



# COIT13146 System and Network Administration

## Term 1 - 2023

Profile information current as at 28/04/2024 05:57 pm

All details in this unit profile for COIT13146 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 gives you a practical introduction to system and network service management and administration. You are provided with the skills necessary to configure and manage secure server environments and deliver network services. You will cover topics such as managing computer systems and users, managing network services, configuring and managing system and network software, computer security mechanisms and ethics, and developing administrative policies and procedures. You will use a Linux operating system as a practical platform to apply and demonstrate knowledge.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Prerequisite: COIT12206 - TCP/IP Principles and Protocols OR, COIT13147 - Networks.

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 - 2023

- Brisbane
- Cairns
- Melbourne
- Online
- 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 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: 15%

#### 2. **Written Assessment**

Weighting: 25%

#### 3. **Written Assessment**

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

##### Feedback

Some video contents are out of date.

##### Recommendation

Review and remove the older irrelevant videos.

## Unit Learning Outcomes

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

1. Use administration commands and utilities to manage and secure computer systems
2. Configure and deploy the common system and network services
3. Demonstrate the ability to perform user management and maintenance tasks
4. Describe how elements of relevant codes of ethics inform professional practice
5. Develop, deploy and evaluate security policies and rules.

The Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA is adopted by organisations, governments and individuals in many 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.

This unit contributes to the following workplace skills as defined by [SFIA 7](#) (the SFIA code is included):

- Network Support (NTAS)
- Problem Management (PBMG)
- System Design (DESN)
- 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
1 - Written Assessment - 15%	•		•		
2 - Written Assessment - 25%		•		•	•
3 - Written Assessment - 60%	•	•	•		•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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 - 15%	•	•		•		•				
2 - Written Assessment - 25%		•		•		•		•		
3 - Written Assessment - 60%	•	•	•	•	•	•				

## Textbooks and Resources

### Textbooks

COIT13146

#### Prescribed

##### **UNIX and Linux System Administration Handbook (5e)**

Edition: Fifth (2018)

Authors: Evi Nemeth, Garth Snyder, Trent R. Hein, Ben Whaley, Dan Mackin

Addison-Wesley Professional

Upper Saddle River , NJ , United States of America

Binding: Paperback

#### **Additional Textbook Information**

Textbooks can be accessed online at the CQUniversity Library website. If you prefer your own copy, you can purchase either paper or eBook versions 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)
- VirtualBox

## Referencing Style

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

For further information, see the Assessment Tasks.

## Teaching Contacts

**MD Mamunur Rashid** Unit Coordinator

[m.rashid@cqu.edu.au](mailto:m.rashid@cqu.edu.au)

## Schedule

### **Week 1 - 06 Mar 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Linux and Virtualisation	Chapter 1 Where to Start Chapter 24 Virtualization	

### **Week 2 - 13 Mar 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Administration Tools	Chapter 6 Software Installation and Management	

### **Week 3 - 20 Mar 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Linux Command Line Practice	Chapter 5 The Filesystem	

### **Week 4 - 27 Mar 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Process Control and Shell Scripting	Chapter 4 Process Control Chapter 7 Scripting and the Shell	
<b>Week 5 - 03 Apr 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
Users and File Permission Management	Chapter 3 Access Control and Rootly Powers Chapter 8 User Management	<b>Assignment 1:</b> Due Week 5 Friday (7 April 2023) 11:55 pm AEST  <b>Linux System Administration Activity Report</b> Due: Week 5 Friday (7 Apr 2023) 11:45 pm AEST
<b>Vacation Week - 10 Apr 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
<b>Week 6 - 17 Apr 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
Networking in Virtual Environment	Chapter 13 TCP/IP Networking	
<b>Week 7 - 24 Apr 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
Deploying Web Services	Chapter 18 Electronic Mail Chapter 19 Web Hosting	
<b>Week 8 - 01 May 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
System Administration Automation	Chapter 10 Logging Chapter 20 Storage	
<b>Week 9 - 08 May 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
Networking Administration and Security	Chapter 27 Security	
<b>Week 10 - 15 May 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
System and Network Monitoring	Chapter 28 Monitoring	<b>Assignment 2:</b> Due Week 10 Friday (19 May 2023) 11:55 pm AEST  <b>Network Administration Activity Report</b> Due: Week 10 Friday (19 May 2023) 11:45 pm AEST
<b>Week 11 - 22 May 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
Building a Small Business Network	The examples of the needed basic services (backup, git, DHCP and so on) will be provided through the unit website	
<b>Week 12 - 29 May 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic
Review and Discussion	Review and discuss the final project	
<b>Finalize and Submit Project - 05 Jun 2023</b>		
Module/Topic	Chapter	Events and Submissions/Topic

The Final Project Report  
Submission

**Assignment 3:** Review/Exam Week  
Friday (9 June 2023) 11:55 pm AEST

**System and Network  
Administration Project** Due:  
Review/Exam Week Friday (9 June  
2023) 11:45 pm AEST

**Exam Week - 12 Jun 2023**

Module/Topic

Chapter

Events and Submissions/Topic

## Term Specific Information

You should bring your own laptop to classes for setting up systems activities and saving your lab work.

## Assessment Tasks

### 1 Linux System Administration Activity Report

#### Assessment Type

Written Assessment

#### Task Description

Each week (Weeks 1 to 5) you will perform hands-on system administration activities, including setting up a Linux system, using the Linux command line and basic scripting to perform filesystem and user management, and implementing security policies (e.g., file access control). You are required to report on these activities by answering questions about the tasks performed, and demonstrating that you have performed them by submitting evidence such as screenshots, logs, configuration files or other as required. The tasks and questions will be provided each week in Moodle, with all answers and required evidence to be submitted in your Linux System Administration Activity Report. Late submissions are subject to the university's late submission penalty policies.

#### Assessment Due Date

Week 5 Friday (7 Apr 2023) 11:45 pm AEST

Late submissions are subject to the university's late submission penalty policies.

#### Return Date to Students

Week 6 Friday (21 Apr 2023)

Assessments will be returned through Moodle website. Late submissions with or without extension approvals may be returned after the above date.

#### Weighting

15%

#### Assessment Criteria

Your activity report will be marked on the correctness and clarity of your answers. Evidence of tasks that are submitted (e.g. files, screenshots) will be marked on the correctness and depth of information shown. Detailed marking criteria and the expected format of activity reports are available in Moodle.

#### Referencing Style

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

#### Submission

Online

#### Submission Instructions

This assignment should be attempted and submitted individually through Moodle.

#### Learning Outcomes Assessed

- Use administration commands and utilities to manage and secure computer systems
- Demonstrate the ability to perform user management and maintenance tasks

#### Graduate Attributes

- Communication

- Problem Solving
- Information Literacy
- Information Technology Competence

## 2 Network Administration Activity Report

### Assessment Type

Written Assessment

### Task Description

During Weeks 6 to 9, you will perform hands-on network administration activities such as diagramming your network, producing digital certificates, doing cron entries and implementing security policies like firewalls. You are required to report on these activities by answering questions about the tasks performed, and demonstrating that you have performed them by submitting evidence such as screenshots, logs, configuration files or other as required. The tasks and questions will be provided each week in Moodle, with all answers and required evidences to be submitted in your Linux System Administration Activity Report.

### Assessment Due Date

Week 10 Friday (19 May 2023) 11:45 pm AEST

Late submissions are subject to the university's late submission penalty policies.

### Return Date to Students

Week 12 Friday (2 June 2023)

Assessments will be returned through Moodle website. Late submissions with or without extension approvals may be returned after the above date.

### Weighting

25%

### Assessment Criteria

Your Activity Report will be marked on the correctness and clarity of your answers. Evidence of tasks that are submitted (e.g. files, screenshots) will be marked on the correctness and depth of information shown. Detailed marking criteria and expected format of Activity Reports are available in Moodle.

### Referencing Style

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

### Submission

Online

### Submission Instructions

Online through Moodle

### Learning Outcomes Assessed

- Configure and deploy the common system and network services
- Describe how elements of relevant codes of ethics inform professional practice
- Develop, deploy and evaluate security policies and rules.

### Graduate Attributes

- Problem Solving
- Information Literacy
- Information Technology Competence
- Ethical practice

## 3 System and Network Administration Project

### Assessment Type

Written Assessment

### Task Description

Within a team environment, using the knowledge, skills and facilities developed over the term, you will develop a complete system typical of real, small business networks, with multiple computers configured in a network and running common services and applications. To do this you will design the IP-based network, select the services to run (e.g. web server, file server), and configure each computer to meet given security and user requirements. The system will be deployed in a virtual environment. You will produce and submit relevant documentation (e.g. installation guides, usage guides) as well as evidence that your system meets the requirements (e.g. configuration files, logs, screenshots). Details of this project, including team setup, the case study, security requirements, user requirements, and detailed marking criteria, are available in Moodle.



**Assessment Due Date**

Review/Exam Week Friday (9 June 2023) 11:45 pm AEST

Late submissions are subject to the university's late submission penalty policies.

**Return Date to Students**

Assessments will be returned on the Certification date (It is required for the unit without an exam).

**Weighting**

60%

**Assessment Criteria**

The system documentation (including submitted files) that you produce will be assessed using detailed assessment criteria that include:

1. Relevant material is included, while irrelevant or repetitive material is omitted;
2. Sufficient depth is provided so that it can be used and understood by the intended audience;
3. Sufficient breadth is provided, demonstrating all requirements of the system are met;
4. Presentation and layout of the documentation such that it is clear and easy to follow;
5. All requested files are submitted in the correct format.

Detailed marking criteria are available in Moodle.

**Referencing Style**

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

**Submission**

Online Group

**Submission Instructions**

Online through Moodle

**Learning Outcomes Assessed**

- Use administration commands and utilities to manage and secure computer systems
- Configure and deploy the common system and network services
- Demonstrate the ability to perform user management and maintenance tasks
- Develop, deploy and evaluate security policies and rules.

**Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

## 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