School of Software and Electrical Engineering

SWINBURNE UNIVERSITY OF TECHNOLOGY

Unit Outline

COS10003

Computer and Logic Essentials

Semester 1 2021

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)		COS10003
Unit Title		Computer and Logic Essentials
Duration		One semester or equivalent
Total Contact Hours		48 hours
Requisites:		
	Pre-requisites	Nil
	Co-requisites	Nil
	Concurrent pre-requisites	Nil
	Anti-requisites	Nil
	Assumed knowledge	Secondary school level mathematics
Credit Points		12.5 credit points
Campus/Location		Hawthorn
Mode of Delivery		Face to Face
Assessment Summary		Assignment (Individual/Group) 50% ~~Exam (Individual) 50%~~ (replaced with) Continuous quizzes (individual) 20% Final quiz (individual) 30%

Aims

This unit is designed to introduce students to fundamental mathematical concepts required in computer science and software development disciplines.

Unit Learning Outcomes

Students who successfully complete this Unit should be able to:

1 Solve problems related to computer science by using discrete mathematical concepts such as sets, relations, functions, logic, and combinatorics

2 Demonstrate how data can be represented in digital form

3 Apply the principles of Boolean algebra to simple circuits

4 Explain the role of probability and statistics in computer science and software development

5 Describe how discrete structures such as graphs are used in computer science

6 Construct algorithms to solve problems and understand the principles of complexity

Graduate Attributes

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

- Communication skills
- Teamwork skills
- Digital literacies

Content

- Algorithms, computability and complexity
- Data representation
- Set theory
- Propositional and Predicate logic
- Boolean algebra
- Probability and Statistics
- Basic graph theory

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:

- Moving to on-campus tutorials.

Unit Teaching Staff

Name	Role	Room	Phone	Email	Consultation Times
Nicole Ronald	Unit Convenor	N/A	N/A	nronald@swin.edu.	Advised via Canvas
Mahbuba Afrin	Tutor				
Fatemeh Ansarizadeh	Tutor				
Gamunu Dassanayake	Tutor				
Harindu Korala	Tutor				
Kaberi Naznin	Tutor				
Deepa Prabhu	Tutor				
Syeda Zehra	Tutor				

Learning and Teaching Structure

Activity	Total Hours	Hours per Week	Teaching Period Weeks
Lectures	24 hours	2 hours	Weeks 1 to 12
Tutorials	12 hours	1 hour	Weeks 1 to 12* This is reduced to one 2 hour class per fortnight due to COVID-19 restrictions.

Week by Week Schedule

Week	Week Beginning	Teaching and Learning Activity	Student Task or Assessment
1	Mar 1	Overview Algorithmic thinking	Weekly questions and attendance at a fortnightly tutorial (occurs every week)
2	Mar 8	Data representation	
3	Mar 15	Set theory fundamentals	Assignment 1 due
4	Mar 22	Logic	Quiz 1
5	Mar 29	Relations and functions	
6	Apr 12	Boolean algebra and circuits	Quiz 2
7	Apr 19	Counting	Assignment 2 due
8	Apr 26	Algorithms and complexity	Quiz 3
9	May 3	Graphs and trees	
10	May 10	Probability and statistics	Quiz 4

11	May 17	Extra discrete maths topics	Assignment 3 due
12	May 24	Revision	Quiz 5

Assessment

a) Assessment Overview

Tasks and Details	Individual or Group	Weighting	Unit Learning Outcomes that this assessment task relates to	Assessment Due Date
1. Assignments	Individual/ Group	50%	1-6	End of week 3, week 7 and week 11
2. Continuous quizzes	Individual	20%	1-6	Fortnightly from week 4
3. Final quiz	Individual	30%	1-6	Formal Exam Period

b) Minimum requirements to pass this Unit

To pass this unit, you must:

- achieve an overall mark for the unit of 50% or more, and
- achieve at least 40% in the final quiz

Students who do not achieve at least 40% for the final exam will receive a maximum of 44% as the total mark for the unit.

c) Examinations

If the unit you are enrolled in has an official examination, you will be expected to be available for the entire examination period including any Special Exam period.

d) 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 Current Students web site (see Part C).

e) Extensions and Late Submission

For extensions, medical or other supporting evidence will be required covering the due date and/or a significant period of the assignment duration. This needs to be provided to the convenor (not your tutor) prior to the due date. Note extensions are limited to a maximum of 5 working days.

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.

f) 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: Swinburne Harvard

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

g) 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 notify immediately 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 required textbook(s) are available from Swinburne Bookshop:
http://bookshop.swin.edu.au

There are no required textbooks for this unit.

Recommended Reading Materials

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

Richard Johnsonbaugh, Discrete Mathematics, Global Edition., 8th edition. 2018.
Further resources are listed in Canvas and available online or via the library.

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/