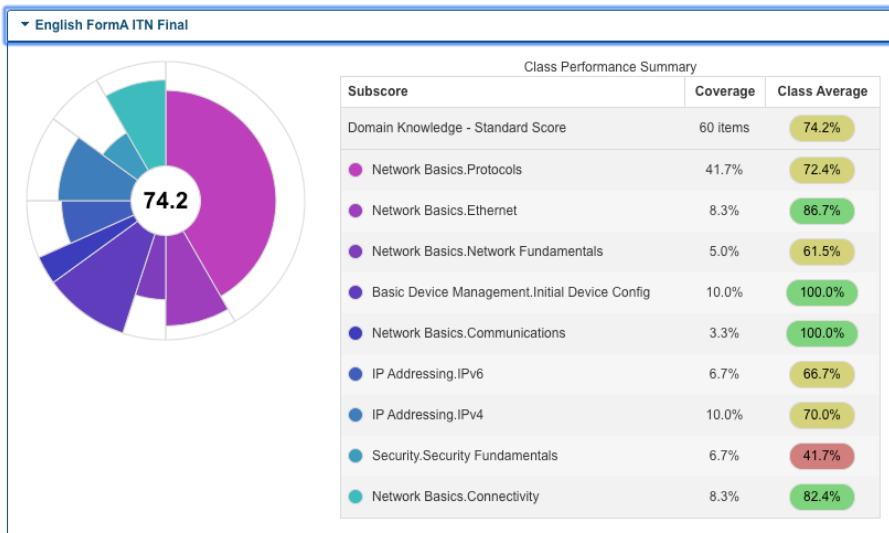
Domain Level Reporting

- New Class Performance Summary report for instructors
- Replaces the Student Performance Summary
- See how your students are performing in each domain based on objectives of the modules and course

ITNv7 Final Exam

[Secured Assessment Launcher](#) / Class Performance Summary

Introduction to Networks (Version 7.00) - ITNv7 Final Exam





Improved Outcomes

Formative and Summative Assessments guide learning at strategic points

Self-Assessments

Check Your Understanding

- ✓ Multiple per module
- ✓ Correct/incorrect scoring and 'show me' option

Module Quizzes

- ✓ 1 per module
- ✓ Correct/incorrect scoring and 'show me' option

12.8.2

Module Quiz - WLAN Concepts

1. In the context of mobile devices, what does the term tethering involve?

- ☐ connecting a mobile device to another mobile device or computer to share a network connection
- ☐ connecting a mobile device to a hands-free headset
- ☐ connecting a mobile device to a 4G cellular network
- ☐ connecting a mobile device to a USB port on a computer in order to charge the mobile device

Launched by Instructor

Module Group Exams

- ✓ Multiple per course

Final Exams

- ✓ 1 per course

Certification Practice Exams

- ✓ 1 for ENSA course

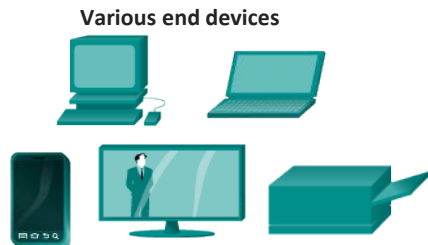
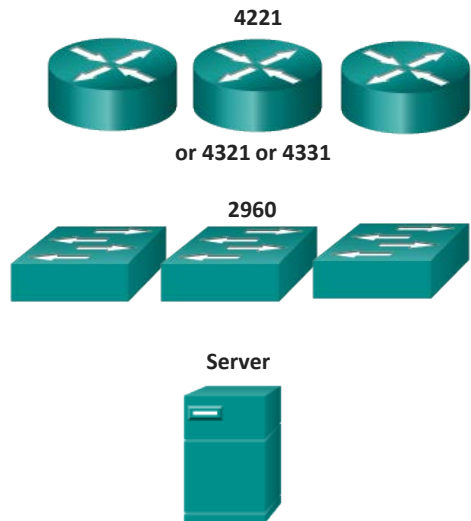
Module		Module Group Topics
Module 1	Single-Area OSPFv2 Concepts	OSPF Concepts and Configuration
Module 2	Single-Area OSPFv2 Configuration	
Module 3	Network Security Concepts	
Module 4	ACLs Concepts	Network Security
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Module 11	Network Design	
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Module 14	Network Automation	

Lab Equipment



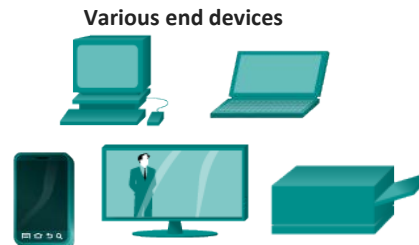
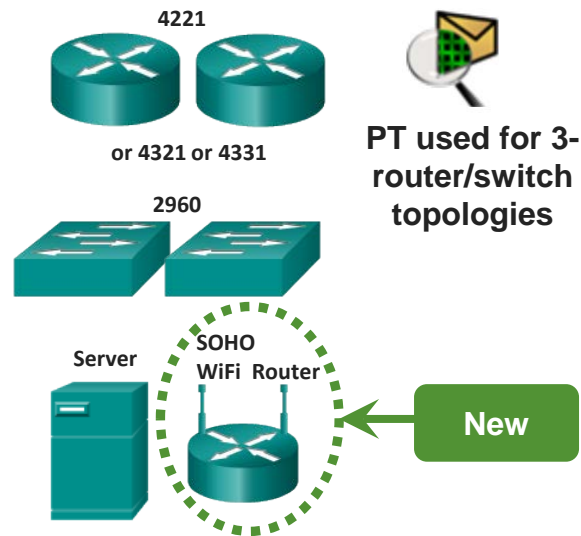


CCNA 6.0 vs 7.0 – Lab Equipment



For CCNA 7.0:

- Serial ports not required
- Packet Tracer 7.3.0 or higher required



PT used for 3-router/switch topologies



SOHO Wi-Fi Router is Back in CCNA 7.0



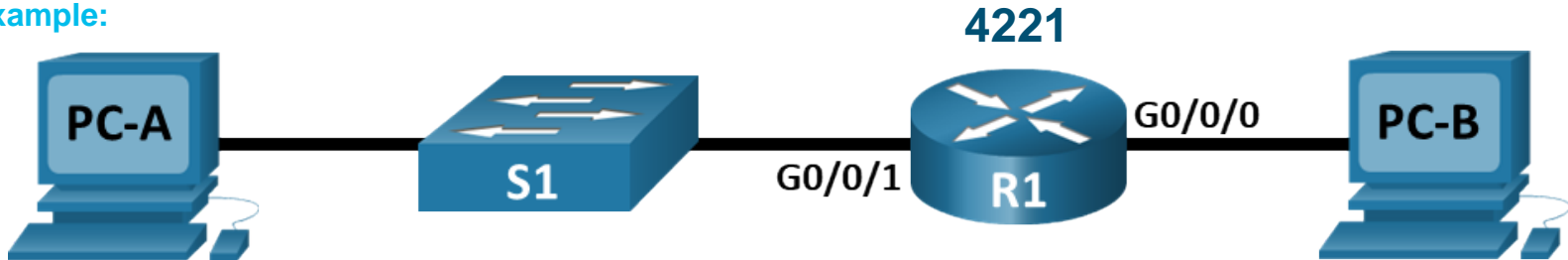
- 1 wireless router (generic brand) with WPA2 support
- Configure a Home Network with Wireless
- Configure WLAN with WPA2 Encryption
- GUI



Can I Teach CCNA v7 with 1941/2901 Routers?

- Yes, you can use the 1941/2901 Routers, but please note:
 - CCNA 7.0 Hands-on labs and Skills Assessments (SA) were written using the Cisco 4221 routers
 - Some modifications for router interface names will be required
 - Most CCNA 7.0 commands should work, but full regression testing for the 1941 and 2901 was not done

Example:





1941/2901 – Interface names G0/0 & G0/1



Network Device Differences Videos

- Curriculum team created 2 videos available to students and instructors about Network Device Differences – mostly available ports
- Available in the IPD Week course on the CCNA 7.0 page for instructors
- Student access – CCNA: ITN Module 10 – 10.4.1 and 10.4.2

TOPICS IN CCNA 1: Introduction to Networks v7.0 (ITN)			
Topic	Session	Recording	Presentation
Network Devices These videos are included in ITNv7 Chapter 10. Posted here for your convenience.	Network Device Differences Part 1 Overview		N/A
	Network Device Differences Part 2 Configuration		N/A

10 – Basic Router Configuration

10.4 – Module Practice and Quiz

10.4.1 – Video – Network Device Differences: Part 1
Contains: Text, Videos

10.4.2 – Video – Network Device Differences: Part 2
Contains: Text, Videos



CCNA 7.0 Equipment List – ISR4K IOS-XE Image

- Updated equipment list defines IOS-XE image requirements:

Equipment List (Option 1)			
The Cisco 4221 router shown in Option 1 should be ordered with IOS-XE Image with Payload Encryption: e.g. SISR4200UK9-xxx (select a current version for xxx), Cisco ISR 4200 Series IOS XE Universal			
Qty	Product Number	Description	Notes
2	ISR4221/K9	Cisco ISR 4221 (2GE, 2NIM, 8G FLASH, 4G DRAM,IPB) See note above regarding IOS-XE image.	1,2

- Cisco Commerce order tool has 3 tabs for IOS-XE options for ISR4k. First tab is for SD-WAN and should NOT be selected as this is not needed for labs and requires feature license. Second tab includes K9 images that are applicable.

Logistics & Timing





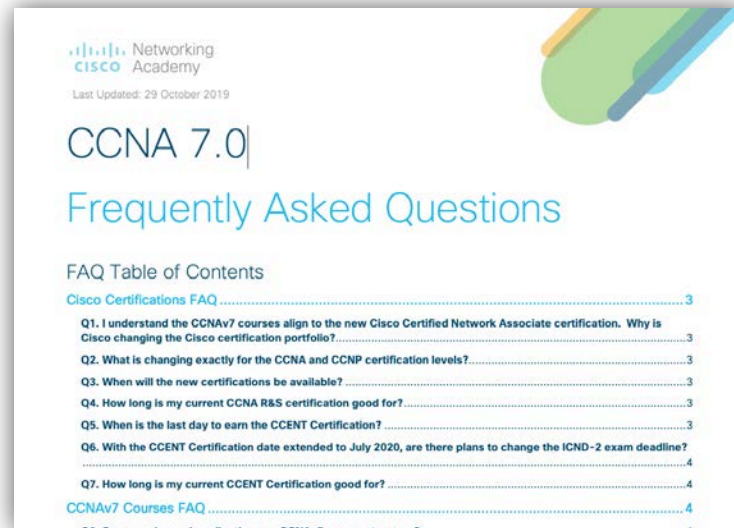
CCNA 7.0 Instructor Qualification Mapping

CCNA R&S 6 Course Current Qualification(s)	CCNA 7 Course Qualification(s) Earned	Materials to Review*
CCNA 1 (Intro to Networks)	CCNA 1 (Intro to Networks)	No additional
CCNA 1 (Intro to Networks) CCNA 2 (Routing & Switching Essentials)	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials)	CCNA 2 (SRWE) 7
CCNA 1 (Intro to Networks) CCNA 2 (Routing & Switching Essentials) CCNA 3 (Scaling Networks)	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials) CCNA 3 (Enterprise Networking, Security, and Automation)	CCNA3 (ENSA) 7 + Bridging Course
CCNA 1 (Intro to Networks) CCNA 2 (Routing & Switching Essentials) CCNA 3 (Scaling Networks) CCNA 4 (Connecting Networks)	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials) CCNA 3 (Enterprise Networking, Security, and Automation)	Bridging Course
CCNA 2 (Routing & Switching Essentials)	CCNA 2 (Switching, Routing, and Wireless Essentials)	CCNA2 (SRWE) 7
CCNA 3 (Scaling Networks)	CCNA 3 (Enterprise Networking, Security, and Automation)	CCNA3 (ENSA) 7
CCNA 4 (Connecting Networks)	CCNA 3 (Enterprise Networking, Security, and Automation)	CCNA3 (ENSA) 7



CCNA 7.0 Course Resources

- Scope and Sequence
- Release Notes
- Instructor Planning Guides (includes Instructor PPTs)
- Instructor Lab Source Files
- Instructor Packet Tracer Source Files
- Packet Tracer Activity Source Files
- Student Lab Source Files
- Student Packet Tracer Source Files
- Exam Design Documents
- PTSA Design Documents



Access Course Resource Pages through NetAcad.com

<https://www.netacad.com/portal/resources/course-resources/ccna-itn>

<https://www.netacad.com/portal/resources/course-resources/ccna-srwe>

<https://www.netacad.com/portal/resources/course-resources/ccna-ensa>

<https://www.netacad.com/portal/resources/course-resources/ccna-bridging>

