School of Science, Computing and Engineering Technologies

SWINBURNE UNIVERSITY OF TECHNOLOGY

Unit Outline

SWE20001

Managing Software Projects

Semester 1 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)		SWE20001
Unit Title		Managing Software Projects
Duration		12 weeks
Total Contact Hours		48 hours = 12 hours (asynchronized self-learning) + 12 hours (online synchronized Q&A sessions) + 24 hours (synchronized face-to-face tutorials / labs)
Requisites:		
	Pre-requisites	• SWE20004 Technical Software Development OR • COS20007 Object-Oriented Programming
	Co-requisites	Nil
	Concurrent pre-requisites	Nil
	Anti-requisites	Nil
	Assumed knowledge	Object-oriented programming language at intermediate level
Credit Points		12.5
Campus/Location		Hawthorn
Mode of Delivery		Asynchronized self-learning sessions, Synchronized Q&A sessions, Synchronized Tutorials
Assessment Summary		100% Portfolio assessment (no exam) Need to keep up to the schedule of the Portfolio Tasks

Aims

This unit of study aims to expose students to the range of software development methodologies and project management practices that are used in contemporary software development projects. During the study, students will be able to use a range of tools and techniques for modelling problem and solution domains for software systems; and understand the knowledge and concepts behind these tools and techniques. They will also learn and understand the major issues that contemporary project managers have to handle.

Unit Learning Outcomes

Students who successfully complete this Unit should be able to:

1. Select an appropriate development methodology with justification to develop a software project, and plan the project for implementation (A2, A5, K3, K6, S2, S4)
2. Apply tools and techniques to define scope, break down tasks, estimate effort, manage risks and schedule resources in the planning of a software development project (A4, A6, K3, K6, S1, S3, S4)
3. Select appropriate architecture styles, design patterns, algorithms, and data structures with justification; and apply tools and techniques to design, develop and test the software solution (A2, A4, K3, K4, K6, S1, S2, S3)
4. Utilise contemporary tools and techniques for software development projects including version control, testing and issue tracking, software artefacts and documentation, and track and report project progress. (A4, A6, K3, K4, K6, S1, S3, S4)

5. Apply and use contemporary tools and techniques to work effectively as a member of a software development team, and to reflect upon group work experiences (A2, A4, A5, A6, A7, K3, K6, S1, S4)
6. Design, plan and evaluate the quality of a software product based on a chosen quality model / framework with justifications (K3, K6, S1, S4)

Graduate Attributes

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

- Communication skills
- Teamwork skills
- Digital literacies

Content

- Process Models
  - How software is built
  - Iterative, non-linear development processes
  - Models of the software development lifecycle
- Analysis
  - Problems and solutions
    - Why software is developed
    - Problem and vision statements
    - Goals and objectives
  - Stakeholders and goals
    - Users and usability
    - Sponsors and functionality
  - Understanding the problem domain
    - Conceptual solutions
    - User stories
    - Domain modelling
    - Prototyping
- Design
  - Software Architecture
  - Design Patterns
  - Data Structures and Algorithms
- Validation and Verification
  - Build the right product
  - Build the product right
- Project Management Issues
  - Scope, Time, Cost, Quality
  - Risk
  - Work Breakdown Structures
  - Estimation techniques

    - Project Planning techniques
- Risk Management
    - Common project risk categories
    - Risk identification and prioritisation
    - Managing risks using spikes
- Quality Management
    - Defect identification and classification
    - Quality reviews
    - Defect reporting
    - Change logs
- Measurement
    - Size and complexity metrics
    - Metric tools
    - Relationships between defect and metrics
- Tracking and Reporting

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:

- Better communications to the students re the focus of the unit
- Timely feedback from the tutors

Unit Teaching Staff

Name	Role	Room	Phone	Email	Consultation Times
Dr Man Lau	Unit Convenor	EN510a	9214 4367	elau@swin.edu.au	Check Staff Contacts on Canvas
Prof. Jun Han	Moderator	EN507b	9214 5732	jhan@swin.edu.au	
Dr Tanjila Kanij	Lecturer and Tutor			tkanij@swin.edu.au	Check Staff Contacts on Canvas
Dr Naurin Afrin	Tutor			nafrin@swin.edu.au	Check Staff Contacts on Canvas
Harsharan Kaur	Tutor			harsharankaur@swin.edu.au	Check Staff Contacts on Canvas
Dr Shibli Saleheen	Tutor			ssaleheen@swin.edu.au	Check Staff Contacts on Canvas
Dr Alfandi Yahya	Tutor			alfandiyahya@swin.edu.au	Check Staff Contacts on Canvas

Learning and Teaching Structure

Activity	Total Hours	Hours per Week	Teaching Period Weeks
Asynchronous self-study* (Resources – lecture slides, short videos)	12 hours	1 hour	Weeks 1 to 12
Online Q&A Sessions (Synchronous session)	12 hours	1 hour	Weeks 1 to 12
Tutorials / Labs	24 hours	2 hours	Weeks 1 to 12

*For asynchronous self-study, it is expected that you can watch the lecture slides and short videos at your own time before attending the synchronous online Q&A sessions.

Note: If students are unable to attend campus for any of the essential activities that cannot be conducted online, they are advised to speak to their unit convenor in the first instance to find a way forward, with potential deferments of their results until the activities are completed at a future date.

In a Semester, you should normally expect to spend, on average, twelve and a half (12.5) hours of total time (formal contact time plus independent study time) a week on a 12.5 credit point unit of study.

Week by Week Schedule

Week	Week Beginning	Teaching and Learning Activity	Student Tasks and Assessment, Indication of possible start time	
1	Feb 28	Topics: Introduction; SDLC (Traditional vs Agile), Scrum; Scoping Tutorial: Form Teams, Product Backlog	Complete weekly portfolio tasks [approx. 23 for Pass; 4 for Credit; 3 for D; 2 for HD] Submit task according to schedule for feedback and signoff	[P] Tasks 01P and 02P
2	Mar 07	Topics: Software Architecture – brief introduction; Software Design – recap; KoST analysis Tutorial: KoST Analysis, Software Architecture and Design		[P] Tasks 03P and 04P
3	Mar 14	Topics: Definition of Done; Software Quality – Model and Definition Tutorial: Definition of Done, Software Quality Model		[P] Tasks 05P and 06P
4	Mar 21	Topics: Quality Review; Project Proposal Tutorial: Project Proposal		[P] Task 07P
5	Mar 28	Topics: Scrum Planning Meeting; Work Breakdown Structure; Effort Estimation Part 1 Tutorial: Finalising Project Proposal		
6	Apr 04	Topics: Tracking and Monitoring; Team Issues Tutorial: Sprint #1 – Kick Start		[P] Tasks 08P, 09P [C] Task 61C
7	Apr 11	Topics: Software Project Risk Management Tutorial: Sprint #1 – Mid Point Check		[P] Task 10P [HD] Tasks 81D, 82D
	Apr 18[1]	Semester break		
8	Apr 25[2]	Topics: Scrum Planning Again; Effort Estimation Part 2 Tutorial: Sprint #1 – End of Sprint		[P] Tasks 11P, 12P, 13P, 14P, 15P [C] Task 62C
9	May 02	Topics: Traditional Project Planning; Traditional Project Scheduling Tutorial: Sprint #2 – Kick Start		[P] Tasks 16P, 17P [C] Task 63C [D] Tasks 71D, 72D

[1] Easter Monday.
[2] ANZAC day

Week	Week Beginning	Teaching and Learning Activity	Student Tasks and Assessment, Indication of possible start time	
10	May 09	Topics: Software Project Team Management Tutorial: Sprint #2 – Mid Point Check		[P] Task 18P [D/HD] Portfolio Interview Booking*
11	May 16	Topics: Project Closure Tutorial: Sprint #2 – End of Sprint		[P] Tasks 19P, 20P, 21P, 22P, 23P [C] Task 64C [D] Task 73D
12	May 23	Portfolio Finalization Tutorial: Learning Summary Report		Optional Learning Summary Report Feedback
13	May 30	Non-teaching week		
14	Jun 06	Final Assessment period	All Portfolio Submission (Jun 06) [D/HD] Portfolio Interview (Jun 07–10)	

*Details about Portfolio Interview Booking will be released later in the semester via Canvas Announcement.

Assessment

a) Assessment Overview

Intended Grade	Tasks and Details	Individual or Group	Weighting	Unit Learning Outcomes that this assessment task relates to	Assessment Due Date
Pass, P 50 – 59	1. Complete **ALL** P Tasks 2. Submit a **Portfolio***	Individual and Group	100%	ALL	Final Portfolio Submission: Jun 06 9:00am
Credit, C 60 – 69	1. Complete **ALL** P and C Tasks 2. Submit a **Portfolio***	All C Tasks are Individual	100%	ALL	
Distinction, D 70 – 79	1. Complete **ALL** P, C and D Tasks 2. Submit a **Portfolio*** 3. Complete a **Portfolio interview**** to the satisfaction of the interviewers	All D Tasks are Individual	100%	ALL	Final Portfolio Submission: Jun 06 9:00am Portfolio Interview to be held between Jun 07 – 10
High Distinction, HD marks range 80 – 90	1. Complete **ALL** P, C, D and **one** HD Task 2. Submit a **Portfolio*** (including **LSR**, all **P**, **C**, **D** and **one HD** Task docs) 3. Complete a **Portfolio interview**** to the satisfaction of the interviewers	All HD Tasks are Individual	100%	ALL	
High Distinction, HD marks range 90 – 100	1. Complete **ALL** P, C, D and **two** HD Tasks 2. Submit a **Portfolio*** (including **LSR**, all **P**, **C**, **D** and **two HD** Task docs) 3. Complete a **Portfolio interview**** to the satisfaction of the interviewers				

*Your final portfolio must include your Learning Summary Report, LSR, and all your completed task docs from P grade up to and including your intended grade. For example, if you aim at submitting a D portfolio, you need to include your LSR and all your completed task docs of P, C and D grades.

**More details about the Portfolio Interview (format, questions and requirements) will be released in Canvas Announcement later in the semester.

b) Minimum requirements to pass this Unit

This unit uses portfolio assessment (see below) to determine your final grade. As the minimum requirements of assessment to pass this unit and meet all ULOs (or ILOs) to a minimum standard, a student must submit and present a passable Portfolio which includes all Pass Tasks completed to the minimum standard.

You must submit the portfolio tasks according to the schedule. Otherwise, you will not get the feedback from the tutor and hence you risk submitting sub-standard work without any feedback to improve the work. This will result you failing the unit.

If you do not submit a Portfolio, you will receive 0% (N) as your total mark for the unit.

If your submitted Portfolio does not meet the minimum Pass standard (i.e. all Pass Tasks are signoff as "**Complete**" and an appropriate learning summary report), you will receive a maximum of 44% (N) as your total mark for the unit and will not be eligible for a conceded pass.

c) Examinations

This unit uses portfolio assessment (see below) to determine your final grade. Hence, it does not have an examination. However, for students aiming D / HD, they will be expected to be available during the Portfolio interview period.

d) Submission Requirements

Weekly Portfolio Task work and assignment work requirements are detailed in documents on the unit website, and this work must be submitted as specified in those documents.

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

An Assessment Cover Sheet must be submitted with your final portfolio. The standard Assessment Cover Sheet is available from the Current Students web site (see Part C).

This unit of study 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 for each intended learning outcome.
2. A **number of pieces** of work that demonstrate how you have met **all** of the unit's intended learning outcomes. This must include
    a. All required weekly task work, completed and marked by staff for your intended grade
    b. A program of your own design, and related documents such as design doc with justifications (for Distinction and above)
    c. A research report (for High Distinction)

e) Extensions and Late Submission

Late Submissions of Tasks - Unless an extension has been approved by your tutor, late submission for the tasks may not get appropriate feedback from your tutor. Hence, you risk about submitting sub-standard work which may lead to a Fail grade in the end.

Late Submissions of Portfolio - Unless an extension has been approved, late submissions of portfolio is not allowed.

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: IEEE citation style (https://pitt.libguides.com/citationhelp/ieee)

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

g) Groupwork Guidelines

A group assessment item 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.

Group submissions must be submitted with an Assignment Cover Sheet, signed by all members of the group.

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)

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.

BECK, K. & FOWLER, M. 2001. *Planning extreme programming,* Boston, Addison-Wesley.

BERKUN, S. 2005. *The art of project management,* Sebastopol, CA, O'Reilly.

HIGHSMITH, J. A. 2004. *Agile project management : creating innovative products,* Boston, Addison-Wesley.

HUGHES, B. & COTTERELL, M. 2009. *Software Project Management*, McGraw-Hill.

PRESSMAN, R. S. 2010. *Software engineering : a practitioner's approach,* New York, McGraw-Hill Higher Education.

SCHWABER, K. & BEEDLE, M. 2002. *Agile software development with Scrum,* Upper Saddle River, NJ, Prentice Hall.

WYSOCKI, R. K. 2009. *Effective project management : traditional, agile, extreme,* Indianapolis, IN, Wiley Publishing, Inc.

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/