



COIT12206 *TCP/IP Principles and Protocols*

Term 1 - 2018

Profile information current as at 26/04/2024 05:24 am

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.

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 - 2018

- Brisbane
- Cairns
- Distance
- Melbourne
- 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 Students Feedback and Recommendations

Feedback

Online recordings need to be improved to ensure it is short and precise.

Recommendation

Provide shorter, summary videos for topics which are long.

Feedback from Students Feedback and Recommendations

Feedback

Lecture materials could be more informative to help students further

Recommendation

Amend lecture notes to highlight important topics and concepts. Highlight importance of using both lecture notes and textbook to students.

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



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

USA

ISBN: 978-0073376042

Binding: Hardcover

Additional Textbook Information

The textbook is required for the course and it is advisable to purchase it early. It is also required for the open book exam. Soft copies of the text are not permitted in 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)
- Cisco Packet Tracer
- Wireshark

Referencing Style

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

For further information, see the Assessment Tasks.

Teaching Contacts

Biplob Ray Unit Coordinator

b.ray@cqu.edu.au

Schedule

Week 1 - 05 Mar 2018

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 - 12 Mar 2018

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

Week 3 - 19 Mar 2018

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

Week 4 - 26 Mar 2018

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

Week 5 - 02 Apr 2018

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

Vacation Week - 09 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - 16 Apr 2018

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

Week 7 - 23 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Transmission Control Protocol (TCP)	15	Networking Assignment 1 Due: Week 7 Friday (27 Apr 2018) 11:59 pm AEST

Week 8 - 30 Apr 2018

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

Week 9 - 07 May 2018

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

Week 10 - 14 May 2018

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

Week 11 - 21 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Host Configuration - DHCP; Domain Name System (DNS)	18 & 19	Networking Assignment 2 Due: Week 11 Friday (25 May 2018) 11:00 pm AEST

Week 12 - 28 May 2018

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

Term Specific Information

Welcome to Term 1, 2018!

During the term, if you are enrolled in a campus class, please contact the respective lead lecturer on that campus with your questions. Their contact details are found on the unit page in Moodle ("Information-> Unit Contacts", top left column). Distance students should contact me if you have any questions which are not suitable to be asked through the unit forums.

There is a lot of material to cover during the term, so you are encouraged to get the recommended textbook early and attend all classes. I look forward to your active participation in class and through the forums.

Have an enjoyable term!

Dr. Biplob Ray (b.ray@cqu.edu.au) Unit Coordinator - T1, 2018 COIT12206 TCP/IP Principles and Protocols.

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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,
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 7 Friday (27 Apr 2018) 11:59 pm AEST

Return Date to Students

Week 9 Friday (11 May 2018)

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 calculations to configure a network.
2. solve problems relating to 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 11 Friday (25 May 2018) 11:00 pm AEST

Return Date to Students

Review/Exam Week Friday (8 June 2018)

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

No submission method provided.

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

Exam Conditions

Open Book.

Materials

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

Calculator - non-programmable, no text retrieval, silent only

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