

Unit Outline

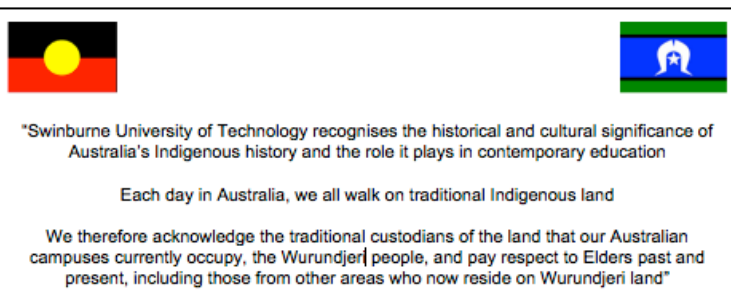
COS10009

Introduction to Programming

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)	COS00002/COS10009
Unit Title	Introduction to Programming
Duration	1 Semester or equivalent
Total Contact Hours	54 hours
Requisites:	
Anti-requisites	Nil
Credit Points	12.5
Campus/Location	Hawthorn
Mode of Delivery	Lectures (24 hrs), Labs (24 hrs), Workshop (up to 6 hrs – for Tests and Test Re-sits)
Assessment Summary	Portfolio (100%) – includes two tests.

Aims

This unit of study aims to introduce students to structured procedural programming and design.

Unit Learning Outcomes

Students who successfully complete this Unit should be able to:

1. Apply code reading and debugging techniques to analyse, interpret, and describe the purpose of program code, and locate within this code errors in syntax, logic, style and/or good practice.
2. Describe the principles of structured programming and relate these to the syntactical elements of the programming language used and the way programs are developed.
3. Construct small programs, using the programming languages covered, that include the use of arrays, functions and procedures, parameter passing with call by value and call by reference, custom data types, and pointers.
4. Use modular and functional decomposition to break problems down functionally, represent the resulting structures diagrammatically, and implement these structures in code as functions and procedures.

Graduate Attributes

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

- Communication skills
- Teamwork skills
- Digital literacies

Content

- Designing, writing, compiling, documenting, and testing programs
- Programming language syntax

- Structured programming principles
- Functional decomposition

Swinburne Engineering Competencies for this Unit of Study

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

- K1 Basic Science: Proficiently applies concepts, theories and techniques of the relevant natural and physical sciences to the solution of complex engineering problems.
- K2 Maths and IT as Tools: Proficiently uses relevant mathematics and computer and information science concepts as tools in complex engineering activities.
- K3 Discipline Specific: Proficiently applies advanced technical knowledge of the specific discipline within that context.
- K6 Professional Practice: Appreciates the principles of professional engineering practice in a sustainable context.
- S1 Engineering Methods: Applies engineering methods in practical applications and complex engineering problems.
- S2 Problem Solving: Systematically uses current or emerging knowledge and research methods to undertake independent research in solving complex engineering problems and as preparation for research higher degrees.
- S3 Design: Systematically uses engineering methods in designing solutions to complex engineering problems.
- A2 Communication: Demonstrates effective communication to professional and wider audiences including in complex engineering activities.
- A4 Information Management: Demonstrates seeking, using, assessing and managing information.

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:

- Changed sequence of lecture materials to better introduce concepts in a logical order.
- Removed some tasks and added others to focus on main concepts.
- Introduced Python tasks.

Unit Teaching Staff

Name	Role	Room	Phone	Email
Dr Matthew Mitchell	Lecturer/ Convener	EN511c	9214 4615	mmitchell@swin.edu.au
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Learning and Teaching Structure

Activity	Total Hours	Hours per Week	Teaching Period Weeks
Lectures	24 hours	2 hours	Weeks 1 to 12
Laboratories	24 hours	2 hours	Weeks 1 to 12
Tests (and resits)	6 hours	2 hours	Weeks 8, 10 and 12 (if needed)

Week	Week Beginning	Lecture and Tutorial/Laboratory	Student Task or Assessment	
1	Aug 1	Sequence and basic data types	Complete weekly tasks Submit task progress for feedback and signoff	
2	Aug 8	Functions and structure charts		
3	Aug 15	Control Flow and Structured Programming		
4	Aug 22	GUI Control Flow and File handling		
5	Aug 29	Custom Data Types		
6	Sept 5	Arrays and searching		
Semester Break				
7	Sept 19	Graphical and Game Programming		Deadline Week for tasks Weeks 1 - 5
8	Sept 26	Program Design Coupling, Cohesion and Modular Decomposition		Test 1
9	Oct 3	Testing and Debugging		
10	Oct 10	Algorithms and Recursion		Test 2 In lab classes Deadline Week for tasks Weeks 6 - 8
11	Oct 17	Other Languages		Deadline Week for tasks Weeks 9 - 10
12	Oct 24	Testing, tools and projects		Test 2 Re-sit (if needed) Deadline Week for tasks Weeks 11 - 12 (only two P or C tasks can be marked this week)
	Oct 31	SWOT VAC – PORTFOLIO SUBMISSION		Learning summary and custom tasks due by Nov 7
	Nov 7	D and HD interviews held over exam period		

Assessment

a) Assessment Overview

Tasks and Details	Individual or Group	Weighting	Unit Learning Outcomes	Assessment Due Date
1. Portfolio (for Pass and Credit)	Individual	100%	All	Pass and Credit Tasks Completed/passed by End of Week 12.

2. Portfolio and Interview (for Distinction and High Distinction)	Individual	100%	All	Portfolio due: before Mon Nov 7 Interviews held in exam period.
3. Semester Tests	Individual	Pass / Fail	All	Week 8 (in Workshop) Week 10 (in Workshops) (re-sit in Week 12)

b) Minimum requirements to pass this Unit

- Complete all Tests, Pass tasks, i.e all tests and Pass tasks signed off as complete/passed to at least the basic 50 P level.
- Tasks must be attempted before the specified target dates.
- Ensure completed work clearly demonstrates your abilities; note the following:

The aim of the portfolio is that you provide sufficient evidence that you have achieved the grade you are aiming for. If you work with other students, or get substantial help at the Programming Help Desk, this MUST be acknowledged clearly in comments at the top of any code submitted. If your portfolio contains work that is not unique (or which you cannot explain) or if your progress is not consistent throughout semester, you may be required to provide additional evidence, for example, you may need to complete additional tasks or to attend an interview during which you will be expected to further demonstrate your knowledge.

You are expected to attempt every iteration of the Semester Tests (Test 1, Test 2, and Test 1 Redo and Test 2 Resit – if required) until you demonstrate sufficient knowledge to pass this unit of study (but there is only one re-sit for each test).

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

Portfolio tasks are submitted online via Doubtfire (or Ed if using Ed).

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

This unit uses portfolio assessment to determine your final grade. You are required to submit a portfolio that contains the following items:

1. **Learning Summary Report** that reflects on what you have learnt, and shows how your portfolio addresses the assessment criteria and unit learning outcomes.
2. A **number of pieces** of work that demonstrate how you have met **all** unit learning outcomes. This must include:
 - a. Your tests
 - b. Answers, code, and reports from the weekly and other tasks
 - c. A program of your own design (for Distinction and above)
 - d. A research report (for High Distinction at or above 90%)

e) 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 are unable to sit any iteration of the Semester Tests and you must apply for Special Consideration, then you must either

1. have attempted every previous iteration of the Semester Tests; or
2. present documented evidence of the extenuating circumstances that prevented you from attempting every iteration of the Semester Test to date.

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 Style

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. 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.

- Speight, A 2020 *Bite Sized Python*. Wiley. [Available online from Swinburne Library.](#)
- Pine, C 2009 *Learn to Program*, The Pragmatic Programmer. [Available online from the Swinburne Library.](#)
- Sobkowicz, M 2015 *Learn Game Programming with Ruby : Bring Your Ideas to Life with Gosu*. The Pragmatic Programmer. [Available online from the Swinburne Library](#)
- Robertson, L.A 2014 *Students Guide to Program Design*, Newnes. [Available online from the Swinburne Library.](#)
- Freider, O, Frieder, G & Grossman, D. 2013 *Computer Science Programming Basics in Ruby*, O'Reilly Media Inc. [Available online from the Swinburne 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/>

