



# COIT13146 System and Network Administration

## Term 1 - 2020

Profile information current as at 14/12/2025 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 OR COIT13147

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: 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

Perhaps some more feedback on assessment, having marks back before the next assignment is due helps to know what to improve on.

##### Recommendation

Teaching staff to be instructed and better resourced to provide marks and feedback in a timely manner.

#### Feedback from student feedback

##### Feedback

The information given on how to write scripts is very poor. As a person who doesn't understand how to write code of any sort, this area needs a lot more explanation.

##### Recommendation

Staff will identify and introduce more Moodle links to external resources capable of providing basic or beginner level scripting to help bring students up to speed who require this extra scaffolding.

## 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 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.

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 |
| 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**

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

## 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

[k.howah@cqu.edu.au](mailto:k.howah@cqu.edu.au)

## Schedule

### **Week 1 - 09 Mar 2020**

| Module/Topic                             | Chapter   | Events and Submissions/Topic |
|--|---|------------------------------|
| Introduction to Linux and Virtualisation | Chapter 1 Where to Start<br>Chapter 2 Booting and System Management Daemons<br>Chapter 9 Cloud Computing<br>Chapter 24 Virtualization |                              |

### **Week 2 - 16 Mar 2020**

| Module/Topic             | Chapter  | Events and Submissions/Topic |
|--------------------------|--|------------------------------|
| Using Linux Applications | Chapter 6 Software Installation and Management |                              |

### **Week 3 - 23 Mar 2020**

| Module/Topic              | Chapter                  | Events and Submissions/Topic |
|---------------------------|--------------------------|------------------------------|
| Linux Command Line Basics | Chapter 5 The Filesystem |                              |

**Week 4 - 30 Mar 2020**

| Module/Topic            | Chapter  | Events and Submissions/Topic |
|-------------------------|--|------------------------------|
| Processes and Scripting | Chapter 4 Process Control<br>Chapter 7 Scripting and the Shell |                              |

**Week 5 - 06 Apr 2020**

| Module/Topic          | Chapter   | Events and Submissions/Topic |
|-----------------------|---|------------------------------|
| Users and Permissions | Chapter 3 Access Control and Rootly Powers<br>Chapter 8 User Management |                              |

**Vacation Week - 13 Apr 2020**

| Module/Topic | Chapter | Events and Submissions/Topic   |
|--------------|---------|--|
|              |         | <b>Linux System Administration Activity Report</b> Due: Vacation Week Tuesday (14 Apr 2020) 9:00 am AEST |

**Week 6 - 20 Apr 2020**

| Module/Topic      | Chapter                      | Events and Submissions/Topic |
|-------------------|------------------------------|------------------------------|
| Networking Basics | Chapter 13 TCP/IP Networking |                              |

**Week 7 - 27 Apr 2020**

| Module/Topic     | Chapter  | Events and Submissions/Topic |
|------------------|--|------------------------------|
| Internet Servers | Chapter 18 Electronic Mail<br>Chapter 19 Web Hosting |                              |

**Week 8 - 04 May 2020**

| Module/Topic               | Chapter                                  | Events and Submissions/Topic |
|----------------------------|--|------------------------------|
| Services, Logs and Backups | Chapter 10 Logging<br>Chapter 20 Storage |                              |

**Week 9 - 11 May 2020**

| Module/Topic            | Chapter             | Events and Submissions/Topic |
|-------------------------|---------------------|------------------------------|
| Hardening Linux Systems | Chapter 27 Security |                              |

**Week 10 - 18 May 2020**

| Module/Topic                  | Chapter               | Events and Submissions/Topic  |
|-------------------------------|-----------------------|---|
| System and Network Monitoring | Chapter 28 Monitoring | <b>Network Administration Activity Report</b> Due: Week 10 Friday (22 May 2020) 11:55 pm AEST |

**Week 11 - 25 May 2020**

| Module/Topic   | Chapter | Events and Submissions/Topic |
|--|---------|------------------------------|
| Putting it Together: Building a Small Business Network |         |                              |

**Week 12 - 01 Jun 2020**

| Module/Topic       | Chapter | Events and Submissions/Topic |
|--------------------|---------|------------------------------|
| Project Completion |         |                              |

**Project Finalization & Submission - 08 Jun 2020**

| Module/Topic  | Chapter | Events and Submissions/Topic  |
|---|---------|---|
| Working with your team members, wrap up the project this week, tidy up any loose ends, ensure all components completed and submit the project |         | <b>System and Network Admin Project</b> Due: Review/Exam Week Friday (12 June 2020) 11:55 pm AEST |

**Assessment Tasks**

# 1 Linux System Administration Activity Report

## Assessment Type

Written Assessment

## Task Description

Each week (week 1 through 5) you will perform hands-on system administration activities, including setting up a Linux system, using 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 evidences to be submitted in your Linux System Administration Activity Report.

## Assessment Due Date

Vacation Week Tuesday (14 Apr 2020) 9:00 am AEST

Takes account of the Easter holiday period

## Return Date to Students

Week 7 Friday (1 May 2020)

Late submissions will be returned 2 weeks after the submission 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 expected format of Activity Reports are available in Moodle.

## Referencing Style

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

## Submission

Online

## 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

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

# 2 Network Administration Activity Report

## Assessment Type

Written Assessment

## Task Description

During weeks 6 through 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 (22 May 2020) 11:55 pm AEST

## Return Date to Students

Week 12 Friday (5 June 2020)

Late submissions will be returned 2 weeks after the submission 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

### **Learning Outcomes Assessed**

- Configure and deploy common system and network services
- Develop, deploy and evaluate security policies and rules.

### **Graduate Attributes**

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

## **3 System and Network Admin 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 (12 June 2020) 11:55 pm AEST

### **Return Date to Students**

Project feedback and summary results will be returned on Certification Date

### **Weighting**

60%

### **Assessment Criteria**

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

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

## Learning Outcomes Assessed

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

## Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Ethical practice

## 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