



COMP6260

Cisco Networking I

Session 1, Special circumstances, North Ryde 2021

School of Computing

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Notice

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group activities on campus, and most will keep an online version available to those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

General Information

Unit convenor and teaching staff

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Credit points

10

Prerequisites

COMP6250 or ITEC647

Corequisites

Co-badged status

Unit description

This unit is designed to impart practical skills in designing, configuring, installing, and troubleshooting computer internetworks using equipment such as routers and switches. This unit allows students to develop knowledge and expertise in key areas such as IP fundamentals, LAN Switching, IP addressing, and routing. It allows students to expand their skill set by providing exposure to Cisco equipment thereby enabling them to better understand the design and implementation of various networking technologies and protocols. 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: Develop an understanding of networking fundamentals.

ULO2: Understand, build, configure and troubleshoot switched Ethernet LANs and Virtual LANs.

ULO3: Explain IP addressing schemes and troubleshoot IPv4 address problems.

ULO4: Demonstrate a detailed knowledge of IPv4 routing technology and implement and

troubleshoot IPv4 routed network.

ULO5: Collaborate and communicate with others in a professional setting.

ULO6: Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

General Assessment Information

Submission of assessable work

For all your assignments, and for your professional life in the future, you are encouraged to

- set your personal deadline earlier than the official deadline
- keep backups of all your important files
- make sure that no-one else has access to your files or documents

Late work will not be accepted. Develop good working habits and manage your time well. If your contributions are seriously affected by illness or misadventure you do your utmost to submit a request for special consideration **before** the due date, do not email the unit convenor directly.

Practical Workshops

Due: **Weekly (starting week 2)** Weighting: **10%**

The practical work in this unit makes up 10% of your mark. The practical work is divided up into eleven weekly practical classes.

To receive your marks you must attend the practical section and demonstrate your completion of the practical exercises to your practical supervisor. Earning the marks will require not only successful completion of the exercises, but submission of appropriate documentation, as outlined in the question sheets. You must complete the practical session in the week it is allocated.

We will take the best ten out of your eleven submissions to calculate your final mark for this section.

Practical classes will commence during week 2 of the semester. Students must attend their enrolled practical session.

Note that while the practical material is structured against the lecture material, you need to keep in mind that there will not always be a one to one mapping between the practical exercises and the lecture topics. This is because you need some practical sessions to get acquainted to new tools and devices thereby limiting the number of practical time slots available to experiment with technologies discussed in some lectures.

Module Exams

Due: **Weekly (starting week 4)** Weighting: **10%**

The module exams in this unit makes up 10% of your mark.

Module exams will be held during the first hour of your practical session in most weeks (some weeks will have two module exams).

Module exams will commence during week 2 of the semester. Students must attend their enrolled practical session to complete their module exams.

Assignments

Assignment work must be written clearly, with good grammar, correct word usage, correct punctuation, and lack of spelling errors. Poor or bad expression will be penalised. Wherever required, all written work must be properly referenced and conform to standard stylistic conventions.

Assignment 1

Due: **Mid-semester break** Weighting: **10%**

The purpose of the problem-solving assignment is to help the students to get accustomed to dealing with real world networking problem situations/issues. It is designed to help students analyse problems and find best solutions to these problems. Some questions may require an in-depth research and will be a process to come up with an acceptable and reasonable answer.

Assignment 2

Due: **Week 12** Weighting: **20%**

Students will be presented with a situation showing details of how an organization's network is currently working inefficiently. Students will research and determine the best configuration to help improve this network's performance. They will need to explain and support the decisions and be able to explain how the changes that are suggested will be of benefit to the organization including describing how the changes will be managed and implemented

Final Exams

Due: **Final exam period** Weighting: **30%**

The final examinations ask students to answer conceptual questions about the course material as well as solve simple networking problems. In the case a student cannot attend the final exam, a [request for special consideration](#) must be made.

If you receive special consideration for the final exam, a supplementary exam will be scheduled for a time in June 2021. By making a special consideration application for the final exam you are declaring yourself available to sit during the supplementary examination period and you will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification approximately one week prior to the exam with the exact date and time of the supplementary examination.

Lab Exams

Due: **Final exam period** Weighting: **20%**

The lab examinations ask students to apply what they have learned during the semester to a provided scenario, which may involve the analysis, design, and troubleshooting of a network. In the case a student cannot attend the final exam, a [request for special consideration](#) must be made.

If you receive special consideration for the final exam, a supplementary exam will be scheduled for a time in June 2021. By making a special consideration application for the final exam you are declaring yourself available to sit during the supplementary examination period and you will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification approximately one week prior to the exam with the exact date and time of the supplementary examination.

Assessment Tasks

Name	Weighting	Hurdle	Due
Weekly Practical	10%	No	Weekly
Lab examination	20%	No	Week 7 and Final exam period
Module Exams	10%	No	Most weeks
Assignment 2	20%	No	Week 12
Assignment 1	10%	No	Mid-semester break
Final Examination	30%	No	Week 7 and Final exam period

Weekly Practical

Assessment Type ¹: Design Implementation

Indicative Time on Task ²: 22 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:

- Understand, build, configure and troubleshoot switched Ethernet LANs and Virtual LANs.
- Explain IP addressing schemes and troubleshoot IPv4 address problems.
- Demonstrate a detailed knowledge of IPv4 routing technology and implement and troubleshoot IPv4 routed network.
- Collaborate and communicate with others in a professional setting.

Lab examination

Assessment Type ¹: Examination

Indicative Time on Task ²: 2 hours

Due: **Week 7 and Final exam period**

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:

- Understand, build, configure and troubleshoot switched Ethernet LANs and Virtual LANs.
- Explain IP addressing schemes and troubleshoot IPv4 address problems.
- Demonstrate a detailed knowledge of IPv4 routing technology and implement and troubleshoot IPv4 routed network.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

Module Exams

Assessment Type ¹: Examination

Indicative Time on Task ²: 10 hours

Due: **Most weeks**

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:

- Develop an understanding of networking fundamentals.

- Understand, build, configure and troubleshoot switched Ethernet LANs and Virtual LANs.
- Explain IP addressing schemes and troubleshoot IPv4 address problems.
- Demonstrate a detailed knowledge of IPv4 routing technology and implement and troubleshoot IPv4 routed network.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

Assignment 2

Assessment Type ¹: Case study/analysis

Indicative Time on Task ²: 22 hours

Due: **Week 12**

Weighting: **20%**

Students will be presented with a situation showing details of how an organization's network is currently working inefficiently. Students will research and determine the best configuration to help improve this network's performance. They will need to explain and support the decisions and be able to explain how the changes that are suggested will be of benefit to the organization including describing how the changes will be managed and implemented

On successful completion you will be able to:

- Develop an understanding of networking fundamentals.
- Understand, build, configure and troubleshoot switched Ethernet LANs and Virtual LANs.
- Explain IP addressing schemes and troubleshoot IPv4 address problems.
- Demonstrate a detailed knowledge of IPv4 routing technology and implement and troubleshoot IPv4 routed network.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

Assignment 1

Assessment Type ¹: Problem set

Indicative Time on Task ²: 16 hours

Due: **Mid-semester break**

Weighting: **10%**

The purpose of the problem-solving assignment is to help the students to get accustomed to dealing with real world networking problem situations/issues. It is designed to help students analyse problems and find best solutions to these problems. Some questions may require an in-

depth research and will be a process to come up with an acceptable and reasonable answer

On successful completion you will be able to:

- Develop an understanding of networking fundamentals.
- Understand, build, configure and troubleshoot switched Ethernet LANs and Virtual LANs.
- Explain IP addressing schemes and troubleshoot IPv4 address problems.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

Final Examination

Assessment Type ¹: Examination

Indicative Time on Task ²: 2 hours

Due: **Week 7 and Final exam period**

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:

- Develop an understanding of networking fundamentals.
- Understand, build, configure and troubleshoot switched Ethernet LANs and Virtual LANs.
- Explain IP addressing schemes and troubleshoot IPv4 address problems.
- Demonstrate a detailed knowledge of IPv4 routing technology and implement and troubleshoot IPv4 routed network.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

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
- the [Writing Centre](#) 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

Delivery and Resources

Classes

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

Note that practicals 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:

- Cisco Networking Academy, [Introduction to Networks Companion Guide \(CCNAv7\)](#), Cisco Press, 2020. ISBN 978-0-136-63367-9
- Cisco Networking Academy, [Switching, Routing, and Wireless Essentials Companion Guide \(CCNAv7\)](#), Cisco Press, 2020. ISBN 978-0-136-72947-1

Web Resources

Unit Websites

Comp6260 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 first hour of your practical session.
- 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		Workshop	
Week	NetAcad Unit	Lecture	Due	Weight	First Hour	Second Hour
1	ITN	Module 1 - Networking Today			Week 1 No Labs	
		Module 2 - Basic Switch and End Device Configuration				
		Module 3 - Protocols and Models				
2		Module 4 - Physical Layer			Packet Tracer - Basic Switch and End Device Configuration	Packet Tracer - Connect the Physical Layer
		Module 5 - Number Systems				
		Module 6 - Data-Link Layer				
		Module 7 - Ethernet Switching				
3		Module 8 - Network Layer			Packet Tracer - Examine the ARP Table	Packet Tracer - IPv6 Neighbor Discovery
		Module 9 - Address Resolution				
		Module 10 - Basic Router Configuration				
4		Module 11 - IPv4 Addressing			Modules 1 - 3: Basic Network Connectivity and Communications Exam	Modules 4 - 7: Ethernet Concepts Exam
		Module 12 - IPv6 Addressing				
		Module 13 - ICMP				

5		Module 14 - Transport Layer			Modules 8 - 10: Communicating Between Networks Exam	Modules 11 - 13: IP Addressing Exam
		Module 15 - Application Layer				
6		Module 16 - Network Security Fundamentals			Modules 14 - 15: Network Application Communications Exam	Modules 16 - 17: Building and Securing a Small Network Exam
		Module 17 - Build a Small Network				
	Mid-Semster Break	Break week 1	Assignment 1	10%		
		Break week 2				
7	SRWE	Module 1 - Basic Device Configuration	ITN Final Exam	15%	ITN Final Exam	ITN Hands On Skills Exam
		Module 2 - Switching Concepts	ITN Hands On Skills Exam	10%		
8		Module 3 - VLANs			Lab - Implement VLANs and Trunking	Lab - Implement Inter-VLAN Routing
		Module 4 - Inter-VLAN Routing				
9		Module 5 - STP			Modules 1 - 4: Switching Concepts, VLANs, and InterVLAN Routing Exam	Lab - Implement EtherChannel
		Module 6 - EtherChannel				
10		Module 7 - DHCPv4			Modules 5 - 6: Redundant Networks Exam	Lab - Implement DHCPv4
		Module 8 - SLAAC and DHCPv6				
		Module 9 - FHRP Concepts				
11		Module 10 - LAN Security Concepts			Modules 7 - 9: Available and Reliable Networks Exam	Lab - Configure DHCPv6
		Module 11 - Switch Security Configuration				
12		Module 12 - WLAN Concepts	Assignment 2	20%	Lab - Switch Security Configuration	Lab - Configure a Wireless Network

		Module 13 - WLAN Configuration				
13		Module 14 - Routing Concepts			Modules 10 - 13: L2 Security and WLANs Exam	Modules 14 - 16: Routing Concepts and Configuration Exam
		Module 15 - IP Static Routing				
		Module 16 - Troubleshoot Static and Default Routes				
14	Formal Exam Period		SRWE Final Exam	15%	SRWE Final Exam	SRWE Hands On Skills Exam
15			SRWE Hands On Skills Exam	10%		
16						

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](#) or if you are a Global MBA student contact 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) 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](#)

If you are a Global MBA student contact 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/.

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.