COMP2050

Software Engineering

Session 2, Special circumstances 2021

School of Computing

Contents

Disclaimer

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Session 2 Learning and Teaching Update

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of units with mandatory on-campus classes/teaching activities.

Visit the MQ COVID-19 information page for more detail.

General Information

Unit convenor and teaching staff
Convenor, Lecturer, and Tutor
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Lecturer
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Tutor / Marking
Bradley Anderson

Tutor / Marking
Jason Lee

Tutor / Marking
Ryan Fujimoto

Tutor / Marking
Yao Deng

Credit points
10

Prerequisites
60cp at 1000 level or above including COMP1010 or COMP125

Corequisites

Co-badged status

Unit description
This unit introduces engineering principles and practices to all stages of the software development lifecycle to ensure a systematic, quality-focused and quantifiable approach to the management, design, development, maintenance, verification and validation of [large and complex] software products, projects and processes. Problem formulation and solving are emphasised. Topics covered include: requirements gathering and specification; object-oriented modelling using the Unified Modeling Language (UML); process management; and software design, testing and evolution.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Use good software engineering practices to design code including unit testing and quality documentation

ULO2: Effectively use modern software development techniques and tools

ULO3: Demonstrate knowledge of requirements elicitation techniques and the ability to apply those techniques to a range of problem domains

ULO4: Discuss the life cycle of software systems development and the impact of implementation issues on various phases of the life cycle

ULO5: Explain the principles, practices, ethics and responsibilities of Software Engineering

General Assessment Information

Summary of Hurdle Assessments for 2021

Hurdles have been maintained from the 2020 offering because of their demonstrated effectiveness in aiding student learning and also because of thier close relation to key unit/specialisation/course learning outcomes.

1) Weekly Tutorial Submisisons

There are 12 tutorial submission. Students are expected to complete all 12 submissions satisfactorily, but must satisfactorily complete at least 8 of 12 to meet the hurdle requirement. Students who have 7 or fewer adequate submissions will automatically fail this hurdle.

2) Assignment 1

This is a written submission that will not be taking late submissions. Students will be able to submit early versions and then update those submission up until the deadline. To clear the

hurdle for this assessment, students must demonstrate a reasonable attempt at the assessment and achieve a minimum grade as detailed in the assignment specification. Students who achieve lower than 40% in this assessment will automatically fail this hurdle.

Assignment 1 requires students to carefully consider a scenario and demonstrate capabilities linked to key unit learning outcomes. Assignment 1 and assignment 2 are linked.

3) Assignment 2

This is a written submission that will not be taking late submissions. Students will be able to submit early versions and then update those submission up until the deadline. To clear the hurdle for this assessment, students must demonstrate a reasonable attempt at the assessment and achieve a minimum grade as detailed in the assignment specification. Students who achieve lower than 40% in this assessment will automatically fail this hurdle.

Assignment 2 requires students to carefully consider a scenario and demonstrate capabilities linked to key unit learning outcomes.

Assessment Tasks

Name	Weighting	Hurdle	Due
Weekly problems	10%	Yes	5pm the Tuesday after each lecture for weeks 1-12
Class Participation	10%	No	Week 2 to week 13 inclusive
Assignment 1	15%	Yes	At or near the end of week 7
Assignment 2	15%	Yes	Week 12
Final Exam	50%	No	Held during the university exam period

Weekly problems

Assessment Type [1]: Participatory task
Indicative Time on Task [2]: 12 hours
Due: **5pm the Tuesday after each lecture for weeks 1-12**
Weighting: **10%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

Each week from week 1 to week 12, some questions/problems will be posted in iLearn, usually related to the lecture content for that week.

By the end of each week you are required to submit your responses in the manner specified in the questions for that week. Your answers will need to demonstrate appropriate depth of

understanding.

No late submissions.

Students are expected to complete all 12 submissions satisfactorily, but must complete at least 8 of 12 to meet the hurdle requirement.

On successful completion you will be able to:

- Use good software engineering practices to design code including unit testing and quality documentation
- Demonstrate knowledge of requirements elicitation techniques and the ability to apply those techniques to a range of problem domains
- Discuss the life cycle of software systems development and the impact of implementation issues on various phases of the life cycle
- Explain the principles, practices, ethics and responsibilities of Software Engineering

Class Participation

Assessment Type [1]: Participatory task
Indicative Time on Task [2]: 24 hours
Due: **Week 2 to week 13 inclusive**
Weighting: **10%**

You are expected to actively participate in the weekly workshop. Your active **participation will be marked**. A roll will be taken to record your attendance (online or in person). You must attend at your assigned weekly workshop time.

Workshops will involve a range of activities, some individual, some in pairs, some in groups. Be prepared to present your ideas.

On successful completion you will be able to:

- Use good software engineering practices to design code including unit testing and quality documentation
- Effectively use modern software development techniques and tools
- Demonstrate knowledge of requirements elicitation techniques and the ability to apply those techniques to a range of problem domains
- Discuss the life cycle of software systems development and the impact of

implementation issues on various phases of the life cycle

- Explain the principles, practices, ethics and responsibilities of Software Engineering

Assignment 1

Assessment Type [1]: Case study/analysis
Indicative Time on Task [2]: 20 hours
Due: **At or near the end of week 7**
Weighting: **15%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

Assignment 1 will allow you to demonstrate the development of your understanding and your ability to apply the things that you have learned in the first part (weeks 1 to 6) of the unit.

No late submission.

On successful completion you will be able to:

- Use good software engineering practices to design code including unit testing and quality documentation
- Effectively use modern software development techniques and tools
- Demonstrate knowledge of requirements elicitation techniques and the ability to apply those techniques to a range of problem domains
- Explain the principles, practices, ethics and responsibilities of Software Engineering

Assignment 2

Assessment Type [1]: Design Implementation
Indicative Time on Task [2]: 20 hours
Due: **Week 12**
Weighting: **15%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

Assignment 2 will be a written assignment that will allow you to demonstrate the development of your understanding and your ability to apply the things that you have learned in the second part (weeks 7 to 12) of the unit.

No late submission.

On successful completion you will be able to:

- Use good software engineering practices to design code including unit testing and quality documentation
- Effectively use modern software development techniques and tools
- Discuss the life cycle of software systems development and the impact of implementation issues on various phases of the life cycle
- Explain the principles, practices, ethics and responsibilities of Software Engineering

Final Exam

Assessment Type [1]: Examination
Indicative Time on Task [2]: 24 hours
Due: **Held during the university exam period**
Weighting: **50%**

The final examination will be held during the usual University examination period and can cover all topics.

On successful completion you will be able to:

- Use good software engineering practices to design code including unit testing and quality documentation
- Effectively use modern software development techniques and tools
- Demonstrate knowledge of requirements elicitation techniques and the ability to apply those techniques to a range of problem domains
- Discuss the life cycle of software systems development and the impact of implementation issues on various phases of the life cycle
- Explain the principles, practices, ethics and responsibilities of Software Engineering

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Teaching and Learning Strategies

in 2021, COMP2050 will have 2-hour lectures delivered on-line each teaching week. Workshops (starting from week 2) have offerings in various locations (generally on the ground or first floor of 4 Research Park Drive). There are also some workshops which are online-only and intended to be available for those who are overseas or not in a position to travel to campus during this COVID-19 impacted period. Workshops are scheduled in 2-hour blocks and cover a wide variety of activities, exercises, and case studies which will invovled some individual work and some group collaboration.

Each week, you should:

- Attend lectures, take notes, ask questions
- Complete the weekly questions and submit them via ilearn
- Attend your workshop, engage in the activities and discussions, and seek feedback from your tutor on your work
- Read assigned reading material, add to your notes and prepare questions for your lecturer or tutor

You are encouraged to start working on any assignments immediately after they have been released - as they require careful thought and insight which is better done over longer periods of time rather than at the last minute.

Feedback

The feedback that you receive plays a crucial role in your learning. You have many opportunities to seek and receive feedback. During lectures, you are encouraged to ask the lecturer questions to clarify anything you might not be sure of. To ensure you don't miss feedback make sure that you 1) review your marked assignments, 2) read unit emails and information at the unit website and 3) attend lectures which are often used to point out what was expected in assessable work and to provide examples of good solutions and/or examples of common errors.

Unit Delivery

Textbook

Aspects of COMP2050 will follow from Software Engineering: A practitioner's approach (Nineth Edition) by Roger S. Pressman and Bruce Maxim, McGraw Hill, 2020. We will also be posting related chapters for another text book - Software Engineering (Tenth Edition) by Ian Sommerville, Pearson, 2015 if you have a copy of this textbook. You may also consider using earlier editions, while not quite as up-to-date, are frequently cheaper (chapter numbers and contents may vary from edition to edition). Additional unit content will be presented in lectures and workshop classes. There may also be some other assigned readings, and there are many books that can be consulted for reference material.

Lectures and related weekly tutorial questions

Lectures are used to motivate engagement with and reinforcement of the unit's subject matter. While most lectures are planned to be recorded, some activities such as role plays and dramas conducted in the lecture will not be captured properly in the recording. Volunteers to participate in role plays may be requested in the lecture, please consider whether you can contribute in this way. Lectures will of course include a significant amount of learning material, but even more importantly they include contextual material and learning activities that "make meaning" of the subject matter.

Digital recordings of parts of lectures are expected to be available. Note that some of the planned lecture activities are interactive, and it is unlikely that you would be able to understand what was happening if you were not present for the original lecture. The lectures also include interactive discussions - and questions are encouraged. You need to keep yourself available to interact at the appointed lecture times which are on **Thursdays at 11am Sydney time for two hours**. More information will be provided in the first lecture.

Workshops (Starting in week 2)

Workshops are smaller group classes which give you the opportunity to interact with your peers and with a tutor who has sound knowledge of the subject. Workshops will require working in small groups and sometimes involve reporting back to the class. The classes will focus on reinforcing understanding of the concepts and their practical applications to problems. It is important that you participate in the activities and make some notes from them to assist you with revision of the material.

Note carefully that lecture material and workshop material have only some overlap, and each learning experience is designed to help you to learn different things. You need to pay careful attention to, and take notes from, both kinds of classes throughout the semester.

Assignments

Assignments will play a key role in providing formative evaluation so that students and the teachers can gauge levels of understanding. Assignments will be related to the lecture material, workshop activities and weekly tutorial material and require students to bring together what they have been learning, and to think creatively and rigorously.

Exam

A written exam (held withing the university examination period) is designed to test your understanding of the course content and your application of the concepts to a number of scenarios or problem statements.

Unit Schedule

Unit topics and order subject to change

Week	Topic	Lecturer	Notes

1	Complexity, Software Architecture and Distributed Systems	Carl	
2	Complex Systems, Requirements Definition and Requirements Specification	Carl	
3	Modelling Domains and Modelling Systems	Carl	
4	Communicating requirements for system structure, behaviour, data, and usage (including UML)	Carl	
5	Software Design, Software Development Methods - especially Agile	James	
6	Software Management - especially Version Control	James	
7	DevOps and Software Configuration Management	James	Assignment 1 due near the end of this week
Mid Semester Teaching Break (2 weeks)			
8	Software Testing and Quality	James	
9	Software Testing and Quality	James	
10	Software Validation and Verification	James	
11	Software Maintenance and Software Evolution	Carl	
12	Ethics and professional responsibilities in Software Engineering	Carl	Assignment 2 due this week
13	Revision	Carl + James	
Exam Period (usually 3 weks)			

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public

- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops
- StudyWise
- Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

COMP2050 changes every year as the software engineering program at Macquarie is further developed and as we take account of student feedback on previous offerings. While the intended outcomes remain substantially the same as offerings of COMP255 and COMP2050, students should not assume that any particular aspects of comp2050 this year will be in any particular ways similar to those aspects of previous years' offerings of COMP255.

The 2021 offering of COMP2050:

- Lectures will be delivered live, but online in a two-hour block. Extra recordings may be provided to suppliment the lectures.
- As in 2020, there will be lecture material emphasising the purpose and importance of the unit for students' likely future careers.
- Hurdles from the 2020 offering have been maintained because of their demonstrated effectiveness in aiding student learning, but adjusted in the light of COVID-19.
- Assignment 1 and assignment 2 are linked -- students will need to participate in assignment 1 in order to complete assignment 2.