COIT20261 *Network Routing and Switching*
Term 3 - 2019

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 fundamental skills and knowledge in the design and operation of computer networks. 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 you can adapt to future changes in the field.

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.Anti-requisite: COIT20229 Networking with TCI/IP.
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 3 - 2019

- Brisbane
- Melbourne
- Online
- 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: 15%
2. **Written Assessment**
Weighting: 25%
3. **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 Student feedback Coordinator reflection

Feedback

Assignments and exam should have more problems (to solve) so basics are not forgotten for later units.

Recommendation

The exam should be adjusted to have more problem-based items and fewer theory-explanation type items. This would better reflect the core learning elements in the unit that are emphasised, as well as better serve the post-requisite units.

Feedback from Student feedback

Feedback

There should be some routers available in the labs to enable students to actually learn (to configure routers).

Recommendation

Network labs are being planned for each campus in the near future. When these become available, hands-on activities with configuring routers could be incorporated in tutorial activities.

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 Canagement (CFMG).

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level ∘ Introductory Level ∘ Intermediate Level ● Graduate Level ∘ Professional Level ∘ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Written Assessment - 15%	●	●			

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
2 - Written Assessment - 25%			●	●	●
3 - 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 - 15%	○	○	○	○	○	○		
2 - Examination - 60%	○	○	○		○	○		

Textbooks and Resources

Textbooks
COIT20261

Prescribed

TCP/IP Protocol Suite
Edition: Fourth (2006)
Authors: Behrouz A. Forouzan
McGraw-Hill Higher Education
New York City , New York , USA
Binding: Paperback

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Wireshark - Network Protocol Analyser

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Jahan Hassan Unit Coordinator
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Schedule

Week 1 - 11 Nov 2019

Module/Topic	Chapter	Events and Submissions/Topic
Introduction; TCP/IP Protocol Suite; Numbering Systems	Chapter 2 & Appendix B	

Week 2 - 18 Nov 2019

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

Week 3 - 25 Nov 2019

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

Week 4 - 02 Dec 2019

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

Vacation Week - 09 Dec 2019

Module/Topic	Chapter	Events and Submissions/Topic

Week 5 - 16 Dec 2019

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

Week 6 - 23 Dec 2019

Module/Topic	Chapter	Events and Submissions/Topic
Delivery and Forwarding of IP Packets; Address Resolution Protocol (ARP)	Chapter 6 & 8	**WRITTEN ASSESSMENT 1: IP NETWORKING** (WRITTEN ASSESSMENT 15%) **WRITTEN ASSESSMENT 1: IP NETWORKING** Due: Week 6 Friday (27 Dec 2019) 11:45 pm AEST

Week 7 - 06 Jan 2020

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

Week 8 - 13 Jan 2020

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

Week 9 - 20 Jan 2020

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

Week 10 - 27 Jan 2020

Module/Topic	Chapter	Events and Submissions/Topic
Routing in Wireless Networks	Online material	**WRITTEN ASSESSMENT 2: ROUTING AND SWITCHING** (WRITTEN ASSESSMENT 25%) **WRITTEN ASSESSMENT 2: ROUTING AND SWITCHING** Due: Week 10 Friday (31 Jan 2020) 11:45 pm AEST

Week 11 - 03 Feb 2020

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

Week 12 - 10 Feb 2020

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

Exam Week - 17 Feb 2020

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 WRITTEN ASSESSMENT 1: IP NETWORKING

Assessment Type
Written Assessment

Task Description
You are required to demonstrate your knowledge of IP networking, including IP addressing and subnetting, by completing a number of exercise questions. There will be multiple independent questions requiring a mix of numerical and descriptive answers. The questions and further description of the requirements can be found on Moodle. This is an individual assignment, and no group submission is allowed.

Assessment Due Date
Week 6 Friday (27 Dec 2019) 11:45 pm AEST
Your assignment must be submitted in doc/docx format. See Moodle unit website for details.

Return Date to Students
Week 8 Friday (17 Jan 2020)
This is best case: delays may occur for various reasons including a large number of students to mark.

Weighting
15%

Assessment Criteria

Your answers will be marked based on technical correctness, completeness, clarity and relevance. Questions that ask you to show your working or calculations or the steps you took to arrive at your answers, may have marks deducted if such information is not provided. If a question requires you to submit a graphic (e.g. a screenshot or a diagram), the graphic must have sufficient resolution to show all its details clearly and be of a reasonable size for normal reader viewing, with all or any text within the graphic being legible and readable, in order to be marked.

Referencing Style

- Harvard (author-date)

Submission
Online

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

Graduate Attributes

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

2 WRITTEN ASSESSMENT 2: ROUTING AND SWITCHING

Assessment Type
Written Assessment

Task Description
You are required to demonstrate your knowledge of routing and switching in wired and wireless networks, by completing a number of exercise questions. There will be multiple independent questions requiring a mix of numerical and descriptive answers. Questions that ask you to show your working or calculations or the steps you took to arrive at your answers, may have marks deducted if such information is not provided. Some questions may require research of technologies or relevant technology trends not covered in lectures or the textbook. Detailed description of the requirements can be found in Moodle. This is an individual, not a group, assignment.

Assessment Due Date
Week 10 Friday (31 Jan 2020) 11:45 pm AEST

Your assignment must be submitted in doc/docx format. See Moodle unit website for details.

Return Date to Students
Week 12 Friday (14 Feb 2020)
This is best case: delays may occur for various reasons including a large number of students to mark.

Weighting
25%

Assessment Criteria
Your answers will be marked based on technical correctness, completeness, clarity, originality and relevance. Proper use of referencing conventions are expected and marks may be deducted for failure to comply. For discussion or research-based questions, if you decide to submit a graphic (e.g. a screenshot or a diagram) in support of your answer, the graphic must be relevant to your discussion, be appropriately referenced, and must have sufficient resolution to show all its details clearly and be of a reasonable size for normal reader viewing, with any text within the graphic being legible and readable. Originality means the work is your own and is expressed in your own words. An answer is unacceptable if it is composed mostly of quoted material from other sources, and may receive no marks as a result.

Referencing Style

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

Submission
Online

Learning Outcomes Assessed

- 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.

Examination

Outline
Complete an invigilated examination.

Date
During the examination period at a CQUniversity examination centre.

Weighting
60%

Length
180 minutes

Exam Conditions
Open Book.

Materials
Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).
Calculator - all non-communicable calculators, including scientific, programmable and graphics calculators are authorised

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