

CCNAv7

ENSA Bridging Course Scope and Sequence

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Target Audience

The Cisco Networking Academy® CCNAv7 Enterprise Networking, Security, and Automation (ENSA) Bridging course is designed for students who have or are currently taking CCNAv6 and will be taking the Cisco Certified Network Associate v2.0 (CCNA 200-301) Certification Exam. This course covers new content not covered in CCNAv6 in the form of three modules: Network Security Concepts, VPN and IPsec Concepts, and Network Automation. These modules provide learners extensive opportunities for hands-on practical experience and career skills development.

The curriculum is appropriate for learners at many education levels and types of institutions, including high schools, secondary schools, universities, colleges, career and technical schools, and community centers.

Prerequisites

Students are required to have successfully completed the CCNAv6 Scaling Networks course prior to beginning the ENSA Bridging course. Learners are also expected to have the following skills:

- High school reading level.
- Basic computer literacy
- Basic PC operating system navigation skills
- Basic internet usage skills

CCNAv7 Curriculum Description

In this curriculum, Cisco Networking Academy™ participants develop workforce readiness skills and build a foundation for success in networking-related careers and degree programs. With the support of video and rich interactive media, participants learn, apply and practice CCNA knowledge and skills through a series of in-depth hands-on experiences and simulated activities that reinforce their learning.

CCNAv7 SRWE Bridging Course includes the following features:

- Each offering is comprised of multiple modules. Each module is comprised of topics.
- Modules emphasize critical thinking, problem solving, collaboration, and the practical application of skills.
- Each topic contains a Check Your Understanding interactive quiz, or some other way to assess understanding, such as a lab or a Packet Tracer. These topic-level assessments are designed to tell learners if they have a good grasp of the topic content, or if they need to review before continuing. Learners can ensure their level of understanding well before taking a graded quiz or exam. Check Your Understanding quizzes do not affect the learner's overall grade.
- Students learn the basics of routing, switching, and advanced technologies to prepare for the Cisco CCNA exam, networking-related degree programs, and entry-level networking careers.
- The language used to describe networking concepts is designed to be easily understood by learners at all levels and embedded interactive activities help reinforce comprehension.

- Assessments and practice activities are focused on specific competencies to increase retention and provide flexibility in the learning path.
- Multimedia learning tools, including videos, games, and quizzes, address a variety of learning styles and help stimulate learning and promote increased knowledge retention.
- Hands-on labs and Cisco® Packet Tracer simulation-based learning activities help students develop critical thinking and complex problem-solving skills.
- Embedded assessments provide immediate feedback to support the evaluation of knowledge and acquired skills.
- Cisco Packet Tracer activities are designed for use with the latest version of Packet Tracer.

Lab Equipment Requirements

Current designs for lab topologies leverage equipment used in previous CCNAv6 and include options to utilize a 2 router + 2 switch + 1 wireless router physical equipment bundle described below. Labs with more complex topologies will rely on PT as a complementary environment to be used in addition to the physical labs. Detailed equipment information, including descriptions and part numbers for the equipment used in previous CCNAv6 is available in the CCNA Equipment List, which is located on the Cisco NetAcad [Equipment Information](https://www.netacad.com/portal/resources/equipment-information) site (<https://www.netacad.com/portal/resources/equipment-information>).

Baseline Equipment Bundle:

- 2 x ISR4221/K9 Routers
- 2 x WS-C2960+24TC-L Catalyst switches
- 1 wireless router (generic brand) with WPA2 support
- Ethernet patch cables
- PCs - minimum system requirements
 - CPU: Intel Pentium 4, 2.53 GHz or equivalent •
 - OS: Microsoft Windows 7, Microsoft Windows 8.1, Microsoft Windows 10, Ubuntu 14.04 LTS, macOS High Sierra and Mojave •
 - RAM: 4 GB
 - Storage: 500 MB of free disk space
 - Display resolution: 1024 x 768
 - Language fonts supporting Unicode encoding (if viewing in languages other than English)
 - Latest video card drivers and operating system updates
- Internet connection for lab and study PCs
- Optional equipment for connecting to a WLAN
 - 1 printer or integrated printer/scanner/copier for the class to share
 - Smartphones and tablets are desirable for use with the labs

Software:

- Cisco IOS versions:
 - Routers: Version 15.0 or higher, IP Base feature set.
 - Switches: Version 15.0 or higher, lanbaseK9 feature set.
- Packet Tracer v7.3
- Open-source server software:
 - For various services and protocols, such as Telnet, SSH, HTTP, DHCP, FTP, TFTP, etc.
- Tera Term source SSH client software for lab PCs.
- Oracle VirtualBox, most recent version.
- Wireshark version 2.5 or higher.

CCNAv7 ENSA Bridging Course Outline

This bridging course describes the architectures and considerations related to securing enterprise networks. It also introduces automation concepts that support the digitalization of networks. Learners 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.

Listed below are the current set of modules and their associated competencies outlined for this course. Each module is an integrated unit of learning that consists of content, activities and assessments that target a specific set of competencies. The size of the module will depend on the depth of knowledge and skill needed to master the competency. Some modules are considered foundational, in that the artifacts presented, while not assessed, enable learning of concepts that are covered on the CCNA certification exam.

CCNAv7 ENSA Bridging Course Outline

CCNAv7: ENSA Bridging		
Module	Topic	Objective
Network Security Concepts		Explain how vulnerabilities, threats, and exploits can be mitigated to enhance network security.
	Current State of Cybersecurity	Describe the current state of cybersecurity and vectors of data loss.
	Threat Actors	Describe the threat actors who exploit networks.
	Threat Actor Tools	Describe tools used by threat actors to exploit networks.
	Malware	Describe malware types.
	Common Network Attacks	Describe common network attacks.
	IP Vulnerabilities and Threats	Explain how IP vulnerabilities are exploited by threat actors.
	TCP and UDP Vulnerabilities	Explain how TCP and UDP vulnerabilities are exploited by threat actors.
	IP Services	Explain how IP services are exploited by threat actors.
	Network Security Best Practices	Describe best practices for protecting a network.
	Cryptography	Describe common cryptographic processes used to protect data in transit.
Module	Topic	Objective
VPN and IPsec Concepts		Explain how VPNs and IPsec secure site-to-site and remote access connectivity.
	VPN Technology	Describe benefits of VPN technology.
	Types of VPNs	Describe different types of VPNs
	IPsec	Explain how the IPsec framework is used to secure network traffic.

Module	Topic	Objective
Network Automation		Explain how network automation is enabled through RESTful APIs and configuration management tools.
	Automation Overview	Describe automation.
	Data Formats	Compare JSON, YAML, and XML data formats.
	APIs	Explain how APIs enable computer to computer communications.
	REST	Explain how REST enables computer to computer communications.
	Configuration Management	Compare the configuration management tools Puppet, Chef, Ansible, and SaltStack
	IBN and Cisco DNA Center	Explain how Cisco DNA center enables intent-based networking.