UNSW Course Outline

SENG3011 Software Engineering Workshop 3 - 2024

Published on the 30 Jan 2024

General Course Information

Course Code : SENG3011
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : School of Computer Science and Engineering
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This course is the last of the workshops series that are a key feature of the Software Engineering degree. These workshops are designed to teach students to work in teams using agile methods and apply their theoretical knowledge to solve real-life problems. This workshop builds on

foundational Software Engineering principles of first year core course COMP1531, as well as the second-year workshop SENG2021. Students in this course are required to use modern technologies and tools that are used in industry to build robust, performant and scalable software services in the context of an enterprise DevOps environment. Alongside a development of technical maturity, students explore ideas surrounding leadership in a Software Engineering context through working in a team and individual reflection. The course has a number of industry sponsors that include Atlassian, GitHub, AWS, Optiver and New Relic.

Course Aims

This course is a key part of the software engineering degree practical component as it is intended to broaden the experience obtained in the preceding Software Engineering courses in stages 1 & 2. As a workshop, it particularly focuses on the issues of designing and implementing a quality software system that conforms to the requirements of a stakeholder using agile methods. Besides sharpening their design and coding skills, students will have to get immersed in a complex application domain, learn the basic concepts to be able to understand the requirements and continuously communicate with the stakeholder to discuss issues arising from the project such as design trade-offs, additional functionalities, new interface features etc.

In addition, students will develop interpersonal communication skills by preparing correctly formatted and structured reports, negotiating technical, management and interpersonal issues within their teams and resolving problems within their development teams using effective conflict resolution techniques.

In this workshop, teams will be working on developing software components that are linked by a common theme as if they were part of the same organisation. Each team will be directly supervised by a mentor with significant programming experience. The mentor will advise on the technologies and methods to be used as they will depend on the task at hand. Each mentor will also act as the stakeholder defining the essential features of a product. Additional information will be given during the mentoring sessions. Guest lectures will be organised with industry speakers in various areas related to the workshop.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Understand and explore the architecture of cloud-based microservice and API-based software systems.
CLO2 : Explore and work with modern DevOps and software toolchains used in industry development
CLO3 : Synthesise and adapt large-scale software systems to changes in requirements, evolutions in technology, and the need for scalability
CLO4 : Develop skills in leadership and management in a dynamic Software Engineering environment
CLO5 : Deepen the ability to plan, design, implement, test and document quality software in an agile environment

Course Learning Outcomes	Assessment Item
CLO1 : Understand and explore the architecture of cloud-based microservice and API-based software systems.	• Sprint 1: Evolving the Ecosystem • Sprint 2: Validation and Deployment
CLO2 : Explore and work with modern DevOps and software toolchains used in industry development	• Sprint 3: To Scalability and Beyond • Sprint 2: Validation and Deployment
CLO3 : Synthesise and adapt large-scale software systems to changes in requirements, evolutions in technology, and the need for scalability	• Sprint 3: To Scalability and Beyond
CLO4 : Develop skills in leadership and management in a dynamic Software Engineering environment	• Final Portfolio • Sprint 1: Evolving the Ecosystem
CLO5 : Deepen the ability to plan, design, implement, test and document quality software in an agile environment	• Sprint 1: Evolving the Ecosystem • Sprint 3: To Scalability and Beyond

Learning and Teaching Technologies

EdStem | Webcms3 | Echo 360

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Sprint 1: Evolving the Ecosystem Assessment Format: Group	25%	Due Date: Week 4: 04 March - 10 March
Sprint 2: Validation and Deployment Assessment Format: Group	25%	Due Date: Week 7: 25 March - 31 March
Sprint 3: To Scalability and Beyond Assessment Format: Group	35%	Due Date: Week 10: 15 April - 21 April
Final Portfolio Assessment Format: Individual	15%	Due Date: Week 11: 22 April - 28 April

Assessment Details

Sprint 1: Evolving the Ecosystem

Assessment Overview

Sprint 1 is all about diving straight in and following the entire Software Development Lifecycle process at the scale of an MVP. Having gained experience and understand the principles of Requirements Engineering, Design, Development, Testing, Deployment and Maintenance from COMP1531 and SENG2021 - teams need to put all that into practice by defining, architecting and building a new service in the Event Intelligence Ecosystem.

The effort required in this Sprint is a 2-week team effort that includes producing a report that will be submitted to the mentor. Assessment will be made by the mentor and feedback provided during the mentoring session.

Course Learning Outcomes

- CLO1 : Understand and explore the architecture of cloud-based microservice and API-based software systems.
- CLO4 : Develop skills in leadership and management in a dynamic Software Engineering environment
- CLO5 : Deepen the ability to plan, design, implement, test and document quality software in an agile environment

Detailed Assessment Description

Complete details will be provided in the course learning platforms.

Assignment submission Turnitin type

This is not a Turnitin assignment

Sprint 2: Validation and Deployment

Assessment Overview

This sprint aiming to create two software artifacts:

1. the delivery (releasing of software to customers in a DevOps environment) and observability of the microservice defined in Sprint 1, making it available to other teams via the ecosystem.
2. the development of a microservice which has the sole purpose of testing another microservice within the ecosystem. This will help us ensure that all data going into the entreprise information system matches the organisation specifications and find flaws in released software that was not discovered in Sprint 1.

The effort required in this Sprint is a 2-week team effort that includes producing a two microservices (an application and a testing microservice). Assessment will be made by the mentor and feedback provided during the mentoring session.

Course Learning Outcomes

- CLO1 : Understand and explore the architecture of cloud-based microservice and API-based software systems.
- CLO2 : Explore and work with modern DevOps and software toolchains used in industry development

Detailed Assessment Description

Complete details will be provided in the course learning platforms.

Assignment submission Turnitin type

This is not a Turnitin assignment

Sprint 3: To Scalability and Beyond

Assessment Overview

This Sprint has 3 components:

1. Creating a new platform that leverages microservices developed in Sprints 1 and 2 and can be used to leverage business value in multiple places. Unlike previous sprints, this one considers the end user first.

2. Final Design Report - this is the culmination of your documentation for the entire project. You'll need to define a specification and marking criteria, as it's up to you to determine what's

important.

3. Making suggestions to innovate and improve the vitality of the ecosystem.

The effort required in this Sprint is a 3-week team effort that includes producing a software application and a final report. Assessment of the application will be made by the mentor and a second marker. All reports are marked by the LIC. Feedback will be provided to each team by the mentor.

Course Learning Outcomes

- CLO2 : Explore and work with modern DevOps and software toolchains used in industry development
- CLO3 : Synthesise and adapt large-scale software systems to changes in requirements, evolutions in technology, and the need for scalability
- CLO5 : Deepen the ability to plan, design, implement, test and document quality software in an agile environment

Detailed Assessment Description

Complete details will be provided in the course learning platforms.

Assignment submission Turnitin type

This is not a Turnitin assignment

Final Portfolio

Assessment Overview

The portfolio submission will need to contain for each student **three on-line pages (using Confluence platform)**, one on each of:

1. Time & Project Management

2. Technical Maturity

3. Leadership & Teamwork

These pages are continuously maintained by students throughout the course by adding personal reflections on how the course is going. Students can include links to relevant forum / blog posts related to the portfolio content. Students are expected to spend around 2 hours a week maintaining their portfolios.

Students are encouraged to provide feedback on each other's portfolios occasionally. All portfolios are marked by the mentors at the end of the course.

Course Learning Outcomes

- CLO4 : Develop skills in leadership and management in a dynamic Software Engineering environment

Detailed Assessment Description

Complete details will be provided in the course learning platforms.

General Assessment Information

Grading Basis

Standard

Requirements to pass course

Achieve a composite mark of at least 50 out of 100.

Course Schedule

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

The following table outlines a **provisional** schedule for this course. The contents of the lectures are described **roughly** and are subject to **adjustments**.

The most up-to-date course schedule will be available on the course's learning management platform.

Week	Lecture	Lab
1	Course Overview, Project Overview, Microservice Ecosystem, Sponsor Introduction, Introduction to DevOps, Sprint 1.	Introduction, group formation, project overview

2	Advanced CI/CD, Risk Management, Containerisation, Managing Dependencies, Advanced Data Interchange.	Group project work, progress check with mentors Sprint 1 group work
3	Introduction to Observability, Observability Platform.	Group project work, progress check with mentors Sprint 1 group work
4	Software Testing, Software Performance, Advanced Deployment	Group project work, progress check with mentors Sprint 1 group work
5	Sprint 2 (Microservices validation and deployment), group project work, Individual Behaviour, Culture,	Group project work, progress check with mentors Sprint 2 group work
6	Flexibility Week	

7	Sprint 2 (Microservices validation and deployment) group project work		Group project work, progress check with mentors
	group project work		Sprint 2 group work
8	Sprint 3 (Scalability and Beyond) group project work		Group project work, progress check with mentors
	Influencing Behaviour		Sprint 3 group work
9	Sprint 3 (Scalability and Beyond) group project work		Group project work, progress check with mentors
			Sprint 3 group work
10	Sprint 3 (Scalability and Beyond) group project work		Group project work, progress check with mentors
	Final project portfolio		Sprint 3 group work, final project portfolio

Course Resources

Prescribed Resources

Students will be supported to get access to the recommended technology resources and learning materials to guide them.

Course Evaluation and Development

This course is evaluated each session using the myExperience system.

Based on feedback from previous term, the course has been improved in terms of aligning the student's with focus on carrying out the required assessments. Access to technologies including AWS, Confluence, and JIRA have been setup and configured to help the students to focus on the assessment tasks and develop the skills to work collaborative in development teams. The assessment details have been reviewed to improve clarity and align with the required project work.

The course has been redesigned as a result of a curriculum review of the Software Engineering degree. The course learning materials, assessments have been redesigned to align with the software engineering technologies, processes and practices that are widely used in industrial project settings.

Students are always welcome to provide feedback at any point in the term on their experience by emailing the course account or your mentor, or completing the feedback form provided in the course learning management system.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Basem Sulei man		Building K17, Level 6			Yes	No
Administrator	Siu Lung (Alan) Ng		Building K17, Level 3			No	No
	SENG3011 Cla ss Email					No	Yes

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- Attendance
- UNSW Email Address
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Equitable Learning Services

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: https://www.unsw.edu.au/engineering/student-life/student-resources/program-design.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

Engineering Student Support Services – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

Engineering Industrial Training – Industrial training questions

UNSW Study Abroad – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School Contact Information

CSE Help! - on the Ground Floor of K17

- For assistance with coursework assessments.

The Nucleus Student Hub - https://nucleus.unsw.edu.au/en/contact-us

- Course enrolment queries.

Grievance Officer - grievance-officer@cse.unsw.edu.au

- If the course convenor gives an inadequate response to a query or when the course convenor does not respond to a query about assessment.

Student Reps - stureps@cse.unsw.edu.au

- If some aspect of a course needs urgent improvement. (e.g. Nobody responding to forum queries, cannot understand the lecturer)