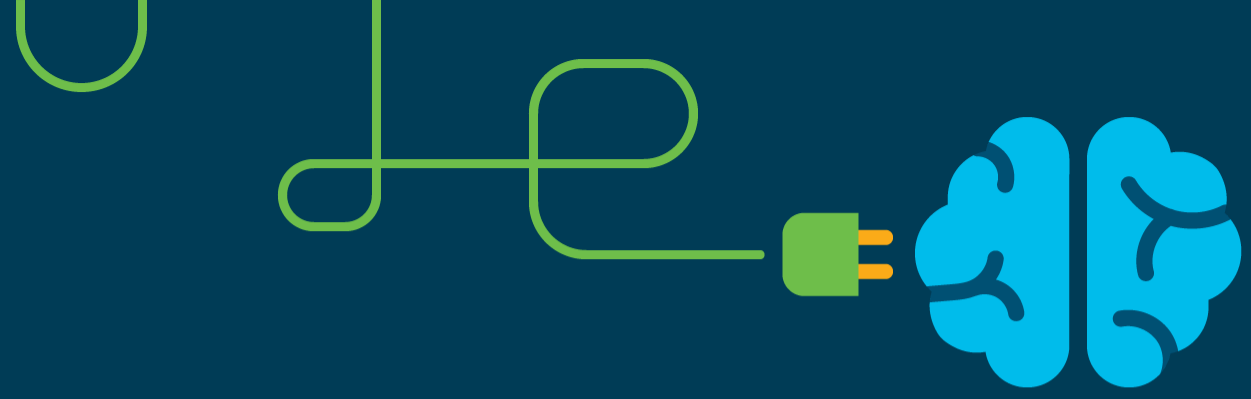
Networking Academy

CCNA 7.0



Networking Pathway

Worlds of networks, IT infrastructure and applications are no longer siloed but inseparable. Opening the door for truly amazing innovation. Networking Academy's CCNA courses have evolved to teach you the latest concepts.

Emerging Technologies Workshops (may be offered)
- Rest APIs
- Model-Driven Programmability

Pre-requisite knowledge
Recommended pre-requisite knowledge
Certification preparation
Digital badge earned

ITN - Introduction to Networks SRWE - Switching Routing & Wireless Essentials ENSA - Enterprise Networking, Security & Automation ENCOR - Enterprise Core Networking ENARSI - Enterprise Advanced Routing

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

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	
Module 8	Network Layer	**Communicating Between Networks**
Module 9	Address Resolution	
Module 10	Basic Router Configuration	
Module 11	IPv4 Addressing	**IP Addressing**
Module 12	IPv6 Addressing	
Module 13	ICMP	
Module 14	Transport Layer	**Network Application Communications**
Module 15	Application Layer	
Module 16	Network Security Fundamentals	**Building and Securing a Small Network**
Module 17	Build a Small Network	

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

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	

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

Accelerated Path to Job Readiness

Module Objectives

Enterprise Networking, Security, and Automation (ENSA)

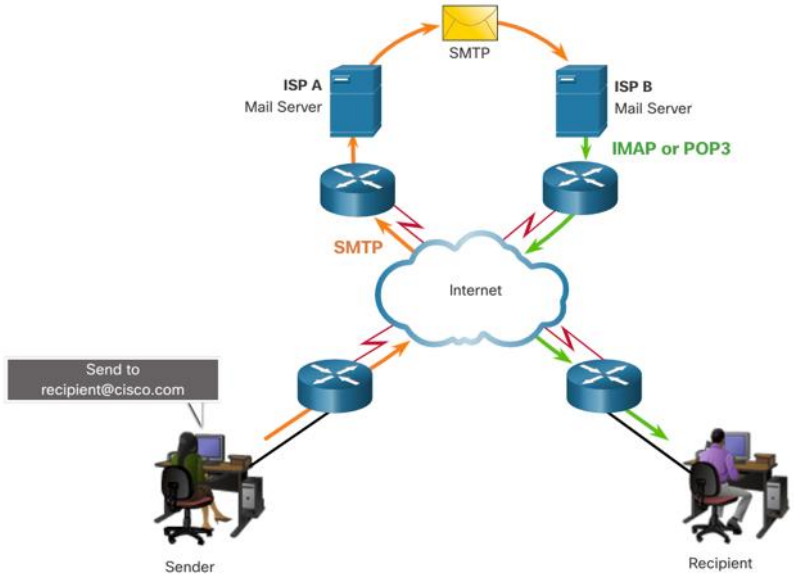
Module		Module Group Assessments
Module 1	Single-Area OSPFv2 Concepts	**OSPF Concepts and Configuration**
Module 2	Single-Area OSPFv2 Configuration	
Module 3	Network Security Concepts	**Network Security**
Module 4	ACLs Concepts	
Module 5	ACLS for IPv4 Configuration	
Module 6	NAT for IPv4	
Module 7	WAN 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	

Email Protocols

Email is a store-and-forward method of sending, storing, and retrieving electronic messages across a network. Email messages are stored in databases on mail servers. Email clients communicate with mail servers to send and receive email.

The email protocols used for operation are:

- Simple Mail Transfer Protocol (SMTP) – used to send mail.
- Post Office Protocol (POP) & IMAP – used for clients to receive mail.

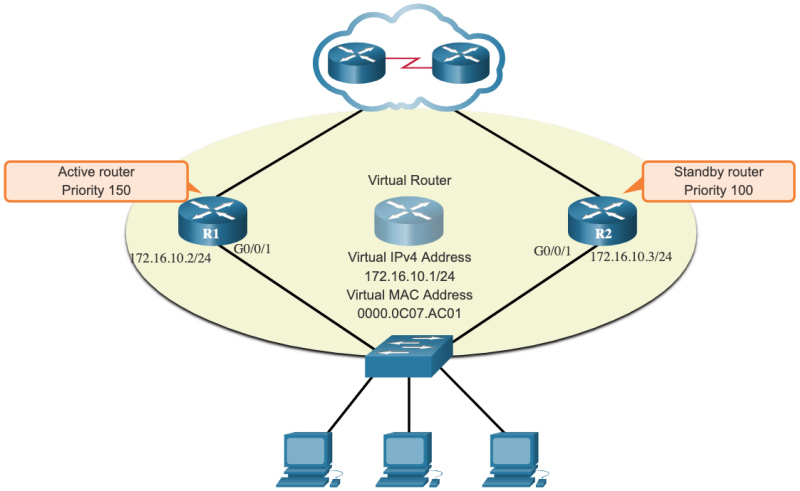


HSRP Priority and Preemption (Cont.)

By default, after a router becomes the active router, it will remain the active router even if another router comes online with a higher HSRP priority.

- To force a new HSRP election process to take place when a higher priority router comes online, preemption must be enabled using the **standby preempt** interface command. Preemption is the ability of an HSRP router to trigger the re-election process. With preemption enabled, a router that comes online with a higher HSRP priority will assume the role of the active router.
- Preemption only allows a router to become the active router if it has a higher priority. A router enabled for preemption, with equal priority but a higher IPv4 address will not preempt an active router. Refer to the topology in the figure.

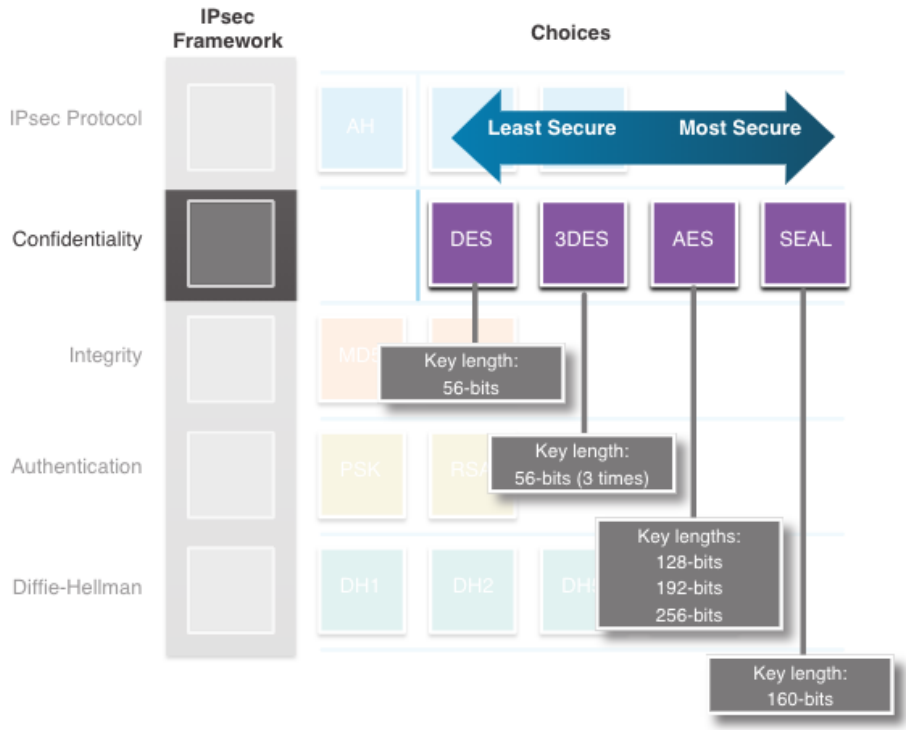
Note: With preemption disabled, the router that boots up first will become the active router if there are no other routers online during the election process.



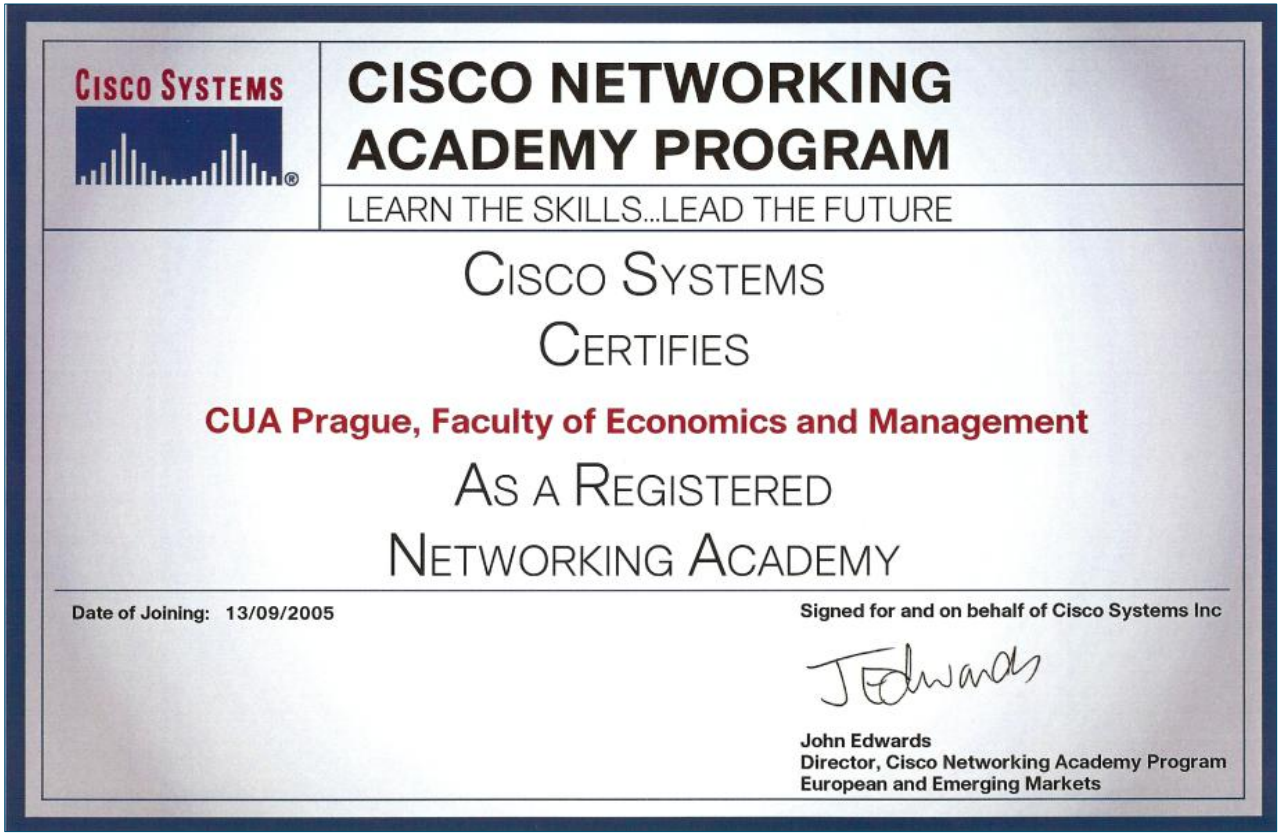
Confidentiality (Cont.)

The encryption algorithms highlighted in the figure are all symmetric key cryptosystems:

- DES uses a 56-bit key.
- 3DES uses three independent 56-bit encryption keys per 64-bit block.
- AES offers three different key lengths: 128 bits, 192 bits, and 256 bits.
- SEAL is a stream cipher, which means it encrypts data continuously rather than encrypting blocks of data. SEAL uses a 160-bit key.



Katedra informačních technologií PEF ČZU v Praze



CISCO SYSTEMS

CISCO NETWORKING ACADEMY PROGRAM

LEARN THE SKILLS...LEAD THE FUTURE

CISCO SYSTEMS
CERTIFIES

CUA Prague, Faculty of Economics and Management

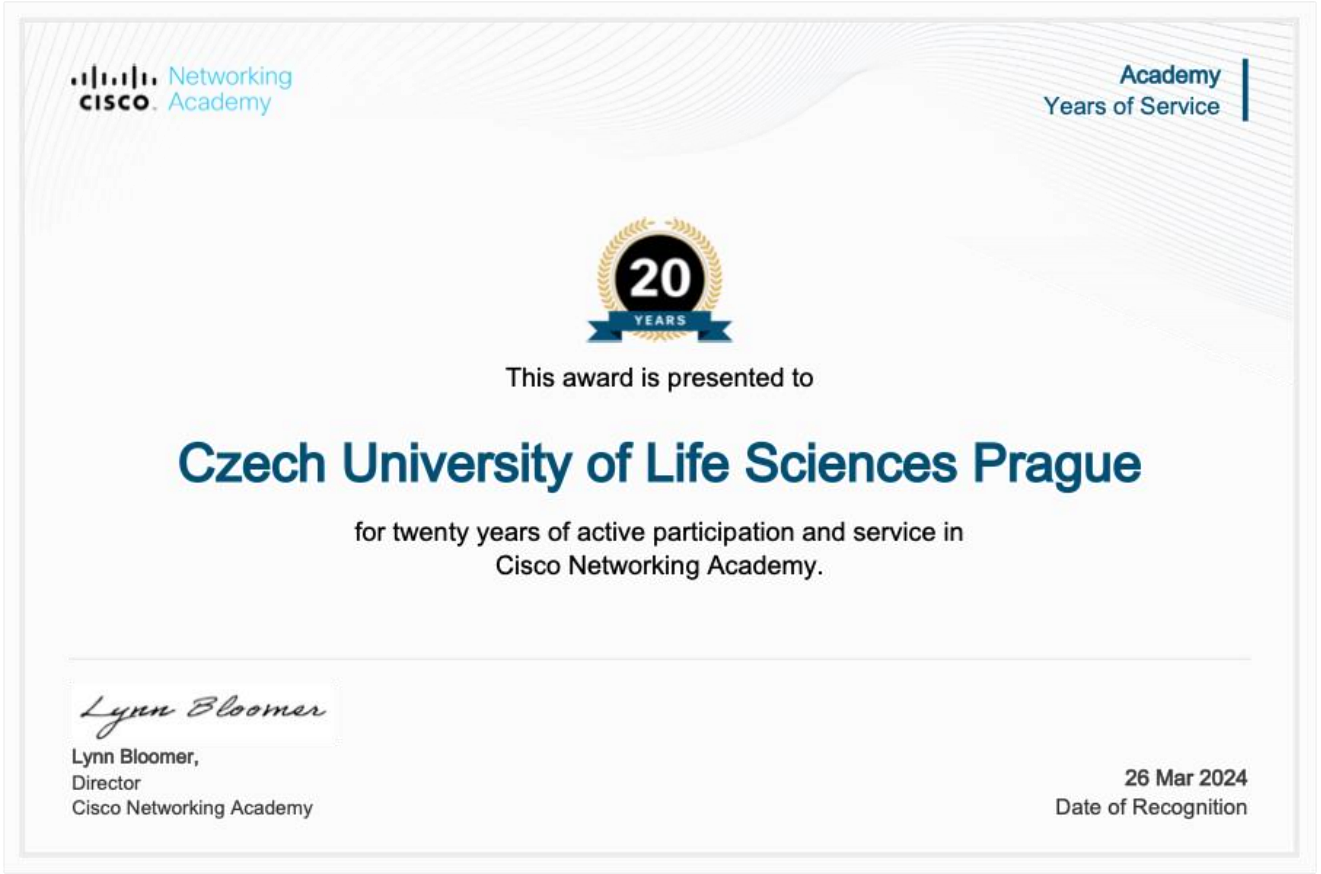
AS A REGISTERED
NETWORKING ACADEMY

Date of Joining: 13/09/2005

Signed for and on behalf of Cisco Systems Inc

John Edwards
Director, Cisco Networking Academy Program
European and Emerging Markets

Katedra informačních technologií PEF ČZU v Praze



Networking Academy

Academy
Years of Service

20 YEARS

This award is presented to

Czech University of Life Sciences Prague

for twenty years of active participation and service in
Cisco Networking Academy.

Lynn Bloomer

Lynn Bloomer,
Director
Cisco Networking Academy

26 Mar 2024
Date of Recognition

Instructor-led, Online self-paced

Networking Essentials

Learn basic networking concepts and skills you can put to use right away.

Intermediate

ZS 2025/26
0,- Kč
Self-kurz

Instructor-led

CCNA: Introduction to Networks

The first course in a 3-course CCNA series designed to prepare you for entry-level networking job

Intermediate

ZS 2025/26
3 630,- Kč

Instructor-led

CCNA: Switching, Routing, and Wireless Essentials

The second course in a 3-course CCNA series designed to prepare you for networking technician job

Intermediate

LS 2025/26
3 630,- Kč

Instructor-led

CCNA: Enterprise Networking, Security, and Automation

The third course in a 3-course CCNA series prepares you for networking analyst & engineering

Advanced

ZS 2026/27
3 630,- Kč

Kurzy jsou otevřeny při dostatečném počtu studentů.

CCNA: Introduction to Networks

- Kurz je určen primárně pro 1. ročník oboru InfoN (začátek v ZS) – prezenční/kombinované studium
- Výuka ZS: **pondělí 19:30 – specializovaná LVT PEF D326**, Packet Tracer, online v MS Teams
  *v případě velkého počtu zájemců bude otevřen **2. kurz ve středu 19:30, D326***
  (viz oficiální rozvrh 1. ročník InfoN)
- Přihlášky na webu KIT (https://kit.pef.czu.cz/zpravy-akce-prednasky/kurzy-cisco-v-zs-25-26/) **do 8.10. 2025**
- Předběžný seznam bude zveřejněn **9. 10. 2025** na přednášce Počítačové sítě (lze zde ještě upřesnit)
- Cena kurzu: **3 630,- Kč (cena včetně 1. termínu zkoušky a certifikátu o absolvování)**
  - v **i-com-unity z. s.** je pro zájemce z neakademické sféry cena jednoho kurzu **26 620,- Kč**
- Rozhoduje pořadí přihlášky a následně včasná úhrada
- **V případě dostatečného počtu zájemců o kurz budou následně zaslány údaje pro platbu**
- Zahájení kurzu: **pondělí 20. 10. 2025**
- Vyučující Ing. Jaromír Holec (Ing. Alexander Vasilenko, Ph.D., Ing. Jan Pinta)