School of Science, Computing and Engineering Technologies

SWINBURNE UNIVERSITY OF TECHNOLOGY

Unit Outline

COS80022

Software Quality and Testing

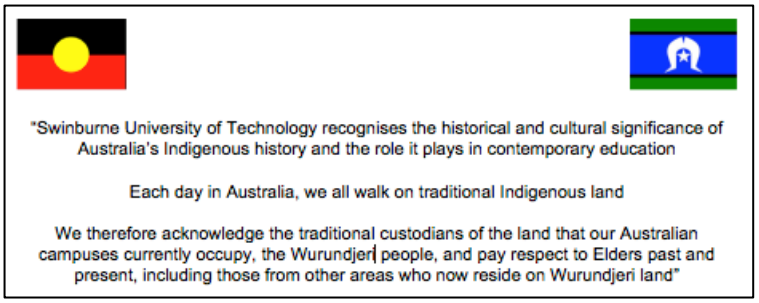
Semester 1 2024

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

Unit Code(s)		COS80022
Unit Title		Software Quality and Testing
Duration		One semester or equivalent
Total Contact Hours		36 hours
Requisites:		
	Pre-requisites	Nil
	Co-requisites	Nil
	Concurrent pre-requisites	COS60010 Technology Enquiry Project
	Anti-requisites	Nil
	Assumed knowledge	Nil
Credit Points		12.5 credit points
Campus/Location		Hawthorn
Mode of Delivery		Blended: online lectures plus face-to-face tutorials
Assessment Summary		Assignment 1 (Individual) 30% Assignment 2 (Individual) 40% In-class Exercises (Individual) 30%

Aims

The aim of this unit is to expose students to techniques for realising high quality of contemporary software systems using a range of activities in the lifecycle of software engineering, including requirements, planning, and testing.

Unit Learning Outcomes

Students who successfully complete this Unit should be able to:

1 Demonstrate understanding of theoretical aspects of software and system quality

2 Demonstrate understanding of important activities which facilitate realisation of high-quality software systems

3 Write programs in scripting language

4 Identify algorithms which are suitable for testing a variety of quality attributes

5 Adapt suitable scripts to execute different test tasks

Graduate Attributes

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

- Communication skills
- Teamwork skills
- Digital literacies

Content

- Quality assurance
- Quality of services and related features
- Requirements, modelling, planning and testing
- Writing of test scripts
- Application of appropriate techniques and tools to software testing

PART B: Your Unit in more detail

Unit Improvements

The unit has been improved from previous years based on the feedback of students. The overall response from the previous students regarding the delivery and expectations of this unit was positive with few recommendations for improvement. The new adjustments relate to the following areas:

- The weekly lab tasks have been revised to reflect more real-world practices.
- The unit structure and assessments have been adjusted to the current blended learning mode.

Unit Teaching Staff

Name	Role	Room	Phone	Email	Consultation Times
Huai Liu	Unit Convenor, Lecturer	EN508f	9214 3603	hliu@swin.edu.au	Wednesday 10am-11am
Mengjiao Guo	Tutor			mengjiaoguo@ swin.edu.au	

Learning and Teaching Structure

Activity	Total Hours	Hours per Week	Teaching Period Weeks
Lectures	24 hours	2 hours	Weeks 1 to 12
Tutorials in a computer lab	12 hours	1 hour	Weeks 1 to 12

- Lectures will be delivered online:
  - A pre-recording video will be made available at the beginning of each week.
  - During the scheduled lecture time, the lecturer will go through the key knowledge points and host online discussion in Collaborate Ultra in Canvas.
- Tutorials will be held in a computer lab:
  - In each week, students undertake certain lab tasks, following instructions under the supervision of a tutor.
- Non-scheduled learning events and activities including completing assignments: approx. 114 hours.

Week by Week Schedule

Week	Week Beginning	Teaching and Learning Activity	Student Task or Assessment	
1	Feb 26	Introduction; Software Development Lifecycle		Weekly Tasks
2	Mar 4	Software Requirements Specification	Release of Assignment 1	
3	Mar 11	Modelling and Design		
4	Mar 18	Software Testing Foundation		
5*	Mar 25	Testing Processes, Levels and Types		
6	Apr 8	Testing Management and Tools	Assignment 1 Due	
7	Apr 15	Black-Box Testing	Release of Assignment 2	
8	Apr 22	Guest Lecture on DevOps (TBC)		
9	Apr 29	White-Box Testing		
10	Mar 6	Review, Inspection and Walkthrough		
11	Mar 13	Non-Functional Testing		
12	Mar 20	Agile Testing	Assignment 2 Due	

* Note: Week 5 is composed of Mon 25/03, Tue 26/03, Wed 27/03, Thu 4/04, Fri 5/04, due to the **mid-semester break from Thu 28/03 to Wed 3/04**.

Assessment

a) Assessment Overview

Tasks and Details		Individual or Group	Weighting		Unit Learning Outcomes that this assessment task relates to	Assessment Due Date
1. Assignment 1	Part 1: P&C	Individual	20%	30%	1,2,3	End of week 6
	Part 2: D&HD		10%			
2. Assignment 2	Part 1: P&C	Individual	25%	40%	1,2,3,4,5	End of week 12
	Part 2: D&HD		15%			
3. In-class exercises		Individual	30%		1,2,3,4,5	Weekly

Note that each assignment consists of two parts: Part 1 (named with "P&C") is mandatory for all students; while Part 2 (named with "D&HD") is for students who are aiming at grades of D and HD in this unit. More specifically,

- To get the grade of Pass, a student must accomplish BOTH following conditions:
  - Complete and submit both Assignment 1 (P&C) and Assignment 2 (P&C); and
  - Receive an aggregate mark between 50 and 59[§]
- To get the grade of Credit, a student must accomplish BOTH following conditions:
  - Complete and submit both Assignment 1 (P&C) and Assignment 2 (P&C); and
  - Receive an aggregate mark between 60 and 69[§]

  [§]Note: If a student failed to submit either Assignment 1 D&HD or Assignment 2 D&HD, the maximum mark one could get is 69 (that is, maximum grade of Credit).
- To get the grade of Distinction, a student must accomplish ALL following conditions:
  - Complete and submit both Assignment 1 (P&C) and Assignment 2 (P&C);
  - Complete and submit both Assignment 1 (D&HD) and Assignment 2 (D&HD); and
  - Receive an aggregate mark between 70 and 79
- To get the grade of Distinction, a student must accomplish ALL following conditions:
  - Complete and submit both Assignment 1 (P&C) and Assignment 2 (P&C);
  - Complete and submit both Assignment 1 (D&HD) and Assignment 2 (D&HD); and
  - Receive an aggregate mark at least 80

b) Minimum requirements to pass this Unit

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

- An aggregate mark of 50 or more, and
- Submit both Assignment 1 (P&C) and Assignment 2 (P&C)

In other words, a student could not pass this Unit if either Assignment 1 (P&C) or Assignment 2 (P&C) were missed, even though one received the aggregate mark of over 50.

c) 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.

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

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

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.

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: Harvard.

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

Required Textbook(s)

ISO/IEC/IEEE International Standard (2018). *Systems and software engineering -- Life cycle processes -- Requirements engineering*. ISO/IEC/IEEE 29148:2018(E).

International Software Testing Qualifications Board (2018). *ISTQB Foundation Level (Core) Syllabus*, ISTQB®.

Recommended Reading Materials

The Library has a large collection of resource materials, both texts and current journals. Specific references will be provided in each lecture to give valuable supplementary information to this unit. 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/