



COMP6250

Data Communications

Session 2, In person-scheduled-weekday, North Ryde 2026

School of Computing

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Disclaimer

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General Information

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Credit points 10
Prerequisites
Corequisites
Co-badged status

Unit description

This unit introduces basic data communication concepts, theory and practice within the context of the use of communication networks in organisations.

Topics include:

- protocols and standards, including the OSI model
- in-depth understanding of key protocols of the TCP/IP protocol suite
- network switching and routing, including both intra-domain and inter-domain routing protocols
- LAN and WAN topologies
- wireless networking
- network hardware, such as routers, modems, repeaters, switches and hubs
- public telecommunication-based data services
- the effect of telecommunications on society
- the role of telecommunications within organisations
- introduction to security and network management
- organisational management of telecommunications
- introduction to network design
- regulatory frameworks

Practical work includes basic network configuration and protocol performance using specialised software.

This unit does not presume any knowledge of programming nor is there any programming work in the unit.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals ([UNSDGs](#)) Industry, Innovation and Infrastructure

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:** Explain the importance and the role of network protocols including why they are organised into protocol stacks and how protocol stacks function.
- ULO2:** Demonstrate an understanding of network addressing, routing of traffic between

networks and the mechanisms that allow applications to co-exist and interact.

ULO3: Differentiate among LAN components, describe addressing schemes at various layers and how they interact, techniques to resolve them, and in particular instances calculate addresses.

ULO4: Critically reflect on different major network technologies including wireless, backbone, wide area networks, and the Internet and, being aware of their properties, be able to evaluate different network designs.

ULO5: Demonstrate technical networking proficiency including demonstrated ability to configure, construct, and document, and in simple cases, design networks, as well as the ability to perform traffic analysis on local area networks.

ULO6: Demonstrate an understanding of, and have an ability to develop plans for dealing with, issues regarding network security and management.

General Assessment Information

Assignments Release Dates:

- **Assignment 1:** This assignment will be released no later than Friday, 11 September 2026, in Week 7.
- **Assignment 2:** This assignment will be released no later than Friday, 9 October 2026, in Week 9.

¹ If you need help with your assignment, please contact:

- The academic teaching staff in your unit can guide understanding or completing this type of assessment
- [Academic Success](#) for academic skills support.

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

³ An automatic short extension is available for some assessments. Apply through the [Service Connect Portal](#).

Late Submission Policy

- **5% penalty per day:** If you submit your assessment late, **5% of the total possible marks** will be deducted for each day (including weekends), up to 7 days.
 - *Example 1 (out of 100):* If you score 85/100 but submit 20 hours late, you will lose 5 marks and receive **80/100**.
 - *Example 2 (out of 30):* If you score 27/30 but submit 1 day late, you will lose 1.5

marks and receive **25.5/30**.

- **After 7 days:** Submissions more than 7 days late will receive a **mark of 0**.
- **Extensions:**
 - **Automatic short extension:** Some assessments are eligible for automatic short extension. You can only apply for an automatic short extension before the due date.
 - **Special Consideration:** The [Special Consideration Policy](#) aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable, and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through <http://connect.mq.edu.au/>.

Assessments where Late Submissions will be accepted

In this unit, late submissions will be accepted as follows:

- **Assignments** – YES, Standard Late Penalty applies.
- **Final Exam** - NO, unless Special Consideration is Granted.

Need help? Review the Special Consideration page [HERE](#).

Generative AI Use:

- **Assignment 1:** The use of generative AI tools is not permitted for this assessment.
- **Assignment 2:** You may use generative AI tools to support your work; however, you must critically review, evaluate, and adapt any AI-generated content. You remain responsible for the accuracy, originality, and quality of your submission. Any use of AI must be acknowledged in accordance with the University's academic integrity requirements.
- **Final Exam:** The use of generative AI tools is not permitted in the final exam.

Requirements to Pass this Unit

To pass this unit, you must achieve an overall mark equal to or greater than 50%. There are no hurdle requirements for this unit.

Assessment Tasks

Name	Weighting	Hurdle	Due	Groupwork/Individual	Short Extension	AI Approach
Basic Networking Assignment	30%	No	04/10/2026	Individual	No	Observed
Final Exam	40%	No	Exam Period	Individual	No	Observed
Network Design Report	30%	No	31/10/2026	Individual	Yes	Open

Basic Networking Assignment

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 20 hours

Due: **04/10/2026**

Weighting: **30%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Observed

The first assignment tests students understanding of network stacks, layering, and addressing techniques.

On successful completion you will be able to:

- Explain the importance and the role of network protocols including why they are organised into protocol stacks and how protocol stacks function.
- Demonstrate an understanding of network addressing, routing of traffic between networks and the mechanisms that allow applications to co-exist and interact.
- Differentiate among LAN components, describe addressing schemes at various layers and how they interact, techniques to resolve them, and in particular instances calculate addresses.

Final Exam

Assessment Type ¹: Examination

Indicative Time on Task ²: 10 hours

Due: **Exam Period**

Weighting: **40%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Observed

You will undertake a final examination during the formal examination period.

On successful completion you will be able to:

- Explain the importance and the role of network protocols including why they are organised into protocol stacks and how protocol stacks function.
- Demonstrate an understanding of network addressing, routing of traffic between networks and the mechanisms that allow applications to co-exist and interact.
- Differentiate among LAN components, describe addressing schemes at various layers and how they interact, techniques to resolve them, and in particular instances calculate addresses.
- Critically reflect on different major network technologies including wireless, backbone, wide area networks, and the Internet and, being aware of their properties, be able to evaluate different network designs.
- Demonstrate technical networking proficiency including demonstrated ability to configure, construct, and document, and in simple cases, design networks, as well as the ability to perform traffic analysis on local area networks.
- Demonstrate an understanding of, and have an ability to develop plans for dealing with, issues regarding network security and management.

Network Design Report

Assessment Type ¹: Written Submission

Indicative Time on Task ²: 20 hours

Due: **31/10/2026**

Weighting: **30%**

Groupwork/Individual: Individual

Short extension ³: Yes

AI Approach: Open

The second assignment tests students understanding of selected networking technologies.

On successful completion you will be able to:

- Demonstrate an understanding of network addressing, routing of traffic between networks and the mechanisms that allow applications to co-exist and interact.
- Differentiate among LAN components, describe addressing schemes at various layers and how they interact, techniques to resolve them, and in particular instances calculate addresses.
- Critically reflect on different major network technologies including wireless, backbone, wide area networks, and the Internet and, being aware of their properties, be able to evaluate different network designs.

- Demonstrate an understanding of, and have an ability to develop plans for dealing with, issues regarding network security and management.

¹ 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
- [Academic Success](#) for academic skills support.

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

³ An automatic short extension is available for some assessments. Apply through the [Service Connect Portal](#).

Delivery and Resources

Classes

Each week, you should attend two hours of lectures from **Week 1** and a two-hour practical workshop.

Note that practical workshops (lab sessions) commence in **week 2**. 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 textbooks for this semester are:

- FitzGerald, J, Dennis, A, & Durcikova, A, 2021, *Business data communications and networking*, 14th edn, John Wiley & Sons, Inc., Hoboken, NJ.
 - Print: ISBN 978-1-119-70284-9
 - E-Text: ISBN 978-1-119-70266-5
- Comer, D, 2015, *Computer networks and internets*, 6th Global edn, Pearson, Harlow, Essex.
 - Print: ISBN 978-1-292-06117-7
 - E-Text: ISBN 978-1-292-06182-5

Additional reading that you may find useful for this unit:

- Kurose, JF & Ross, KW, 2013, *Computer networking: a top-down approach*, 8th Global edn, Pearson, Harlow, Essex.
 - Print: ISBN 978-1-292-40546-9

- E-Text: ISBN 978-1-292-41997-8
- Comer, D, 2014, *Internetworking with TCP/IP. Volume one*, 6th International edn, Harlow, Essex.
 - Print: ISBN 978-0-136-08530-0
- Tanenbaum, AS & Wetherall, DJ, 2014, *Computer networks*, 5th Global edn, Pearson, Harlow.
 - Print: ISBN 978-0-132-12695-3
 - E-Text: ISBN 978-0-133-07262-4

Web Resources

Unit Websites

COMP6250 is administered via [iLearn \(http://ilearn.mq.edu.au/\)](http://ilearn.mq.edu.au/).

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.

Methods of Communication

We will communicate with students via their university email address and announcements on iLearn. Queries to teaching staff, including the Unit Convenor, may be posted on the iLearn discussion board or sent to the relevant staff member's university email address. Students should use their university email address when contacting teaching staff.

General Notes

In this unit, you should do the following:

- Attend lectures, take notes, and ask questions.
- Attend your weekly practical session and work on the practical exercises.
- 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 and are not a substitute for your own notes or the recommended reading list.

We will communicate with you via your university email and through announcements on iLearn. Queries to convenors can either be placed on the iLearn discussion board or sent to the unit

convenor via the contact email on iLearn.

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 connect.mq.edu.au or if you are a Global MBA student contact 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/>

Academic Success

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

- [Ask a Study Coach](#)
- [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 Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

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

IT Help

For help with University computer systems and technology, visit <https://students.mq.edu.au/support/technology/service-desk>.

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.

Changes from Previous Offering

We value student feedback as an important part of continually improving the way we deliver our units. Students are encouraged to provide constructive feedback through student surveys, directly to the teaching staff, or via the FSE Student Experience & Feedback link on the iLearn page.

Student feedback from the previous offering of this unit was very positive overall. Students expressed satisfaction with the clarity of assessment requirements and the level of support provided by the teaching staff. Therefore, no major changes to the delivery of the unit are planned. However, we will continue to work on improving student support and engagement throughout the session.

Unit information based on version 2026.03 of the [Handbook](#)