# Networks and Media Lab– DMET602

## [Spring 2025]

### Course Introduction and Outline

Dr. Minar El-Aasser

minar.elaasser@guc.edu.eg

C4.317

# Why Cisco ?

- Cisco is the worldwide leader in networking that transforms how people connect, communicate, and collaborate.

- 85% of the global network traffics pass through cisco system.

- At its core, **Cisco** designs, builds, and sells networking technology. This hardware **is the** backbone that makes the Internet work. It's the modems, switches, routers, and data centers hidden behind the user interfaces of your computer, smartphone, and tablet. ... As the Internet evolves, so **does Cisco.**

- **Cisco Certified Network Associate (CCNA):** CCNA stands for Cisco certified network associate, it is the entry-level certification to enter in the executive certification of the computer networks field → A **Cisco CCNA certification** provides you with the knowledge and expertise to succeed in networking, even as technologies continue to evolve. The program teaches you to install, monitor, and troubleshoot the network infrastructure products that are at the very heart of the Internet of Things.

# Certification Levels

Entry

Associate

Specialist

Professional
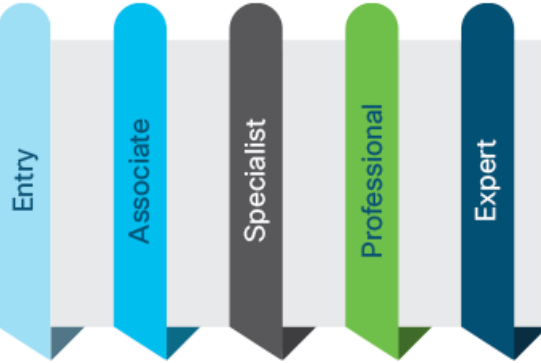
Expert

Building your IT Career with Cisco Certifications is more flexible and powerful than ever before. Whether you're just starting out at an entry level or progressing through our expert levels of certification, choose your technology path and advance your career today.

# Achieve your potential with Cisco Certifications

You have a goal, and Cisco Certifications get you there. Certifications get your foot in the door, put you on the road to success, and keep you learning for life. So, embrace today's dynamic technologies, find the IT job you want, and the rewarding career you dream about. It all begins with Cisco Certifications and tech learning shaped to you.

## Entry-level

Validate your skills and readiness for the field.

**Certification Requirements:**

**CCST**

**Required Exam:**

Cisco Certified Support Technician (CCST) Cybersecurity Exam 100-160 CCST

Cisco Certified Support Technician (CCST) Networking Exam 100-150 CCST

Cisco Certified Support Technician (CCST) IT Support Exam 100-140 CCST

**NEW: Cisco Certificate in Ethical Hacking**
Master essential offensive security skills to elevate your career in cybersecurity

## Associate

Master the essentials needed to launch a rewarding career.

**Certification Requirements:**

**CCNA**

200-301 CCNA

**Certification Requirements:**

**Cisco Certified DevNet Associate**

200-901 DEVASC

**Certification Requirements:**

**Cisco Certified CyberOps Associate***

200-201 CBROPS

## Professional

Customize your professional certification by choosing a technology track and concentration exam. This will help you develop specialized skills and boost your expertise.

**Certification Requirements:**

| **CCNP Enterprise** | **CCNP Service Provider** | **CCNP Data Center** | **CCNP Security** | **CCNP Collaboration** |
|---|---|---|---|---|
| **Core exam:** | **Core exam:** | **Core exam:** | **Core exam:** | **Core exam:** |
| 350-401 ENCOR | 350-501 SPCOR | 350-601 DCCOR | 350-701 SCOR | 350-801 CLCOR |
| **(Choose one) Concentration exam:** | **(Choose one) Concentration exam:** | **(Choose one) Concentration exam:** | **(Choose one) Concentration exam:** | **(Choose one) Concentration exam:** |
| 300-410 ENARSI | 300-510 SPRI | 300-610 DCID | 300-710 SNCF | 300-810 CLICA |
| 300-415 ENSDWI | 300-515 SPVI | 300-615 DCIT | 300-715 SISE | 300-815 CLACCM |
| 300-420 ENSLD | 300-535 SPAUTO | 300-620 DCACI | 300-720 SESA | 300-820 CLEI |
| 300-425 ENWLSD | 300-540 SPCNI | 300-630 DCACIA | 300-725 SWSA | 300-835 CLAUTO |
| 300-430 ENWLSI | | 300-635 DCAUTO | 300-730 SVPN | |
| 300-435 ENAUTO | | | 300-735 SAUTO | |
| 300-440 ENCC | | | 300-740 SCAZT | |
| 300-445 ENNA | | | 300-745 SDSI*** | |

Professional-level certifications each require 2 exams:

1 Core Exam + 1 Concentration Exam = **CCNP** Core exams in each CCNP technology track also serve as qualifying exams for CCIE lab exams.

**Certification Requirements:**

**Cisco Certified DevNet Professional**

**Core exam:**
350-901 DEVCOR

**(Choose one) Concentration exam:**

| | |
|---|---|
| 300-435 ENAUTO | 300-735 SAUTO |
| 300-535 SPAUTO | 300-835 CLAUTO |
| 300-635 DCAUTO | 300-910 DEVOPS |

**Certification Requirements:**

**Cisco Certified CyberOps Professional***

**Core exam:**
350-201 CBRCOR

**(Choose one) Concentration exam:**

300-215 CBRFIR
300-220 CBTHD

## Expert

CCIE certification is a highly-regarded achievement in the tech industry worldwide. It requires in-depth networking knowledge, practical experience, and passing a challenging exam.

**Certification Requirements:**

| **CCIE Enterprise Infrastructure** | **CCIE Enterprise Wireless** |
|---|---|
| 350-401 ENCOR + CCIE Enterprise Infrastructure lab | 350-401 ENCOR + CCIE Enterprise Wireless lab |
| **CCIE Service Provider** | **CCIE Data Center** |
| 350-501 SPCOR + CCIE Service Provider lab | 350-601 DCCOR + CCIE Data Center lab |
| **CCIE Security** | **CCIE Collaboration** |
| 350-701 SCOR + CCIE Security lab | 350-801 CLCOR + CCIE Collaboration lab |

**CCDE**

400-007 CCDE Written Exam + CCDE Practical Area of Expertise
· AI Infrastructure Technology**
· Large Scale Networks Technology
· On-Prem and Cloud Services Technology
· Workforce of Mobility Technology

**Certification Requirements:**

**Cisco Certified DevNet Expert**

350-901 DEVCOR + DevNet Expert lab

# 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)

**DMETW602**

- 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**

+

CISCO

# Course Objective and Outline

Empower the skills and strengthen the knowledge of the students about the practical aspects of computer networks, as well all expand their knowledge about advanced topics in networks

| | |
|---|---|
| 1 | **Introduction to Cisco packet tracer** |
| 2 | **Basic switch and router configurations** |
| 3 | **Switched networks and STP** |
| 4 | **VLANs** |
| 5 | **Subnetting and IPv6** |
| 6 | **Static and dynamic routing** |
| 7 | **Network appliances (DHCP and NAT)** |
| 8 | **DNS and application layer frameworks** |

# Course Activities

- **Total of 11 experiments**

- **Each week the lecture explains the theoretical concepts**

- **In the following week, the experiment is conducted in the lab**

- **Students answer oral questions during the lab**

- **A total of 4 quizzes and 4 practical tests evaluate the knowledge of the content**

# Grading Scheme

| Assessment | Weight |
|---|---|
| **Practical Tests** | **34%** |
| In-Labs | 33% |
| Quizzes (Best 3 out of 4) | 33% |

- **Note that: No Midterm or Final Exam**

# Lab Regulations

- Cross-attendance is not allowed

- If you have a critical reason that prevents you from attending the lab you have to inform your TA before your slot. If your excuse is accepted you will be assigned to a different slot.

- If you don't inform the TA before your slot, you get zero in the experiment and your attendance will not be counted

- No compensation is offered to any student who will miss his lab for any reason (except a force majeure) and no switching between slots is allowed.

- Arriving more than 15 mins late to a lab slot earns you zero and your attendance will not be counted

# Lab Team – Spring 2025

- **Dr. Minar El-Aasser**       C4.317   **minar.elaasser@guc.edu.eg**
- **Eng. Ahmad Helmy**          C7.220   **ahmad.helmy@guc.edu.eg**
- **Eng. Hana Sharabash**       C7.221   **hana.aly@guc.edu.eg**
- **Eng. Nourhan Ramadan**      C6.209   **nourhan.ibrahem@guc.edu.eg**

# THANK YOU!

Never Underestimate the Power of "Networking" !

www.linkedin.com/in/minar-el-aasser

minarelaasser

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minar.elaasser@guc.edu.com