COIT20261 *Network Routing and Switching*
Term 1 - 2018

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 1 - 2018

- 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: 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 Have Your Say feedback. Staff members have suggested the same.

Feedback
It would be good to have the only assignment for this unit split into 2 parts, one due earlier in the term and the other due towards the end of the term.

Recommendation
The assessment regime will be changed to split the one assignment into two parts, so there would be two assignments (appropriately spaced apart) plus an exam.

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%	●	●			
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 , NY , United States of America
Binding: Other

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
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Schedule

Week 1 - 05 Mar 2018

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

Week 2 - 12 Mar 2018

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

Week 3 - 19 Mar 2018

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

Week 4 - 26 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic

Introduction to the Network Layer;
IPv4 Addresses Part I   4 & 5

Week 5 - 02 Apr 2018

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

Vacation Week - 09 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 16 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Delivery and Forwarding of IP Packets; Address Resolution Protocol (ARP)	6 & 8	**Written Assessment 1: IP Networking** Due: Week 6 Friday (20 Apr 2018) 11:45 pm AEST

Week 7 - 23 Apr 2018

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

Week 8 - 30 Apr 2018

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

Week 9 - 07 May 2018

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

Week 10 - 14 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Routing in Wireless Networks	Online material	**Written Assessment 2: Routing and Switching** Due: Week 10 Friday (18 May 2018) 11:45 am AEST

Week 11 - 21 May 2018

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

Week 12 - 28 May 2018

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

Review/Exam Week - 04 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 11 Jun 2018

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, 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.

Assessment Due Date
Week 6 Friday (20 Apr 2018) 11:45 pm AEST

Return Date to Students
Week 8 Friday (4 May 2018)

Weighting
15%

Assessment Criteria
Each question will be marked based on the correctness of the answer, and for descriptive and design questions, also based on the clarity and relevance of the answer. Detailed marking criteria can be found on Moodle.

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. Some questions may require research of emerging technologies not cover in lectures. The questions and further description of the requirements can be found on Moodle.

Assessment Due Date
Week 10 Friday (18 May 2018) 11:45 am AEST

Return Date to Students
Week 12 Friday (1 June 2018)

Weighting
25%

Assessment Criteria
Each question will be marked based on the correctness of the answer, and for descriptive and design questions, also based on the clarity and relevance of the answer. Detailed marking criteria can be found on Moodle.

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