School of Science, Computing, and Engineering Technologies

SWINBURNE UNIVERSITY OF TECHNOLOGY

Unit Outline

TNE30019

Unix in the Internet

Semester 2 2022

Please read this Unit Outline carefully. It includes:

PART A Unit summary

PART B Your Unit in more detail

PART C Further information

PART A: Unit Summary

Unit Code(s)		TNE30019
Unit Title		Unix in the Internet
Duration		One Semester or equivalent
Total Contact Hours		60 hours
Requisites:		
	Pre-requisites	COS10009 – Introduction to Programming or ENG10004 – Digital and Data Systems
	Co-requisites	
	Concurrent pre-requisites	TNE20001 – IP Technologies or TNE20002 – Network Routing Principles
	Anti-requisites	
	Assumed knowledge	
Credit Points		12.5
Campus/Location		Hawthorn
Mode of Delivery		
Assessment Summary		Portfolio – 100%

Aims

This unit of study aims to provide you with an understanding of how the Unix operating system is deployed in data networking scenarios, and the ability to successfully deploy and manage such systems.

Unit Learning Outcomes

Students who successfully complete this Unit should be able to:

1. Use navigation processes in an installed Unix System (K3, S3)
2. Appreciate the operation of a Unix-based Operating System (K3)
3. Appraise and conduct the administration of a Unix server or workstation (K3, S1, S2)
4. Plan and configure common network services, devices and security (K2, K3, S1)
5. Demonstrate the use of network administration tools on Unix systems (K3, S1, S2)
6. Design and construct unfamiliar network services (K3, S2, S3)
7. Generate documentation for laboratory work and a research assignment (A2)

Swinburne Engineering Competencies for this Unit of Study

This Unit of Study will contribute to you attaining the following Swinburne Engineering Competencies:

K2 **Maths and IT as Tools:** Proficiently uses relevant mathematics and computer and information science concepts as tools

K3 **Discipline Specific:** Proficiently applies advanced technical knowledge of the specific discipline within that context

S1 **Engineering Methods:** Applies engineering methods in practical applications

S2 **Problem Solving:** Systematically uses engineering methods in solving complex problems

S3 **Design:** Systematically uses engineering methods in design

A2 **Communication:** Demonstrates effective communication to professional and wider audiences

A4 **Information Management:** Demonstrates seeking, using, assessing and managing information

Graduate Attributes

This unit may contribute to the development of the following Swinburne Graduate Attributes:

- Communication skills
- Teamwork skills
- Digital literacies

Content

- History of Unix
- Comparison of Unix Systems
- Functionality of the Unix kernel
- The Unix CLI and Shell
- Unix as a Network Services Platform
- Writing networked applications under Unix
- Configuring Unix networked services
- Network and Network Traffic Analysis
- File and Print Sharing
- Building Network Devices

PART B: Your Unit in more detail

Unit Improvements

Feedback provided by previous students through the Student Survey has resulted in improvements that have been made to this unit. Recent improvements include:

- Portfolio based with clearer assessment criteria
- Clearer definition of how to achieve bonus grades
- Student proposed topics of interest

Unit Teaching Staff

Name	Role	Room	Email	Consultation Times
Dr Jason But	Unit Convenor and Lecturer	EN606e	jbut@swin.edu.au	By appointment
Farinaz Jowkarishasaltaneh	Tutor and Lab Supervisors		Contact via Canvas	

Learning and Teaching Structure

Activity	Total Hours	Hours per Week	Teaching Period Weeks
Lectures	24 hours	2 hours	Weeks 1 to 12
Tutorials	10 hours	1 hour	Weeks 2 to 11
Laboratory Work	20 hours	1 hour	Weeks 2 to 11
Assignment Presentation	3 hours	3 hours	Week 12

Week by Week Schedule

Week	Self-Directed Learning (pre-class)	Live Session
1		Unit Introduction
2	History of Unix OS Basics The Unix Kernel – Device Drivers	Demonstration of Task Switching Question and Answer Flipped Classroom
3	The Unix Kernel – File Systems Compiling the Kernel	Live walkthrough of a Unix File System Question and Answer Flipped Classroom
4	System Bootup User Input-Output Unix Shell and CLI	<skipped slides summary of walkthrough> Question and Answer Flipped Classroom
5	Remote Access Installing Software	Industry Speaker
6	DNS DHCP Dynamic DNS	Live walkthrough of a functioning DNS, DHCP, and DDNS System Question and Answer Flipped Classroom
		Non teaching week
7	Network Programming Basics The Sockets API	Socket Programming Examples Question and Answer Flipped Classroom
8	Basic Network Analysis Tools NMap TCPDump	Question and Answer Flipped Classroom
9	Building a FreeBSD Bridge Building a FreeBSD Router Simulating Networks	Portfolio Project Hints Question and Answer Flipped Classroom
10		Industry Speaker
11		Student Proposed Topic
12		Student Proposed Topic

Assessment

a) Assessment Overview

Tasks and Details	Individual or Group	Weighting	Unit Learning Outcomes that this assessment task relates to
1. Portfolio	Individual	100%	1, 2, 3, 4, 5, 6, 7

b) Minimum requirements to pass this Unit

As the minimum requirements of assessment to pass a unit and meet all Unit Learning Outcomes to a minimum standard, a student must achieve:

- An aggregate mark of 50% or more

c) Submission Requirements

All Portfolio tasks are to be completed and managed within the Ed, a link to Ed is available on Canvas. Both Ed and Canvas contain information on assessment of the Portfolio components.

Deadlines for individual Portfolio Components are managed within Ed

Lab practical work is submitted based on automated collection of your work, coupled with discussion with your Lab Supervisor.

Assignment presentations are made during your allocated sessions in either your lab or tutorial class in Week 12

d) Extensions and Late Submission

Late Submissions - Unless an extension has been approved, late submissions will result in a penalty as described on the task sheet. Where an extension is warranted, please see your lab/tutorial supervisor (as appropriate) in the first instance. You may be directed to the Unit Convenor. Please ensure you have all relevant documentation to justify your request.

e) Referencing

To avoid plagiarism, you are required to provide a reference whenever you include information from other sources in your work. Further details regarding plagiarism are available in Section C of this document.

Referencing conventions required for this unit are the IEEE Citation Policy, more information at: http://www.ieee.org/documents/ieeecitationref.pdf

Helpful information on referencing can be found at http://www.swinburne.edu.au/library/referencing/

Recommended Reading Materials

The Library has a large collection of resource materials, both texts and current journals. Relevant references that will provide valuable supplementary information to this unit are listed on Canvas. It is also recommended that you explore other sources to broaden your understanding.

PART C: FURTHER INFORMATION

For further information on any of these topics, refer to Swinburne's Current Students web page http://www.swinburne.edu.au/student/.

Student behaviour and wellbeing

All students are expected to: act with integrity, honesty and fairness; be inclusive, ethical and respectful of others; and appropriately use University resources, information, equipment and facilities. All students are expected to contribute to creating a work and study environment that is safe and free from bullying, violence, discrimination, sexual harassment, vilification and other forms of unacceptable behaviour.

The Student Charter describes what students can reasonably expect from Swinburne in order to enjoy a quality learning experience. The Charter also sets out what is expected of students with regards to your studies and the way you conduct yourself towards other people and property.

You are expected to familiarise yourself with University regulations and policies and are obliged to abide by these, including the Student Academic Misconduct Regulations, Student General Misconduct Regulations and the People, Culture and Integrity Policy. Any student found to be in breach of these may be subject to disciplinary processes.

Examples of expected behaviours are:

- conducting yourself in teaching areas in a manner that is professional and not disruptive to others
- following specific safety procedures in Swinburne laboratories, such as wearing appropriate footwear and safety equipment, not acting in a manner which is dangerous or disruptive (e.g. playing computer games), and not bringing in food or drink
- following emergency and evacuation procedures and following instructions given by staff/wardens in an emergency response

Canvas

You should regularly access the Swinburne learning management system, Canvas, which is available via the Current Students webpage or https://swinburne.instructure.com/ Canvas is updated regularly with important unit information and communications.

Communication

All communication will be via your Swinburne email address. If you access your email through a provider other than Swinburne, then it is your responsibility to ensure that your Swinburne email is redirected to your private email address.

Academic Integrity

Academic integrity is about taking responsibility for your learning and submitting work that is honestly your own. It means acknowledging the ideas, contributions and work of others; referencing your sources; contributing fairly to group work; and completing tasks, tests and exams without cheating.

Swinburne University uses the Turnitin system, which helps to identify inadequate citations, poor paraphrasing and unoriginal work in assignments that are submitted via Canvas. Your Unit Convenor will provide further details.

Plagiarising, cheating and seeking an unfair advantage with regards to an exam or assessment are all breaches of academic integrity and treated as academic misconduct.

Plagiarism is submitting or presenting someone else's work as though it is your own without full and appropriate acknowledgement of their ideas and work. Examples include:

- using the whole or part of computer program written by another person as your own

- using the whole or part of somebody else's written work in an essay or other assessable work, including material from a book, journal, newspaper article, a website or database, a set of lecture notes, current or past student's work, or any other person's work
- poorly paraphrasing somebody else's work
- using a musical composition or audio, visual, graphic and photographic work created by another
- using realia created by another person, such as objects, artefacts, costumes, models
- submitting assessments that have been developed by another person or service (paid or unpaid), often referred to as contract cheating
- presenting or submitting assignments or other work in conjunction with another person or group of people when that work should be your own independent work. This is regardless of whether or not it is with the knowledge or consent of the other person(s). Swinburne encourages students to talk to staff, fellow students and other people who may be able to contribute to a student's academic work but where an independent assignment is required, the work must be the student's own
- enabling others to plagiarise or cheat, including letting another student copy your work or by giving access to a draft or completed assignment

The penalties for academic misconduct can be severe, ranging from a zero grade for an assessment task through to expulsion from the unit and, in the extreme, exclusion from Swinburne.

Student support

Swinburne offers a range of services and resources to help you complete your studies successfully. Your Unit Convenor or studentHQ can provide information about the study support and other services available for Swinburne students.

Special consideration

If your studies have been adversely affected due to serious and unavoidable circumstances outside of your control (e.g. severe illness or unavoidable obligation), you may be able to apply for special consideration (SPC).

Applications for Special Consideration will be submitted via the SPC online tool normally no later than 5.00pm on the third working day after the submission/sitting date for the relevant assessment component.

Accessibility needs

Sometimes students with a disability, a mental health or medical condition or significant carer responsibilities require reasonable adjustments to enable full access to and participation in education. Your needs can be addressed by Swinburne's AccessAbility Services by negotiating and distributing an 'Education Access Plan'. The plan makes recommendations to university teaching and examination staff. You must notify AccessAbility Services of your disability or condition within one week after the commencement of your unit to allow the University to make reasonable adjustments.

Review of marks

An independent marker reviews all fail grades for major assessment tasks. In addition, a review of assessment is undertaken if your final result is between 45 and 49 or within 2 marks of any grade threshold.

If you are not satisfied with the result of an assessment, you can ask the Unit Convenor to review the result. Your request must be made in writing within 10 working days of receiving the result. The Unit Convenor will review your result to determine if your result is appropriate.

If you are dissatisfied with the outcomes of the review, you can lodge a formal complaint.

Feedback, complaints and suggestions

In the first instance, discuss any issues with your Unit Convenor. If you are dissatisfied with the outcome of the discussion or would prefer not to deal with your Unit Convenor, then you can complete a feedback form. See https://www.swinburne.edu.au/corporate/feedback/

Advocacy

Should you require assistance with any academic issues, University statutes, regulations, policies and procedures, you are advised to seek advice from an Independent Advocacy Officer at Swinburne Student Life.

For an appointment, please call 03 9214 5445 or email advocacy@swin.edu.au For more information, please see https://www.swinburne.edu.au/current-students/student-services-support/advocacy/