



# TELE3350

## Communications Networks

Session 2, Weekday attendance, North Ryde 2021

*School of Engineering*

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#### **Disclaimer**

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#### **Session 2 Learning and Teaching Update**

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

## General Information

Unit convenor and teaching staff

Iain Collings

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Tutor

Sobia Omer

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Credit points

10

Prerequisites

130cp at 1000 level or above or (COMP2250 or COMP247) or Admission to MEngNetTeleEng or MEngElecEng

Corequisites

Co-badged status

Unit description

This unit develops core knowledge and understanding in telecommunications engineering examining the technology, concepts and general principles used in modern data communication networks. The focus is on layers 1 and 2 of the OSI reference model spanning local-area, wide-area, metropolitan and access networks and includes Ethernet, wireless networks, optical networks, time-division multiplexing networks and cellular networks. The unit examines these technologies from a number of different perspectives including physical-layer communications, medium access control (MAC), link-layer, network structure, devices, modelling, performance analysis and quality of service. A practical component gives students skills in using and configuring network equipment and modelling and analysis tools.

## 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:** Critique and compare, using acquired knowledge, different communication technologies and networks.

**ULO2:** Evaluate the advantages and performance of a range of networking technologies.

**ULO3:** Demonstrate knowledge of a range of modelling techniques, including mathematical modelling and simulation modelling, including appropriate simulation tools, to design and analyse communication technologies and networks.

**ULO4:** Design, build and operate networks using switches and routers.

**ULO5:** Apply a systems perspective in the analysis of networks and communications systems.

**ULO6:** Effectively collaborate in small groups while solving networking problems.

## General Assessment Information

Each of the four Tests has the following condition: If the mark is less than 50%, then the student will be given a second chance to achieve a mark of 50%, by completing extra assessment to a satisfactory standard. The extra assessment will be in the form of a take-home assignment, for which the student will need to achieve a mark of greater than 50%. If the assignment mark is not greater than 50%, then the original Test mark will stand.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#"><u>Test 1</u></a>	5%	No	Sun 29th Aug
<a href="#"><u>Practicals</u></a>	20%	No	Weekly assessment
<a href="#"><u>Test 3</u></a>	5%	No	Sun 10th Oct
<a href="#"><u>Test 2</u></a>	5%	No	Sun 12th Sep
<a href="#"><u>Examination</u></a>	60%	No	Exam Period
<a href="#"><u>Test 4</u></a>	5%	No	Wed 3rd Nov

### Test 1

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 5 hours

Due: **Sun 29th Aug**

Weighting: **5%**

Test on the topic of Ethernet

On successful completion you will be able to:

- Critique and compare, using acquired knowledge, different communication technologies and networks.
- Evaluate the advantages and performance of a range of networking technologies.

## Practicals

Assessment Type <sup>1</sup>: Practice-based task

Indicative Time on Task <sup>2</sup>: 25 hours

Due: **Weekly assessment**

Weighting: **20%**

Weekly Practical Sessions

On successful completion you will be able to:

- Design, build and operate networks using switches and routers.
- Apply a systems perspective in the analysis of networks and communications systems.
- Effectively collaborate in small groups while solving networking problems.

## Test 3

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 5 hours

Due: **Sun 10th Oct**

Weighting: **5%**

Test on the topic of Frame Relay and Optical Networks

On successful completion you will be able to:

- Critique and compare, using acquired knowledge, different communication technologies and networks.
- Evaluate the advantages and performance of a range of networking technologies.
- Apply a systems perspective in the analysis of networks and communications systems.

## Test 2

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 5 hours

Due: **Sun 12th Sep**

Weighting: **5%**

Test on the topic of Queuing

On successful completion you will be able to:

- Critique and compare, using acquired knowledge, different communication technologies and networks.
- Evaluate the advantages and performance of a range of networking technologies.
- Demonstrate knowledge of a range of modelling techniques, including mathematical

modelling and simulation modelling, including appropriate simulation tools, to design and analyse communication technologies and networks.

## Examination

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

Indicative Time on Task <sup>2</sup>: 27 hours

Due: **Exam Period**

Weighting: **60%**

Examination

On successful completion you will be able to:

- Critique and compare, using acquired knowledge, different communication technologies and networks.
- Evaluate the advantages and performance of a range of networking technologies.
- Demonstrate knowledge of a range of modelling techniques, including mathematical modelling and simulation modelling, including appropriate simulation tools, to design and analyse communication technologies and networks.
- Apply a systems perspective in the analysis of networks and communications systems.

## Test 4

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 5 hours

Due: **Wed 3rd Nov**

Weighting: **5%**

Test on the topic of modulation, WiFi, and Cellular

On successful completion you will be able to:

- Critique and compare, using acquired knowledge, different communication technologies and networks.
- Evaluate the advantages and performance of a range of networking technologies.
- Apply a systems perspective in the analysis of networks and communications systems.

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<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

The unit will be delivered via lectures, tutorials, and practical sessions.

### Practical sessions

There will be weekly laboratory sessions, starting in Week 2.

### Technology used

Library and internet search engines, word processing and presentation software, switches and routers, Matlab software.

### Laboratory Safety

No student will be permitted to enter the laboratory without proper footwear. THONGS OR SANDALS ARE NOT ACCEPTABLE. NO FOOD OR DRINK may be taken into the laboratory.

### Suggested reference text book:

Computer Networking James F Kurose & Keith W Ross, 6th Edn, 2012.

### Other reference book(s)

Communication Networks A Concise Introduction, by J. Walrand and S. Parekh, Morgan & Claypool Publishers, 2010.

Networking, Second edition, J. S. Beasley, Pearson, 2009.

Data Communications and Networking, 4th Edition by B. A. Forouzan, McGraw-Hill, 2007.

Data and Computer Communications, 9th ed W. Stallings, Pearson, 2012

### Lecture and laboratory notes

Lecture notes, laboratory notes, assignments and resources are provided online through iLearn.

## Unit Schedule

Refer to iLearn for unit schedule

## 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](#)
- [Grade Appeal Policy](#)
- [Complaint Management 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](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Student Support

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

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [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

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## 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.

## Changes from Previous Offering

No major changes from the previous offering.