

# Unit Outline

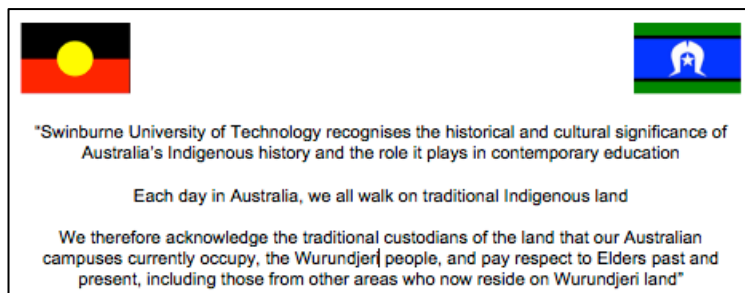
**TNE60006**

## Networks and Switching

Semester 2 2024

**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

<b>Unit Code(s)</b>	TNE60006
<b>Unit Title</b>	Networks and Switching
<b>Duration</b>	One Semester or equivalent
<b>Total Contact Hours</b>	60 hours
<b>Requisites:</b>	
<b>Pre-requisites</b>	
<b>Co-requisites</b>	
<b>Concurrent pre-requisites</b>	
<b>Anti-requisites</b>	TNE60001 LAN Principles TNE70001 Internetworking Technologies
<b>Assumed knowledge</b>	
<b>Credit Points</b>	12.5
<b>Campus/Location</b>	Hawthorn
<b>Mode of Delivery</b>	Online Synchronous / Online Asynchronous / On-Campus
<b>Assessment Summary</b>	In-Semester Assessment – 30% Final Skills Assessment – 20% – Hurdle: 50% Final Concepts Assessments – 50% – Hurdle: 40%

### Aims

This unit of study aims to introduce you to the field of data networking and to provide you with the necessary skills to design and successfully deploy a small network.

### Unit Learning Outcomes

Students who successfully complete this Unit should be able to:

1. Use the OSI Model to discuss network design and infrastructure (K3, S3)
2. Design an addressing scheme to subnet a network to given specifications (K2, K3, S3)
3. Describe the processes of LAN switching and how VLANs are used in a switched network (K3)
4. Use best practice to design secure corporate networks and deploy security to practical networking environments (K3, S1, S3)
5. Describe how the Spanning Tree Protocol eliminates loops in multi-switched LANs (K3)
6. Construct a simple network of PCs, switches and a router, and troubleshoot problems in those networks (K3, S1, S2, S3)
7. Generate documentation for laboratory work and assignments (A2)

## **Graduate Attributes**

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

- GA5 Digital Literacies - Information Literacy

## **Content**

- Networking Fundamentals
- OSI Network Layers
- Ethernet fundamentals, technologies and switching
- TCP/IP and addressing
- Subnets and subnetting (VLSM and CIDR)
- Switching concepts
- Virtual LANs
- Inter-VLAN Static routing
- Network and Secure Network Design
- EtherChannel Bundling
- Spanning Tree Protocol
- Wireless LANs
- Basic switch troubleshooting History of Unix

## 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:

- Lecture Revision Quizzes

### Unit Teaching Staff

Name	Role	Room	Email	Consultation Times
Karina Cereceda	Unit Convenor Lecturer	EN607a	necerecedacastellani@swin.edu.au	Mon 09:00 - 11:00 By appointment
Staff list on Canvas	Lab Instructors		Contact via Canvas	By appointment

### Learning and Teaching Structure

Category	Activity	Total Hours	Hours per Week	Teaching Period Weeks
Online	Lectures	24 hours	2 hours	Weeks 1 to 12
In person and Live online	Lecture Workshops	24 hours	2 hours	Weeks 1 to 12
In person	Laboratory Work	36 hours	3 hours	Weeks 1 to 12
Online	NetAcademy Program	30 hours	2.5 hours	Weeks 1 to 12
Online	Self-paced learning activities	36 hours	3 hours	Weeks 1 to 12

## Week by Week Schedule

Week	Lecture Topic	Laboratory and Synchronous Assessments	NetAcademy Exams Due Date
1	Unit Overview Network Layer Modules	Lab Journal Introduction to ATC Labs Introduction to Packet Tracer Lab SU-1a and Lab SU-2a	
2	Link Layer and Ethernet	VLANs Switch Security and Remote Access Lab SU-3a	
3	Switching Concepts and VLANs Trunking	VLANs Trunking Lab SU-4a	
4	Network Layer – IPv4	Inter-VLAN routing Lab SU-5a	
5	IPv4 Subnetting – VLSM	Inter-VLAN routing Lab SU-5b <b>Group Lab Activity 1 Starts</b>	
6	IPv4 Subnetting – VLSM	Subnetting Exercises Troubleshooting Lab SU-6a <b>Group Lab Activity 1 Continues</b>	
Friday 13/09		***** Friday Lab Sessions ONLY ***** Sample Mid-Sem Skills Assessment <b>Group Lab Activity 1 Submission</b>	
7	Inter-VLAN Routing LAN Design	Sample Mid-Sem Skills Assessment <b>Group Lab Activity 1 Submission</b>  ***** Friday Lab Sessions ONLY ***** <b>Mid-Sem Skills Assessment</b> <b>VLSM Test</b>	
8	Spanning Tree Protocol	<b>Mid-Sem Skills Assessment</b> <b>VLSM Test</b>	CCNA1 Modules 1-3 CCNA1 Modules 4-7 CCNA1 Modules 8-10 CCNA2 Modules 1-4
9	EtherChannel Bundling Wireless Concepts	Spanning-Tree Protocol Lab SU-7a and Lab SU-8a	
10	Wireless Concepts IPv6	EtherChannels Lab SU-9a and Lab SU-9b	
11	IPv6 Transport Layer – TCP and UDP	Sample Final Skills Assessment <b>Group Lab Activity 2 Starts</b>	
12	Transport Layer – TCP and UDP	Sample Final Skills Assessment <b>Group Lab Activity 2 Submission</b>	CCNA1 Modules 11-13 CCNA1 Modules 14-15 CCNA1 Modules 16-17 CCNA2 Modules 5-6

## Assessments

### a) Assessment Overview

Tasks and Details	Individual or Group	Weight	Related Unit Learning Outcomes	Assessment Due Date
1. NetAcademy Module Exams	Individual	1%	1, 2	Refer to weekly schedule.
2. Mid-Semester Skills Assessment	Individual	5%	2, 3, 6, 7	
3. VLSM Test	Individual	5%	2	
4. Group Lab Activities	Group	15%	1, 2, 3, 4, 5, 6, 7	
5. NetAcademy CCNA1 Final Exam	Individual	4%	1, 2	Final Assessment Period
6. Final Skills Assessment	Individual	20%	2, 3, 6, 7	Final Assessment Period
7. Final Written Assessment	Individual	50%	1, 2, 3, 4, 5	Final Assessment Period

### b) Minimum requirements to pass this Unit

To pass this Unit, you must:

- (i) An aggregate mark of 50% or more, and
- (ii) obtain at least 40% in the Final Written Assessments, and
- (ii) must pass the Final Skills Assessment.

Students who do not meet (i), (ii) and (iii), will score a maximum of 45% as the total mark for the Unit.

#### Cisco NetAcademy (CNAP) CCNA program

- Attempting the specified CCNA Modules within the CNAP Program is mandatory
- Enrolment will be verified by your instructor during Week 1
- The CCNA CNAP Program runs separately from the Swinburne Unit
- In order to achieve a pass within the CNAP Program you must:
  - Pass the Swinburne Unit
  - Achieve a score of at least 60% in the CCNA1 Final Test

### c) Final Assessment Period

If the unit you are enrolled in has a final assessment (including invigilated exams), you will be expected to be available for the entire final assessment period including any Special Exam period.

The use of dictionaries and calculators is not permitted during assessments.

The use of mobile phones, tablets and personal computers is not permitted during on-campus assessments. During online assessments, the use of mobile phones, tablets or personal computers is permitted only for accessing the online tools required to complete the assessment. The use of these devices for any other purposes is not permitted.

You are expected to have access to the Unit's online learning tools (i.e., Canvas, Collaborate, Echo360 and Cisco NetAcademy) for online assessments. You should also be prepared to share screen, audio and video with the assessor team if required; this means that your device should be equipped with a microphone and a webcam.

**d) Use of generative AI (genAI) in this Unit**

Assignments and assessments in this unit should be completed entirely without genAI assistance.

**e) Submission Requirements**

Assignments and other assessments are generally submitted online through the Canvas assessment submission system which integrates with the Turnitin plagiarism checking service.

Please ensure you keep a copy of all assessments that are submitted.

In cases where a hard copy submission is required an Assessment Cover Sheet must be submitted with your assignment. The standard Assessment Cover Sheet is available from the [Submitting work](#) webpage or [www.swinburne.edu.au/studentforms](http://www.swinburne.edu.au/studentforms).

Group Lab Activities must be submitted through Canvas. Only one group member need submit the assignment for the group, your submitted report will be passed through the Turnitin online submission system.

**f) Extensions and Late Submission**

Late Submissions - Unless an extension has been approved, late submissions will result in a penalty. You will be penalised 10% of your achieved mark for each working day the task is late, up to a maximum of 5 working days. After 5 working days a zero result will be recorded.

If you were unable to attend an on-campus or online assessment due to serious and unavoidable circumstances outside of your control, you may be able to apply for special consideration (SPC). Please refer to Part C of this document for more information.

Students who completed the assessment on the original date will not be granted SPC. Therefore, if you are unfit to complete an assessment, you are advised to not attempt it and apply for SPC.

**g) Referencing**

To avoid breaching academic integrity, you are required to provide references whenever you include information from other sources in your work and acknowledge when you have used Artificial Intelligence (AI) tools (such as ChatGPT). Further details regarding academic integrity 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/>

**h) Groupwork Guidelines**

A group assignment is the collective responsibility of the entire group, and if one member is temporarily unable to contribute, the group should be able to reallocate responsibilities to keep to schedule. In the event of longer-term illness or other serious problems involving a member of group, it is the responsibility of the other members to immediately notify the Unit Convenor or relevant tutor.

All group members must be satisfied that the work has been correctly submitted. Any penalties for late submission will generally apply to all group members, not just the person who submitted.

**Required Textbook(s)**

The official textbook is available for purchase as an eBook. Details are available on Canvas.

**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 the below 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 and acknowledging the use of generative artificial intelligence; contributing fairly to group work; and completing tasks, tests and exams without cheating. Artificial intelligence tools should only be used where approved by the Unit Convenor.

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 in a test, exam or assessment task are all breaches of academic integrity and treated as academic misconduct. Examples of breaches of academic integrity include:

- using the whole or part of computer program written by another person as your own without appropriate acknowledgement
- copying the whole or part of somebody else's work in an assessment, including material from a published work, a website or database, a set of lecture notes, current or past student's work, or any other person's work
- using output from artificial intelligence tools (e.g. ChatGPT) in whole or part without acknowledgement and/or without the approval of the Unit Convenor
- poorly paraphrasing somebody else's work
- using a musical composition or audio, visual, graphic and photographic work created by another without acknowledgment
- using objects, artefacts, costumes or models created by another person and presenting them as your own
- submitting assessments that have been developed by another person or service (paid or unpaid), 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.
- enabling others to 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**

You should talk to your Unit Convenor or Student Services for information on academic support 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 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, you may discuss any issues with your Unit Convenor. If you are dissatisfied with the outcome of the discussions with the Unit Convenor or would prefer not to deal with your Unit Convenor, then you can complete a feedback form.

### **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 (previously Swinburne Student Amenities Association (SSAA)).

For an appointment, please call 03 9214 5445 or email [advocacy@swin.edu.au](mailto:advocacy@swin.edu.au)

For more information, please see <https://www.swinburne.edu.au/current-students/student-services-support/advocacy/>