



# COMP6265

## Cisco Networking II

Session 2, In person-scheduled-weekday, North Ryde 2022

*School of Computing*

### Contents

---

|   |    |
|---|----|
| <a href="#"><u>General Information</u></a>            | 2  |
| <a href="#"><u>Learning Outcomes</u></a>              | 2  |
| <a href="#"><u>General Assessment Information</u></a> | 3  |
| <a href="#"><u>Assessment Tasks</u></a>               | 3  |
| <a href="#"><u>Delivery and Resources</u></a>         | 7  |
| <a href="#"><u>Unit Schedule</u></a>                  | 8  |
| <a href="#"><u>Policies and Procedures</u></a>        | 10 |

---

#### **Disclaimer**

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

## General Information

Unit convenor and teaching staff

Convenor and Lectuer

Damian Jurd

[damian.jurd@mq.edu.au](mailto:damian.jurd@mq.edu.au)

Lecturer

Frances Louise

[frances.louise@mq.edu.au](mailto:frances.louise@mq.edu.au)

Credit points

10

Prerequisites

COMP6250 and COMP6260

Corequisites

Co-badged status

Unit description

This unit is designed to impart practical skills in designing, configuring, installing, and troubleshooting computer internetworks using Cisco equipment such as routers and switches. It provides an integrated and comprehensive coverage of networking topics including: wireless local area networks, network security and services, network architecture and design, and automation while providing students opportunities for hands-on practical experience and career skills development. Using various assessment tasks, this unit also aims to enhance students' skills in critical thinking and problem solving.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

**ULO1:** Demonstrate a detailed knowledge of wireless LANs and design, implement and troubleshoot 802.11 Wireless LAN technologies

**ULO2:** Understand, design, implement and troubleshoot security services and technologies that underpin networks and systems.

**ULO3:** Understand and design core IP services.

**ULO4:** Analyze, design and implement network architectures

**ULO5:** Use network automation tools to configure, provisions, manage and test network devices.

**ULO6:** Collaborate and communicate with others in a professional setting.

**ULO7:** Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

## General Assessment Information

Late assessments are not accepted in this unit unless a Special Consideration has been submitted and approved.

## Assessment Tasks

| Name  | Weighting | Hurdle | Due                      |
|---|-----------|--------|--------------------------|
| <a href="#"><u>Weekly Practical Exercises</u></a> | 10%       | No     | Weekly                   |
| <a href="#"><u>Module Exams</u></a>               | 10%       | No     | Week 2, 4, 6, 11, and 13 |
| <a href="#"><u>Assignment 1</u></a>               | 10%       | No     | Week 6                   |
| <a href="#"><u>Lab Examination</u></a>            | 20%       | No     | Week 11                  |
| <a href="#"><u>Assignment 2</u></a>               | 20%       | No     | Week 12                  |
| <a href="#"><u>Final Examination</u></a>          | 30%       | No     | Week 13                  |

### Weekly Practical Exercises

Assessment Type <sup>1</sup>: Design Implementation

Indicative Time on Task <sup>2</sup>: 24 hours

Due: **Weekly**

Weighting: **10%**

Practical marks are obtained by attendance of practical sessions and making a suitable attempt at the practical work during the session. The practical work in this unit makes up **10%** of the mark. To receive marks student must attend the practical section and demonstrate completion of the section to the practical supervisor. Earning the marks will require not only successful completion of the exercises, but presentation of appropriate documentation, as outlined in the question sheets. Student should complete the practical session in the week it is allocated.

On successful completion you will be able to:

- Demonstrate a detailed knowledge of wireless LANs and design, implement and troubleshoot 802.11 Wireless LAN technologies
- Understand, design, implement and troubleshoot security services and technologies that underpin networks and systems.
- Understand and design core IP services.
- Analyze, design and implement network architectures
- Use network automation tools to configure, provisions, manage and test network devices.
- Collaborate and communicate with others in a professional setting.

## Module Exams

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 8 hours

Due: **Week 2, 4, 6, 11, and 13**

Weighting: **10%**

The module examinations ask students to answer conceptual questions about the course material as well as solve simple networking problems.

On successful completion you will be able to:

- Demonstrate a detailed knowledge of wireless LANs and design, implement and troubleshoot 802.11 Wireless LAN technologies
- Understand, design, implement and troubleshoot security services and technologies that underpin networks and systems.
- Understand and design core IP services.
- Analyze, design and implement network architectures
- Collaborate and communicate with others in a professional setting.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

## Assignment 1

Assessment Type <sup>1</sup>: Report

Indicative Time on Task <sup>2</sup>: 16 hours

Due: **Week 6**

Weighting: **10%**

The purpose of this assignment is to help students understand how network security issues can manifest within networks, what controls exist to mitigate these issues, and how to deploy these controls.

On successful completion you will be able to:

- Demonstrate a detailed knowledge of wireless LANs and design, implement and troubleshoot 802.11 Wireless LAN technologies
- Understand, design, implement and troubleshoot security services and technologies that underpin networks and systems.
- Understand and design core IP services.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

## Lab Examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 2 hours

Due: **Week 11**

Weighting: **20%**

'Closed book' Practical exam to be held at the end of the teaching period during the examination period.

On successful completion you will be able to:

- Demonstrate a detailed knowledge of wireless LANs and design, implement and troubleshoot 802.11 Wireless LAN technologies
- Understand, design, implement and troubleshoot security services and technologies that underpin networks and systems.
- Understand and design core IP services.
- Analyze, design and implement network architectures
- Use network automation tools to configure, provisions, manage and test network devices.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

## Assignment 2

Assessment Type <sup>1</sup>: Report

Indicative Time on Task <sup>2</sup>: 22 hours

Due: **Week 12**

Weighting: **20%**

The purpose of this assignment is to help students obtain a deeper understanding of the relationship between network protocols and network architecture and design.

On successful completion you will be able to:

- Demonstrate a detailed knowledge of wireless LANs and design, implement and troubleshoot 802.11 Wireless LAN technologies
- Understand, design, implement and troubleshoot security services and technologies that underpin networks and systems.
- Understand and design core IP services.
- Analyze, design and implement network architectures
- Use network automation tools to configure, provisions, manage and test network devices.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

## Final Examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 2 hours

Due: **Week 13**

Weighting: **30%**

Two hour, 'closed book' exam to be held at the end of teaching period during the examination period

On successful completion you will be able to:

- Demonstrate a detailed knowledge of wireless LANs and design, implement and troubleshoot 802.11 Wireless LAN technologies
- Understand, design, implement and troubleshoot security services and technologies that

underpin networks and systems.

- Understand and design core IP services.
- Analyze, design and implement network architectures
- Use network automation tools to configure, provisions, manage and test network devices.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

---

<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

### Classes

Each week you should attend two hours of lectures, and a two hour practical. For details of scheduled classes consult the [timetables webpage](#).

**Note** that practicals (lab sessions) commence in **week 1**. The week-by-week details of the practical (lab) classes will be available from iLearn.

**You must attend the practical that you are enrolled in.**

### Textbook and Reading Materials

The textbook for this semester is:

- Cisco Networking Academy, [Enterprise Networking, Security, and Automation Companion Guide \(CCNAv7\)](#), Cisco Press, 2020. ISBN 978-0-13-663432-4

Web Resources

#### Unit Websites

Comp6265 is administered via [iLearn \(http://ilearn.mq.edu.au/\)](http://ilearn.mq.edu.au/).

This unit outline can be found in the university's [unit guides](#)

#### Live Streaming

Digital recordings of lectures may be available. They will be linked from iLearn.

## Technologies Used and Required

In this unit you will be exposed to the following technology and tools:

- Cisco Packet Tracer software.
- Wireshark Packet Analyzer software.
- Cisco Ethernet Switches and Routers.

## General Notes

In this unit, you should do the following:

- Attend lectures, take notes, ask questions.
- Attend your weekly Practical session.
- Ensure that you attend module exams during the second hour of the scheduled lecture time slot.
- Read appropriate sections of the text, add to your notes and prepare questions for your lecturer/tutor.
- Work on any assignments that have been released.

Lecture notes will be made available each week but these notes are intended as an outline of the lecture only and are not a substitute for your own notes or the recommended reading list.

## Unit Schedule

| Tentative teaching schedule, subject to change: |   |          | Assessment                            |        | Practicals   |
|---|---|----------|---------------------------------------|--------|--|
| Week  | Lecture                                     | Lecturer | Due                                   | Weight | In-class practical exercise  |
| 1   | Module 1 - Single-Area OSPFv2 Concepts      | FL       | Weekly Practicals<br>(Week 1 onwards) | 10%    | Packet Tracer - Point-to-Point Single-Area OSPFv2 Configuration (2.2.13) |
|   | Module 2 - Single-Area OSPFv2 Configuration |          |                                       |        | Packet Tracer - Determine the DR and BDR (2.3.11)                        |
| 2   | Module 3 - Network Security Concepts        | FL       | Module Exams<br>(Week 2 onwards)      | 10%    | Packet Tracer - Single-Area OSPFv2 Configuration (2.7.1)                 |
|   |   |          |                                       |        | Packet Tracer - Multiarea OSPF Exploration (2.7.3)                       |
| 3   | Module 4 - ACL Concepts                     | FL       |                                       |        | Packet Tracer - Configure and Modify Standard IPv4 ACLs (5.2.7)          |
|   | Module 5 - ACLs for IPv4 Configuration      |          |                                       |        |  |



|    |                                     |    |                     |     |  |
|----|-------------------------------------|----|---------------------|-----|--|
| 4  | Module 6 - NAT for IPv4             | FL |                     |     | Packet Tracer - IPv4 ACL Implementation Challenge (5.5.1)                              |
|    |                                     |    |                     |     | Lab - Configure and Verify Extended IPv4 ACLs (5.5.2)                                  |
| 5  | Module 7 - WAN Concepts             | FL |                     |     | Lab - Configure NAT for IPv4 (6.8.2)   |
|    | Module 8 - VPN and IPsec Concepts   |    |                     |     |  |
| 6  | Module 10 - Network Management      | FL | Assignment 1        | 10% | Packet Tracer - WAN Concepts (7.6.1)   |
|    |                                     |    |                     |     |  |
| 7  | Module 9 - QoS Concepts             | DJ |                     |     | Lab - Configure CDP, LLDP, and NTP (10.8.2)  |
|    |                                     |    |                     |     |  |
|    | Mid-Semster Break                   |    |                     |     |  |
| 8  | Module 11 - Network Design          | DJ |                     |     | Lab - Use Tera Term to Manage Router Configuration Files (10.6.11)                     |
|    |                                     |    |                     |     | Lab - Research Password Recovery Procedures (10.6.13)                                  |
| 9  | Public Holiday                      |    |                     |     | Packet Tracer - Compare Layer 2 and Layer 3 Devices (11.5.1)                           |
|    |                                     |    |                     |     |  |
| 10 | Module 12 - Network Troubleshooting | DJ |                     |     | Packet Tracer - Troubleshooting Challenge - Use Documentation to Solve Issues (12.6.2) |
|    |                                     |    |                     |     |  |
| 11 | Module 13 - Network Virtualization  | DJ | PT Exam, Attempt #1 | 20% | ENSA Hands On Skills Exam, Attempt #1  |
|    |                                     |    |                     |     |  |
| 12 | Module 14 - Network Automation      | DJ | Assignment 2        | 20% | ENSA Hands On Skills Exam, Attempt #2  |
|    |                                     |    | PT Exam, Attempt #2 |     |  |

|       |                    |    |                        |     |                             |
|-------|--------------------|----|------------------------|-----|-----------------------------|
| 13    | Review             | DJ | Final Exam, Attempt #1 | 30% | ENSA Final Exam, Attempt #1 |
| 14-16 | Formal Exam Period |    | Final Exam, Attempt #2 |     | ENSA Final Exam, Attempt #2 |

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a

range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

### The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)

## Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.