School of Science, Computing and Engineering Technologies

Unit Outline

COS20007

Object Oriented Programming

Semester May, 2025

Please read this Unit Outline carefully. It includes:

PART A Unit summary

PART B Your Unit in more detail

PART C Further information

"Swinburne University of Technology recognises the historical and cultural significance of Australia's Indigenous history and the role it plays in contemporary education

Each day in Australia, we all walk on traditional Indigenous land

We therefore acknowledge the traditional custodians of the land that our Australian campuses currently occupy, the Wurundjeri people, and pay respect to Elders past and present, including those from other areas who now reside on Wurundjeri land"

PART A: Unit Summary

Unit Code(s)	COS20007
Unit Title	Object Oriented Programming
Duration	One semester
Total Contact Hours	36 hours
Requisites: **Pre-requisites** **Co-requisites** **Concurrent pre requisites** **Anti-requisites** **Assumed knowledge**	COS10009 Introduction to Programming OR SWE20004 Technical Software Development OR COS10001 Algorithmic Problem Solving OR INF10016 Introduction to Programming in .NET Nil Nil Nil Nil
Credit Points	12.5 Credit Points
Campus/Location	Ho Chi Minh City
Mode of Delivery	Blended
Assessment Summary	Portfolio 100%, including open book pass/fail hurdle test

Aims

This unit of study aims to introduce students to object oriented programming and design.

Unit Learning Outcomes

Students who successfully complete this unit can:

1. Explain the principles of the object oriented programming paradigm specifically including abstraction, encapsulation, inheritance and polymorphism (K2, K6, A2)
2. Use an object oriented programming language, and associated class libraries, to develop object oriented programs (K1, K3, S1)
3. Design, develop, test, and debug programs using object-oriented principles in conjuncture with an integrated development environment (K2, K6, S1, S2, S3)

4. Construct appropriate diagrams and textual descriptions to communicate the static structure and dynamic behaviour of an object-oriented solution (K6, A2)

5. Describe and explain the factors that contribute to a good object oriented solution, reflecting on your own experiences and drawing upon accepted good practices (K6,A2)

Graduate Attributes

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

- Communication 1 - Verbal communication
- Communication 2 - Communicating using different media
- Teamwork 1 - Collaboration and negotiation
- Teamwork 2 - Teamwork roles and processes
- Digital literacies 1 – Information literacy
- Digital Literacies 2 – Technical literacy

Content

- Designing, writing, compiling, documenting, and testing programs
- Programming language syntax
- Object-oriented programming principles
- Object-oriented design

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:

• Added general unit requirements to clarify expectations regarding code style, use of abstractions, and development principles.
• Created a website to help students format their tasks for submission to Canvas. • Restructured task sequence to spread out workload.
• Added in-person check in tasks to encourage engagement.
• Removed requirement to demonstrated every task individually.

Unit Teaching Staff

Name	Role	Email	Consultation
Mr Trung DOAN	Unit Convenor/ Lecturer	trungdoan@swin.edu.au	By Email Appointment

Learning and Teaching Structure

Category	Activity	Total Hours	Hours per Week	Teaching Period Weeks
On Campus	Lecture	24 hours	2 hours	Weeks 1 to 12
On-campus	Class	24 hours	2 hours	Weeks 1 to 12

* The directed online learning and independent learning comes in the form of content videos which are supplemented by the live online sessions. There will be an average of 1 hour of content each week over the semester, but not exactly 1 hour each week.

Week by Week Provisional Schedule

Week	Week Beginning	Teaching and Learning Activity	Student Task or Assessment
1	May 05	Unit Overview, Introducing Objects and Object Oriented Programming	Submit task progress for feedback and signoff Complete weekly tasks
2	May 12	Framework Classes, Unit Testing, and UML Class Diagrams	
3	May 19	Collaboration, Memory, and UML Sequence Diagrams	
4	May 26	Inheritance and Polymorphism	
5	Jun 02	Interfaces and Exceptions	
6	Jun 09	Responsibility Driven Design	
7	Jun 16	Common Mistakes	
8	Jun 23	Principles of Good Design - then **Hurdle Test**	
9	Jun 30	GRASP	

No classes from 07 – 13 July, inclusively.			
10	Jul 14	Design Patterns	
11	Jul 21	Other OO Languages	
12	Jul 28	Recap and What Next?	
	4 - 6 Aug	*Exam Period*	Portfolios due 11:59pm on Tues, 5 Aug (Interviews week 13)

Assessment

a) Assessment Overview

Tasks and Details	Individual or Group	Weighting	Unit Learning Outcomes that this assessment task relates to	Assessment Due Date
1. Portfolio	Individual	100%	All	Due on 05/08/2025 at 23h59 VN Time

The portfolio submission includes an open-book pass/fail test as a Hurdle requirement. In the test, students demonstrate essential competencies of Object Oriented Programming. Students have a synchronous multi-day window to complete and those who do not pass on their first attempt have other opportunities to complete it later on.

b) Minimum requirements to pass this Unit

To pass this unit, you must:

- submit the Learning Summary Report before the Assessment Due Date
- achieve an overall mark for the unit of 50% or more, and
- achieve a pass grade for the pass/fail test.
- pass the hurdle Test in Week 8

With regarding the hurdle Test, if you receive a Complete grade, you pass the hurdle. If you receive a Fix grade, you must correct all issues during the semester within the two weeks. Failure to do this will result in an overall fail grade of the unit.
Students who do not successfully achieve a pass grade on the pass/fail test will receive a maximum of 45% 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 Submitting work webpage or www.swinburne.edu.au/studentforms/

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 day the task is late, up to a maximum of 5 days. After 5 days, a zero result will be recorded.

f) 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 plagiarism are available in Section C of this document.

You need to acknowledge the origin and authorship of any code not written by you.

Referencing conventions required for this unit are: ACM

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

Required Textbook(s)

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

No required textbook.

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.

- Lecture notes can be downloaded from the Canvas web site.
- Supplementary Textbooks:
  - Budd, *An Introduction to Object Oriented Programming*, Addison-Wesley, 2002
  - Wirfs-Brock & McKean, *Object Design: Roles, Responsibilities, and Collaboration*, Addison-Wesley, 2002
  - Gamma et al., *Design Patterns: Elements of Reusable Object-oriented Software*, Addison-Wesley, 1994
  - Andrew Troelsen & Phil Japikse, *Pro C# 10 with .NET 6 – Foundational Principles and Practices in Programming*, 11th Ed., Apress, 2022.

PART C: FURTHER INFORMATION

For further information on any of these topics, refer to Swinburne's Student webpage 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 log on to the Swinburne learning management system, Canvas. You can access Canvas via the Student login 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 artificial intelligence tools (such as ChatGPT, DALLE, Midjourney); 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 exclusion from Swinburne.

For further details, see https://www.swinburne.edu.au/student-login/academic-integrity/

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. See https://portal.swin.edu.vn/ for further information.

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 are 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. See https://www.swinburne.edu.au/life-at-swinburne/student support-services/special-consideration-assistance/

Accessibility needs

Sometimes students with a disability, a mental health or medical condition or significant carer responsibilities require reasonable adjustments to fully access and participate in education. Swinburne's AccessAbility Services can develop an 'Education Access Plan' that includes the services and reasonable adjustments that you need. The plan makes recommendations to University teaching and examination staff.

It is recommended that you register with AccessAbility Services 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.

You can ask the Unit Convenor to check the result for an assessment item or your final result. Your request must be made in writing within 10 working days of receiving the result. The Unit Convenor can discuss the marking criteria with you and check the aggregate marks of assessment components to identify if an error has been made. This is known as local resolution.

If you are dissatisfied with the outcome of the local resolution, you can lodge a formal complaint.

Feedback, complaints and suggestions

In the first instance, discuss any issues with your Unit Convenor. If your concerns are not resolved or you 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 Academic Student Support Officer at Swinburne Student Life.

For an appointment, please call 19006412 or email swin@fe.edu.vn .

For more information, please see https://portal.swin.edu.vn