

# Network Security 1.0

## Product Overview

April 2021

[NetAcad.com](https://www.netacad.com)



# Security is #1 Concern for CEOs – Here's Why



**Sophistication, stealth, and frequency of threats  
will continue to increase**



**58 days** median time from  
internal data breach to  
discovery <sup>2</sup>



**186 days** median time from  
external breach to discovery <sup>2</sup>



**\$3.92M** average cost of a  
breach <sup>3</sup>

2. Source: Mandiant M – Trend Report, 2018

3. Source: Ponemon Institute: Cost of a Data Breach Study, 2019

# Network Security 1.0 Course



# Network Security

## Course Overview

This course introduces the core security concepts and skills needed to configure and troubleshoot computer networks and help ensure the integrity of devices and data.

## Benefits

Gain practical, hands-on skills to design, implement, and manage network security systems and ensure their integrity.

## Prepare for Careers

- ✓ Build expertise in network security and data protection
- ✓ Develop skills for entry-level network security specialist roles
- ✓ Gain industry in-demand skills aligned with the National Institute for Standards and Technology (NIST) Cybersecurity Framework

## Course Details

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

**Estimated Time to Completion:** 70 hours

**Recommended Preparation:** Basic understanding of computer networks (CCNA: Introduction to Networks and CCNA: Switching, Routing, and Wireless Essentials, or equivalent)

**Course Delivery:** Instructor-led

### Learning Component Highlights:

- ✓ 22 modules and 23 practice labs
- ✓ 22 Cisco Packet Tracer activities
- ✓ 87+ interactive activities, videos, and quizzes
- ✓ 1 final exam

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

**Recommended Next Course:**  
CyberOps Associate, IoT Security



Cybersecurity



## Requirements & Resources

- **ASC Alignment Required:** Yes
- **Instructor Training Required:** Yes
- **Physical Equipment Required:** Yes
- **Discount Availability:** Not Applicable

Quick Links

[Course Page](#)

[Course Demos](#)

(Available for select courses)

[List of All Courses](#)

(Includes language availability)



Hands-on practice with  
Cisco Packet Tracer

# Interactive & Engaging!

Enhanced course  
design



Valuable for many  
types of tech jobs

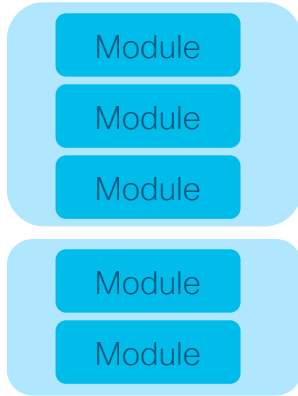


Improved  
Outcomes



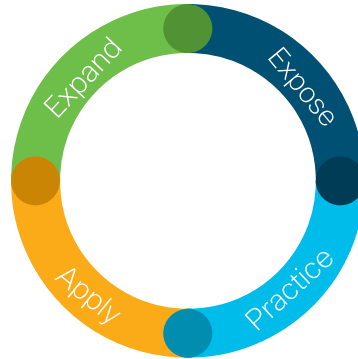


# Enhanced Course Design



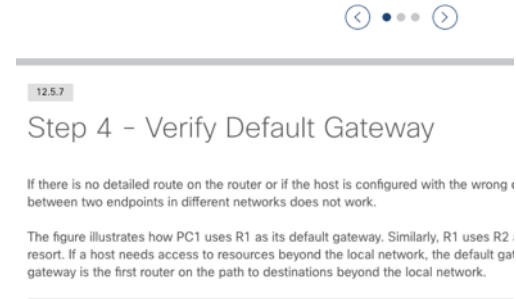
## Modular Design

- ✓ Self-contained units
- ✓ Targeted learning of skills



## Learning Effectiveness

- ✓ Better student engagement
- ✓ Designed for skills progression



## User Experience

- ✓ Improved student view and navigation
- ✓ Easier instructor content management



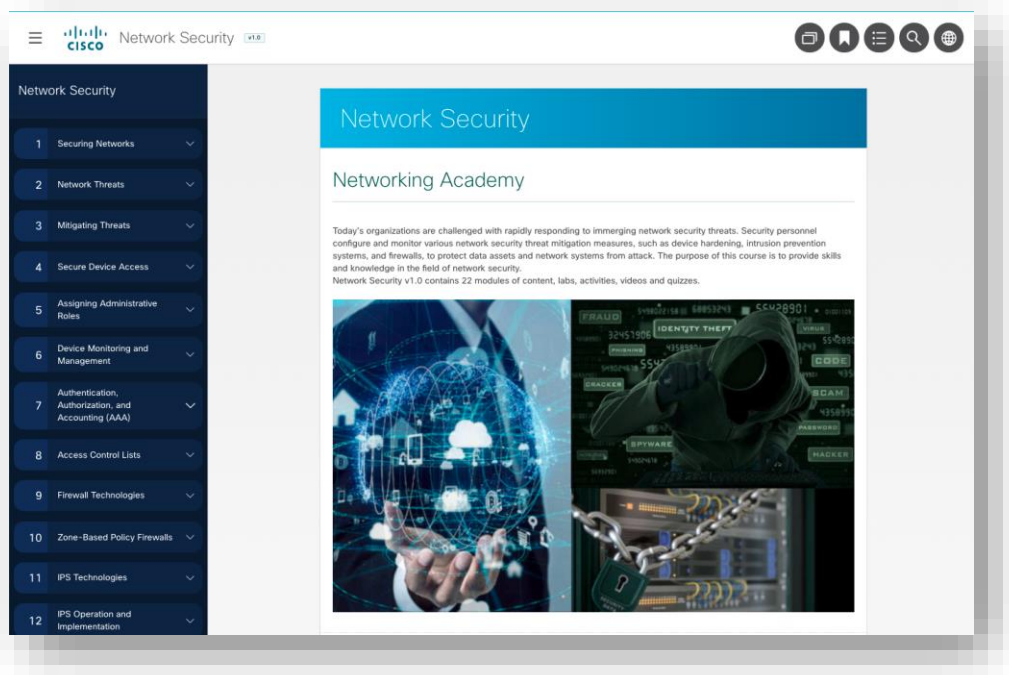
# Enhanced Course Design

## 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.





# Enhanced Course Design

## Significant enhancements to make this course highly interactive!

Engage students with videos, practice labs, quizzes, interactive activities, and more.

Including:

- ✓ **20 Videos!**
- ✓ 26 Check Your Understanding
- ✓ 22 Modules Quizzes
- ✓ **25 Labs!**
- ✓ 22 Packet Tracer Activities



Take advantage of the new video content. Students can watch or re-watch at their own pace, and instructors can up-level your interactions with students.





# Enhanced Course Design

## New Assessment Options

Now offering additional features for instructors to deliver a more customized and deeper experience.

### Students take more ownership of their learning

- ✓ Check Your Understanding self-assessments
- ✓ Module Quizzes

### Instructors have more control over exams

- ✓ 8 Instructor-Activated Module Group Exams
- ✓ 1 Instructor-Activated, **Secured, Dynamic Final Exam**
- ✓ 1 Instructor-Activated **Packet Tracer Skills Assessment**
- ✓ 1 **Skills Exams**



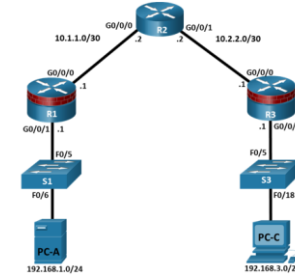
# Enhanced Course Design

## Better Practice Labs

- ✓ Labs feature a mix of Packet Tracer (PT), Virtual Machine, and physical equipment to reinforce learning
- ✓ Long labs are now divided up for better engagement
- ✓ Equipment-specific information is moved into the labs for just-in-time learning
- ✓ Added more PT activities
- ✓ Refreshed lab content to address out-of-date products and processes (removed AnyConnect lab and made ASDM optional)



Lab - Configure Local AAA Authentication Topology



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway	Switch Port
R1	G0/0/0	10.1.1.1	255.255.255.252	N/A	N/A
	G0/0/1	192.168.1.1	255.255.255.0	N/A	S1 F0/5

**Addressing Table**

Device	Interface	IP Address	Subnet Mask	Default
R1	G0/0	209.165.200.225	255.255.255.248	N/A
	S0/0/0 (DCE)	10.1.1.1	255.255.255.252	N/A
R2	S0/0/0	10.1.1.2	255.255.255.252	N/A
	S0/0/1 (DCE)	10.2.2.2	255.255.255.252	N/A
R3	G0/1	172.16.3.1	255.255.255.0	N/A
	S0/0/1	10.2.2.1	255.255.255.252	N/A
ASA	G1/1	209.165.200.226	255.255.255.248	N/A
	G1/2	192.168.1.1	255.255.255.0	N/A
	G1/3	192.168.2.1	255.255.255.0	N/A
DMZ Server	NIC	192.168.2.3	255.255.255.0	192.168.1.1
PC-B	NIC	192.168.1.3	255.255.255.0	192.168.1.1
PC-C	NIC	172.16.3.3	255.255.255.0	172.16.3.1

**Objectives**

- Verify connectivity and explore the ASA
- Configure basic ASA settings and interface security levels using CLI
- Configure routing, address translation, and inspection policy using CLI
- Configure DHCP, AAA, and SSH
- Configure a DMZ, Static NAT, and ACLs



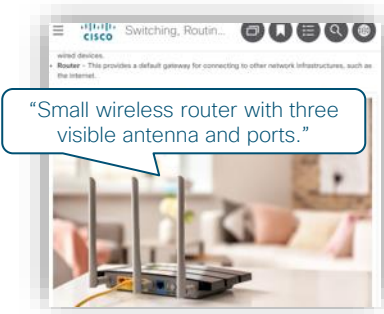
# Enhanced Course Design

## 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



# Valuable for many types of tech jobs

## Gain critical security skills



- Network security impacts all industries: healthcare, food, transportation, smart cities, water, energy, and many more.
- This course teaches students the methods and tools of modern network security applied to IT and network operations, preparing them for entry-level network security positions.
- The Network Security course complements CCNA, CyberOps Associate, IoT Security, or DevNet Associate courses. Students can pursue a career in security and broaden their networking or software skills.

# NetAcad Career Courses align to NIST Framework

Builds upon introductory courses:

**Introduction to Cybersecurity**  
**Cybersecurity Essentials**

## CyberOps Associate

- Detecting Intrusions
- Monitoring, analyzing
- First response



## IoT Security

- Discovering Vulnerabilities
- Modeling Risk
- Suggest mitigations

## Network Security

- Preventing Intrusions
- Hardening systems
- Securing, Implementing security policies

National Institute of Standards & Technology  
(NIST) Cybersecurity Framework Functions (v1.1)  
[www.nist.gov/cyberframework](https://www.nist.gov/cyberframework)



# Gain a solid network security understanding

Module		Module Group Assessments
Module 1	Securing Networks	Securing Networks
Module 2	Network Threats	
Module 3	Mitigating Threats	
Module 4	Secure Device Access	
Module 5	Assign Administrative Roles	Monitoring and Managing Devices
Module 6	Device Monitoring and Management	
Module 7	Authentication, Authorization, and Accounting (AAA)	
Module 8	Access Control Lists	ACLs and Firewalls
Module 9	Firewall Technologies	
Module 10	Zone-Based Policy Firewalls	
Module 11	IPS Technologies	Intrusion Prevention
Module 12	IPS Operation and Implementation	
Module 13	Endpoint Security	Layer 2 and Endpoint Security
Module 14	Layer 2 Security Considerations	
Module 15	Cryptographic Services	Cryptography
Module 16	Basic Integrity and Authenticity	
Module 17	Public Key Cryptography	
Module 18	VPNs	VPNs
Module 19	Implement Site-to-Site IPsec VPNs with CLI	
Module 20	Introduction to the ASA	ASA
Module 21	ASA Firewall Configuration	
Module 22	Network Security Testing	

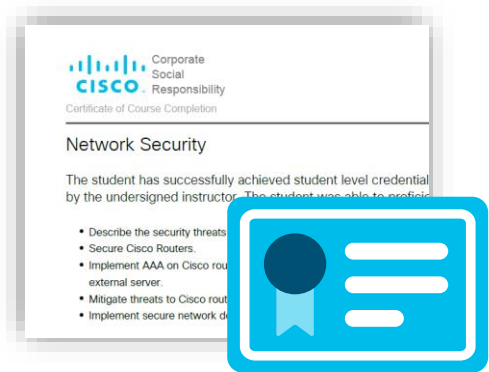


# Achievements



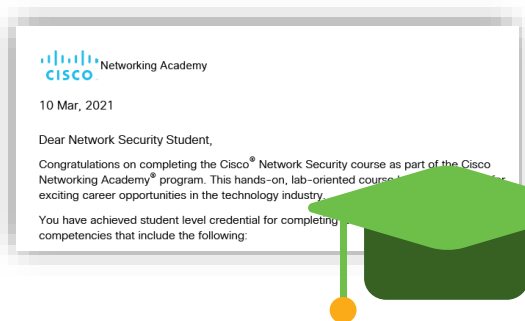
## Digital Badge

- ✓ Verified by Cisco
- ✓ Proudly display on any online platform
- ✓ Demonstrates student skills and enhances their professional brand



## Certificate of Completion

- ✓ Students earn a certificate upon completing the course
- ✓ They can add their coursework to LinkedIn for potential job opportunities



## Letter of Merit

- ✓ Signed by Cisco CEO, Chuck Robbins



# Improved Outcomes

## Assessments to guide learning at strategic points



### Formative Assessments

- Check Your Understanding (multiple per module)
- Module Quizzes
- Interactive Activities
- Syntax Checkers



### Summative Assessments

- Module Group Exams
- Practice Exam
- Packet Tracer Skills Assessment
- Secured, Dynamic Final Exam
- Physical Equipment Skills Assessment





# 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](#)

[Configure IP Addressing](#)

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.

☐ 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)

[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
- 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

**English FormA 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.

Match the situation with the appropriate use of network media.

backbone cabling in an enterprise
guest access in a coffee shop
horizontal cabling structure
meeting rooms in a hospital
desktop PCs in an enterprise office
long-haul networks



# 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

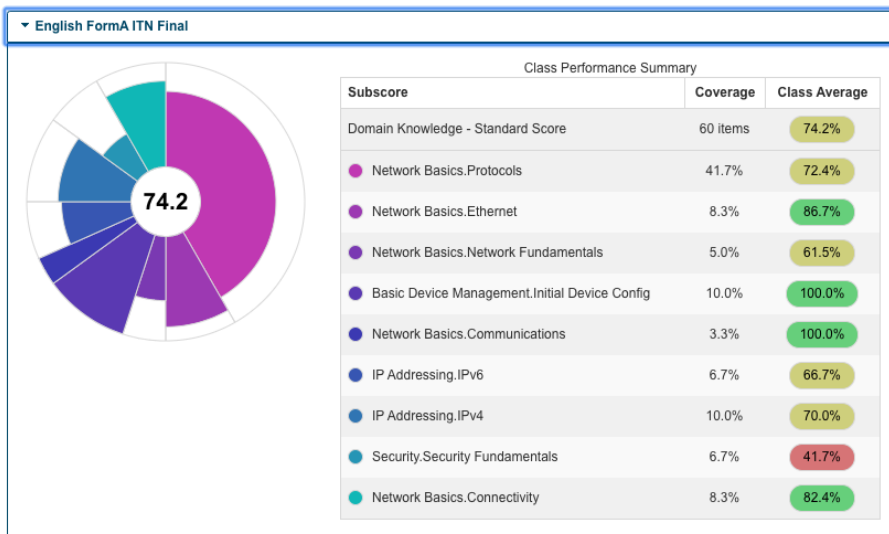
### Domain Level Reporting

- 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



Lab Equipment



# Network Security 1.0 Labs – Designed for just-in-time learning

---

**Same equipment as CCNA.** We've removed the additional equipment requirements. If you're teaching CCNA, you're ready to go!



- ✓ Information about equipment & configuration is directly in the labs – available right when your students need it
- ✓ Streamlined to remove outdated products and processes
- ✓ New virtual machine and Packet Tracer labs

Each module contains some way to practice with real IT equipment, Packet Tracer, or virtual machines

# Equipment Requirements



## Lab Bundle Requirements

- 3 Cisco ISR 4221 SEC Bundle with Security License
- 2 Cisco Catalyst 2960 Plus 24 10/100 + 2T/SFP LAN Base
- 1 Cisco ASA 5506-X with FirePOWER services, 8GE, AC, 3DES/AES (Optional)
- Console cables
- Assorted Ethernet cables.

## Baseline Equipment Bundle

- PC – minimum system requirements
  - CPU: Intel Pentium 4, 2.53 GHz or equivalent.
  - OS: Microsoft Windows, Linux, or macOS
  - RAM: 8 GB
  - Storage: 20GB 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
- PC – software requirements
  - Cisco Packet Tracer v 8.0 or higher
  - Latest stable version of Wireshark
  - SSH client software, such as PuTTY or Tera Term, for lab PCs.

# Logistics & Timing








# Network Security Course Resources

- Scope and Sequence
- Release Notes
- Frequently Asked Questions
- Instructor Lab Source Files
- Instructor Packet Tracer Source Files
- Student /Instructor Packet Tracer Activity Source Files
- Student Lab Source File
- And more...



Networking  
Cisco Academy

Last Updated: 18 March 2021

## Network Security 1.0

### Frequently Asked Questions

FAQ Table of Contents

Network Security Course FAQ .....	2
Q1. What types of students may be interested in the Cisco Networking Academy® Network Security course? .....	2
Q2. Are there any prerequisites for Network Security? .....	2
Q3. What are the main elements of the Network Security curriculum? .....	2
Q4. Is the Network Security course available in languages other than English? .....	2
Q5. Where can I find presentations for use in my classroom? .....	2
Cisco Packet Tracer FAQ .....	2
Q6. What is the minimum Cisco Packet Tracer version to support the Network Security curriculum? .....	2
Q7. Can Packet Tracer be used to replace lab bundles for the Network Security course? .....	3
Certifications FAQ .....	3
Q8. Does Network Security prepare students for a Cisco certification exam? .....	3
Lab and Equipment FAQ .....	3
Q9. What are the equipment requirements for Network Security labs? .....	3
Q10. What IOS version is the minimum requirement for the Network Security course? .....	3

**Access Course Resource Pages through NetAcad.com**

<https://www.netacad.com/portal/resources/course-resources/network-security>



# CCNA Security End of Life

Course	Language	Last Class Start Date
	English	March 31, 2022
CCNA Security	We are not announcing end-of-life dates for <u>translated languages</u> at this time.	

# Instructor Training



# Instructor Training Requirements

## **Accreditation**

- Instructors must be accredited to teach the Network Security course.
- New instructors should contact their ITC for training courses.

## **For current CCNA Security instructors and instructor trainers**

- There are no new accreditation requirements to move from CCNA Security to Network Security. Your accreditation moves with you.
- We do recommend that you review some of the new materials before teaching, but that can be done on your time as needed.

