COIT12206 *TCP/IP Principles and Protocols*
Term 1 - 2020

Profile information current as at 17/05/2022 02:04 pm

All details in this unit profile for COIT12206 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.

Corrections

Unit Profile Correction added on 06-05-20
The final exam has been replaced with a 24-hour take-home exam during the exam period.
More details will be available on Moodle. The learning outcomes assessed are unchanged.

General Information

Overview

This unit provides you with an in-depth understanding of the role and function of TCP/IP protocols in contemporary network communication. The unit details the underlying technologies and relationships between the five network layers. You will gain an understanding of how data is encapsulated, addressed and routed over networks. On completion of the unit, you will be able to explain the mechanisms used to facilitate communication between applications over the Internet.

Details

Career Level: *Undergraduate*
Unit Level: *Level 2*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites

Prerequisite: COIT11233 or COIT11238 Note: Students who are currently enrolled in or who have previously completed COIT13147 Networks cannot enrol in this unit.
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 - 2020

- Brisbane
- Cairns
- Melbourne
- Online
- Rockhampton
- Sydney
- Townsville

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 Undergraduate 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: 20%
2. **Practical Assessment**
Weighting: 30%
3. **Examination**
Weighting: 50%

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 evaluations

Feedback
Enjoyed the Cisco Packet Tracer simulator to configure and design but the software-based simulator has its own challenges like unable to zoom, hard to identify appropriate cable types.

Recommendation
Explore the possibility of using other network simulator software (e.g. GNS3) and/or physical network labs in exercises.

Feedback from via email from staff and students

Feedback
The unit content has some gaps with introductory networking unit's content.

Recommendation
Review design of introductory networking unit and this unit to ensure streamlined content, terminology, and tools across both.

Unit Learning Outcomes

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

1. Explain the function and relationship between the protocols in the five network layers
2. Design IP network addressing schemes
3. Interpret and deconstruct frames, packets, datagrams, segments and application-layer message formats
4. Develop routing tables based on IPv4 routing protocols
5. Compare UDP and TCP Transport Layer protocols
6. Illustrate how application programs use the Network, Transport and Application Layer protocols (e.g. DNS, FTP, SMTP, SNMP, and HTTP, etc.)
7. Contrast the emerging IPv6 protocol with IPv4.

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:

- Network Support (NTAS)
- Problem Management (PBMG)
- Data Analysis (DTAN)
- System Design (DESN)
- Service Desk and Incident Management (USUP)

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	6	7
1 - Written Assessment - 20%	•				•		•
2 - Practical Assessment - 30%		•	•	•		•	
3 - Examination - 50%	•	•	•	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
1 - Communication							
2 - Problem Solving		•	•	•			
3 - Critical Thinking					•	•	•
4 - Information Literacy	•	•	•	•	•	•	•
5 - Team Work							
6 - Information Technology Competence	•	•	•	•	•	•	•
7 - Cross Cultural Competence							
8 - Ethical practice							
9 - Social Innovation							
10 - 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	9	10
1 - Written Assessment - 20%		•	•	•		•				
2 - Practical Assessment - 30%		•	•	•		•				
3 - Examination - 50%		•	•	•						

Textbooks and Resources

Textbooks

COIT12206

Prescribed

TCP/IP Protocol Suite
Edition: 4/e (2010)
Authors: Forouzan, B
McGraw-Hill
London , UK
ISBN: 9780073376042
Binding: Hardcover

Additional Textbook Information
Copies can be purchased at the CQUni Bookshop here: http://bookshop.cqu.edu.au (search on the Unit code)

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
- Cisco Packet Tracer 7.2.1

Referencing Style

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

Teaching Contacts

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Schedule

Week 1 - 09 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Course Introduction; The OSI Model and the TCP/IP Protocol Suite; Numbering Systems	2 & Appendix B	

Week 2 - 16 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Underlying Technologies	3	

Week 3 - 23 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Network Layer; IPv4 Addressing Basics	4 & 5	

Week 4 - 30 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Internet Protocol Version 4 (IPv4)	7	

Week 5 - 06 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
IPv6 Addressing; IPv6 Protocol; Internet Control Message Protocol(ICMP)	26, 27, 9 & 28	

Vacation Week - 13 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 20 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to the Transport Layer; User Datagram Protocol (UDP)	13 & 14	**Networking Assignment 1** Due: Week 6 Friday (24 Apr 2020) 11:55 pm AEST

Week 7 - 27 Apr 2020

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

Week 8 - 04 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
IPv4 Addressing in Depth	5	

Week 9 - 11 May 2020

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

Week 10 - 18 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
Unicast Routing Protocols (RIP, OSPF, and BGP)	11	**Networking Assignment 2** Due: Week 10 Friday (22 May 2020) 11:55 pm AEST

Week 11 - 25 May 2020

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

Week 12 - 01 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
File Transfer - FTP and TFTP; World Wide Web and HTTP; Network Management: SNMP	21, 22, & 24	

Review/Exam Week - 08 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 15 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Networking Assignment 1

Assessment Type
Written Assessment

Task Description
This assignment requires you to answer multiple independent questions to test your understanding of topics such as
1. computer networking components and layers,
2. appropriate use of protocols in a specific networking and transport layers,
3. IP addressing in networking layer and basics of Pv4
4. execute network commands and understand the output.
Detailed information about this assessment can be accessed from the unit website in Moodle.

Assessment Due Date
Week 6 Friday (24 Apr 2020) 11:55 pm AEST
Online via Moodle

Return Date to Students
Week 8 Friday (8 May 2020)
Online via Moodle

Weighting
20%

Assessment Criteria
The assessment report will be marked based on the level of

- the correctness of the answer,
- accuracy and clarity of explanations.

More detailed marking criteria can be accessed from Moodle.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Assignments must be submitted online in .doc or .docx format.

Learning Outcomes Assessed

- Explain the function and relationship between the protocols in the five network layers
- Compare UDP and TCP Transport Layer protocols
- Contrast the emerging IPv6 protocol with IPv4.

Graduate Attributes

- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

2 Networking Assignment 2

Assessment Type
Practical Assessment

Task Description
This assignment requires you to perform a number of practical activities to answer multiple independent questions on topics such as
1. appropriateness of network configuration commands and IPv4 and/or IPv6 calculations to configure a network.
2. solve problems relating to the routing of a specific network.
3. evaluate the functions of protocols and standards in network, transport and application layers.
4. appropriateness of networking techniques and implementing them in a network.

Detailed information about this assessment can be accessed from the unit website in Moodle.

Assessment Due Date
Week 10 Friday (22 May 2020) 11:55 pm AEST
Online via Moodle

Return Date to Students
Week 12 Friday (5 June 2020)
Online via Moodle

Weighting
30%

Assessment Criteria
The assessment report will be marked based on

- the correctness of simulated network configuration,
- the correctness of the answer written in the report,
- accuracy and clarity of explanations.

More detailed marking criteria can be accessed from Moodle.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Assignments must be submitted online in .doc or .docx format.

Learning Outcomes Assessed

- Design IP network addressing schemes
- Interpret and deconstruct frames, packets, datagrams, segments and application-layer message formats
- Develop routing tables based on IPv4 routing protocols
- Illustrate how application programs use the Network, Transport and Application Layer protocols (e.g. DNS, FTP, SMTP, SNMP, and HTTP, etc.)

Graduate Attributes

- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

Examination

Outline
Complete an invigilated examination

Date
During the examination period, at a CQUniversity examination centre

Weighting
50%

Length
180 minutes

Details
Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).
Calculator - non-programmable, no text retrieval, silent only
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