# BMIT3084 Enterprise Networking

Cisco | Networking Academy®
Mind Wide Open™

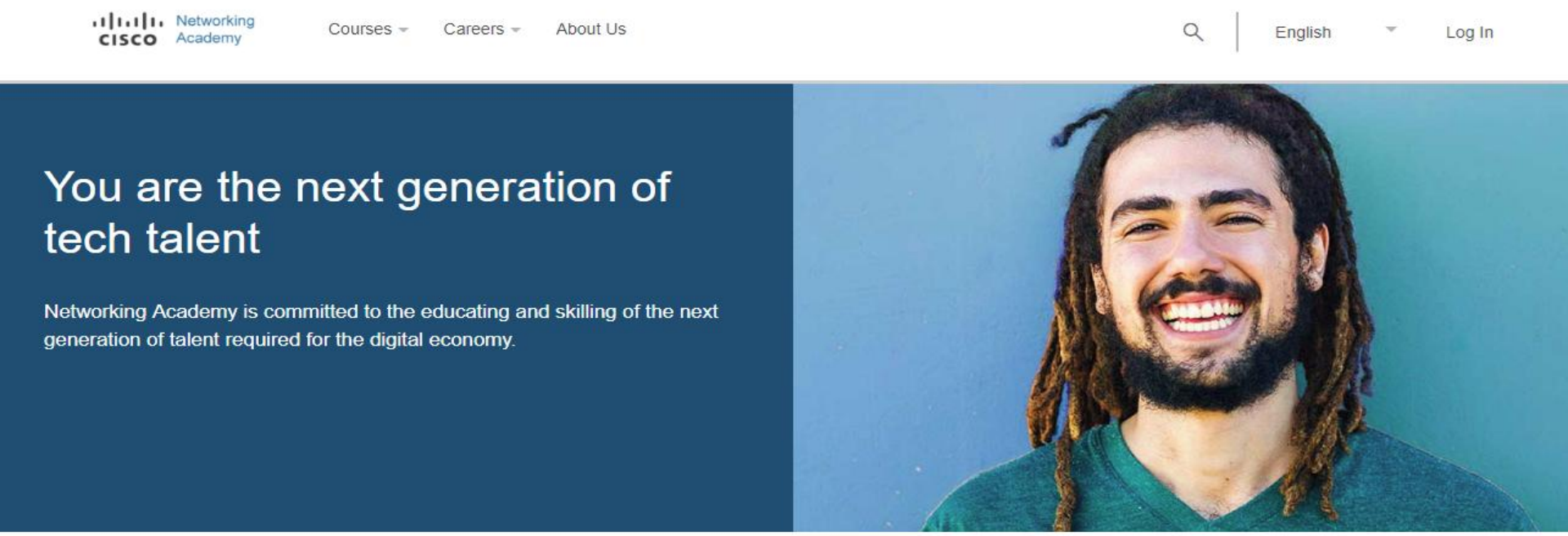
# Lecturer: Ms. Jessie Teoh Poh Lin
# Email: plteoh@tarc.edu.my

| | *Tutors* | Emails: |
|---|---|---|
| 1 | *Mr Tho Shih Foo* | *p2015@tarc.edu.my* |
| 2 | *Mr. Yogeswaran* | *p3473@tarc.edu.my* |

# Main Reference

- Cisco Networking Academy

  https://www.netacad.com/



# 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 |

New/significantly changed content

**Complementary Options**

**CCNP Enterprise (ENCOR, ENARSI)**

**or**

**CCNA Security / CCNA CyberOps**

**or**

**DevNet Associate**

**or**

**Python / ETWs**

**or lead with**

**IT Essentials**

| TAR UMT courses | Cisco Network Academy |
| --- | --- |
| AACS2034 Fundamental of Computer Networks | CCNA: Introduction to Networks |
| BMIT2164 Computer Networks (old)<br>or<br>BMIT2154 Switching and Routing Technologies | CCNA: Switching, Routing, and Wireless Essentials |
| BMIT3094 Advanced Computer Networks (old)<br>or<br>BMIT3084 Enterprise Networking | CCNA: Enterprise Networking, Security, and Automation |

# 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

## Submission of weekly exercises:

## 1. Tutorial Answers

## 2. Lab Practical (If students are unable to complete the Lab exercises by using equipment during practical classes, they are required to complete as homework using PT and upload to tutor's Google classroom.)

## 3. Packet Tracer files (Homework) upload to tutor's Google classroom

**Due date of Packet Tracer files submission (Check the due date set by respective tutor)**

# Coursework Assessment:

| Assessment Type | When / Venue | % |
|---|---|---|
| **Test**<br>**(Ch 1- Ch4)** | **Week 4** (1st hour) | **40%** |
| **Practical Assessment**<br>**Skill-Based Assessment(SBA)** (Packet Tracer)<br>**(Ch 1 – Ch8, Chp 10)** | **Week 6** (2nd hour) | **60%** |

# Coursework Assessment:

* *Example:*

| Assessment Type | Student A | Convert to | Student B | Convert to |
|---|---|---|---|---|
| Test (40%) | 50/100 | (50/100) * 40% =20% | 80/100 | (80/100) * 40% =32% |
| Practical Assessment (Skill-Based Assessment) (60%) | 50/100 | (50/100) * 60% =30% | 30/100 | (30/100) * 60% =18% |
| Total: | | 50% [Meet Min passing mark (50%) course work] | | 50% [Meet Min passing mark (50%) course work] |
| | | Pass coursework. | | Pass coursework. |

# Coursework Assessment:

* *Example:*

| Assessment Type | Student C | Convert to | Student D | Convert to |
|---|---|---|---|---|
| Test (40%) | 80/100 | (80/100) * 40% =32% | 80/100 | (80/100) * 40% =32% |
| Practical Assessment (Skill-Based Assessment) (60%) | 20/100 | (20/100) * 60% =12% | 10/100 | (10/100) * 60% =6% |
| Total: | | 44% [DO NOT Meet Min passing mark (50%) course work] | | 38% [DO NOT Meet Min passing mark (50%) course work] |
| | | ***Take a "make good sba" because fail coursework. Coursework mark range 40% - 49% is eligible for make good.*** | | *Not eligible for a "make good". Required to repeat the course.* |

Refer to Slide 14 for the eligibility to be given make good

# Coursework Assessment:

** Example:*

| Assessment Type | Student E | Convert to | Student F | Convert to |
|---|---|---|---|---|
| Test (40%) | 20/100 | (20/100) * 40% =8% | 20/100 | (20/100) * 40% =8% |
| Practical Assessment (Skill-Based Assessment) (60%) | 70/100 | (70/100) * 60% =42% | 50/100 | (50/100) * 60% =30% |
| Total: | | 50% [Meet Min passing mark (50%) course work] | | 38% [DO NOT Meet Min passing mark (50%) course work] |
| | | Pass coursework | | *Not eligible for a "make good". Required to repeat the course.* |

# Make Good Eligibility

- Students' coursework mark range from 40-49% are eligible for a make good test.

- **If coursework mark range is 40-49, make good using SBA or MTT is based on the following conditions:**

1. **Option 1: If MTT failed but SBA passed, make good using MTT.**
2. **Option 2: If SBA failed but MTT passed, make good using SBA.**
3. **Option 3: If both MTT and SBA fail, make good using SBA.**

| | Coursework | | Examination |
|---|---|---|---|
| Weightage | **60%** | | **40%** |
| Total | 100% | | 100% |
| **Test** | 40% | **Q1** | |
| **Practical Assessment (Skill-Based Assessment)** | 60% | **Q2** | 100% |
| | | **Q3** | |
| | | **Q4** | |

## 5.3 THRESHOLD

There shall be a threshold mark set for coursework and practical component and semester examinations.

Academic courses shall be 50/100 marks for final coursework / practical and 40/100 marks for final examination. For Co-curriculum courses, students shall pass with satisfactory performance.

Students shall be required to meet the threshold set for each of the components that contribute to the final mark of the course.

Students who failed coursework / practical in the first attempt shall be given an opportunity to make good the coursework / practical.

Students who failed a coursework / practical component after the make good attempt shall be required to repeat the course. Students who failed to meet the threshold for the semester examination marks shall fail the course even though the overall final mark is a pass mark and above (≥50 marks).

- Source: Policy Guideline Academic Regulation for Bachelor Programmes.pdf

# Module assessment and Online Final Exam

Log in to www.netacad.com

Seat Token based on the attendance list. Pre- registration will be held during your tutorial / practical session.