



COIT20261 Network Routing and Switching

Term 1 - 2017

Profile information current as at 19/05/2022 11:03 pm

All details in this unit profile for COIT20261 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

This unit provides you with the skills and knowledge required to study advanced units in the Networks and Information Security (NIS) Specialisation. It deals in-depth with the techniques used in the Internet to forward the packets from the source to the destination via various types of networks. The unit analyses the Internet and Transport layer functions, with emphasis on IPv4 and IPv6 addressing as well as switching and routing technology. The unit covers these functions in relation to both Local Area Networks (LANs) and Wide Area Networks (WANs) as well as wired and wireless networks ensuring that you can adapt to future changes in the field. Note: If you have undertaken COIT20229 then you cannot take this unit.

Details

Career Level: *Postgraduate*

Unit Level: *Level 9*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Prerequisite: COIT20246 ICT Services Management.

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

Offerings For Term 1 - 2017

- Brisbane
- Distance
- Melbourne
- Rockhampton
- Sydney

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Postgraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

[Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

[Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Written Assessment**

Weighting: 40%

2. **Examination**

Weighting: 60%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the [CQUniversity Policy site](#).

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from theme from student feedback

Feedback

need more practical stuff...

Recommendation

Tutorials should be structured more toward solving problems or doing exercises, coupling these with theory reinforcement.

Action

Teaching staff have been reminded to include problem-solving (especially the kinds of problems that appear in assessments like the exam) and exercises, plus review activities. I can't control what tutors actually do, but certainly my own tutes are almost 100% based on problem solving, exercises and lecture reinforcement activities. I will include more reminders in messages to staff during current term. One student has commented about the "good amount" of practical work in the unit, this does reflect an increased focus on this aspect over past year or so.

Unit Learning Outcomes

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

1. Apply your knowledge in Network Routing to solve problems in wired and wireless networks
2. Design IP addressing plans for suitable use in organisational networks
3. Analyse the application of wireless network technologies in different scenarios
4. Compare and contrast the protocols and standards in routing and switching
5. Evaluate and report complex ideas on emerging trends or issues in networking.

Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA is in use in over 100 countries and provides a widely used and consistent definition of ICT skills. SFIA is increasingly being used when developing job descriptions and role profiles.

ACS members can use the tool MySFIA to build a skills profile at

<https://www.acs.org.au/professionalrecognition/mysfia-b2c.html>

This unit contributes to the following workplace skills as defined by SFIA. The SFIA code is included:

- Systems Design (DESN)
- Systems Integration (SINT)
- Network Support (NTAS)
- Configuration Management (CFMG).

Alignment of Learning Outcomes, Assessment and Graduate Attributes

 N/A Level	 Introductory Level	 Intermediate Level	 Graduate Level	 Professional Level	 Advanced Level
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Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Written Assessment - 40%	•	•	•	•	•
2 - Examination - 60%	•	•		•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Knowledge	○	○	○	○	○
2 - Communication	○	○	○	○	○
3 - Cognitive, technical and creative skills	○	○	○	○	○
4 - Research	○	○	○	○	○
5 - Self-management	○	○	○	○	○
6 - Ethical and Professional Responsibility	○	○	○	○	○
7 - Leadership					
8 - Aboriginal and Torres Strait Islander Cultures					

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes							
	1	2	3	4	5	6	7	8
1 - Written Assessment - 40%	○	○	○	○	○	○		
2 - Examination - 60%	○	○	○		○	○		

Textbooks and Resources

Textbooks

COIT20261

Prescribed

TCP/IP Protocol Suite

Edition: 4th (2010)

Authors: Forouzan, Behrouz A

McGraw-Hill Higher Education

Boston, Massachusetts, USA

ISBN: 978-0-07-337604-2

Binding: Hardcover

Additional Textbook Information

Important! An e-book version of the textbook is available, but you will not be able to use this in your exam if you purchase it. Only the printed version of the textbook can be taken into the exam.

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Kenneth Howah Unit Coordinator

k.howah@cqu.edu.au

Schedule

Week 1 - 06 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Introduction; TCP/IP Protocol Suite; Numbering Systems (Appendix B)	2 & Appendix B	Attention MELBOURNE students only: Weeks 1 - 12 Schedule will vary slightly in the order of topics owing to two public holidays. This allows all topics to be covered. Melbourne students will be advised of the adjusted Schedule for that campus.

Week 2 - 13 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to the Transport Layer; User Datagram Protocol (UDP)	13 & 14	

Week 3 - 20 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Transmission Control Protocol (TCP) 15

Week 4 - 27 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to the Network Layer; IPv4 Addresses Part I	4 & 5	

Week 5 - 03 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
IPv4 Addresses Part II	5	

Vacation Week - 10 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - 17 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Delivery and Forwarding of IP Packets; Address Resolution Protocol (ARP)	6 & 8	

Week 7 - 24 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Internet Protocol Version 4 (IPv4); Internet Control Message Protocol (ICMP)	7 & 9	

Week 8 - 01 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Unicast Routing Protocols (RIP, OSPF, and BGP)	11	

Week 9 - 08 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
IPv6 Addressing; IPv6 Protocol; Routing in IPv6; ICMPv6	26, 27, online material & 28	

Week 10 - 15 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Routing in Wireless Networks	Online material	Written Assessment Due: Week 10 Friday (19 May 2017) 11:45 pm AEST

Week 11 - 22 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Host Configuration: DHCP; Domain Name System (DNS)	18 & 19	

Week 12 - 29 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Switching in LANs and WANs; Multi- Protocol Label Switching (MPLS)	Online material	

Review/Exam Week - 05 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 12 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Term Specific Information

Attention MELBOURNE students only: Weeks 1 - 12 Schedule will vary slightly in the order of topics owing to two public holidays. This allows all topics to be covered. Melbourne students will be advised of the adjusted Schedule for that campus.

Assessment Tasks

1 Written Assessment

Assessment Type

Written Assessment

Task Description

This assessment task should be completed individually - it is not a group or team task.

The tasks will consist of numerical as well as descriptive questions covering the material from Weeks 1 to 9 as well as some questions that require further reading, analysis and evaluation.

Details of this assessment task will be provided on the unit website.

Assessment Due Date

Week 10 Friday (19 May 2017) 11:45 pm AEST

Return Date to Students

Week 12 Friday (2 June 2017)

Weighting

40%

Assessment Criteria

Students are assessed against their ability to apply knowledge gained during the unit on technologies such as addressing schemes and routing solutions. The assessment includes the ability to research, analyse, and/or evaluate the status of a selected emerging networking technology or group of technologies in different application scenarios.

Please see the unit website for more specific marking criteria.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

The written report should be uploaded to Moodle as a Microsoft Word document.

Learning Outcomes Assessed

- Apply your knowledge in Network Routing to solve problems in wired and wireless networks
- Design IP addressing plans for suitable use in organisational networks
- Analyse the application of wireless network technologies in different scenarios
- Compare and contrast the protocols and standards in routing and switching
- Evaluate and report complex ideas on emerging trends or issues in networking.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility

Examination

Outline

Complete an invigilated examination

Date

During the examination period, at a CQUniversity examination centre

Weighting

60%

Length

180 minutes

Details

Calculator - all non-communicable calculators, including scientific, programmable and graphics calculators are authorised

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).
Open Book

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?



Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem