



## UNSW Course Outline

# COMP1531 Software Engineering Fundamentals - 2023

Course Code : COMP1531  
Year : 2023  
Term : Term 3  
Teaching Period : T3  
Delivery Mode : Multimodal  
Delivery Format : Standard  
Delivery Location : Kensington

## General Course Information

Course Code : COMP1531  
Year : 2023  
Term : Term 3  
Teaching Period : T3  
Is a multi-term course? : No  
Faculty : Faculty of Engineering  
Academic Unit : School of Computer Science and Engineering  
Delivery Mode : Multimodal  
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 teaches students about software engineering principles via exposure to the

important practice of building correct products in effectively functioning teams.

You will be exposed to agile software practices, team collaboration and effective communication through implementing a group project based on agile software methodologies that require you to analyse, design, build and deploy a web-based application. This course is typically taken soon after completing COMP1511 but could be delayed and taken later. It provides essential background for the teamwork and project management required in many later courses.

## Course Aims

This course aims to provide the students with a strong foundation in the fundamental principles and practices of software engineering that will prepare them for the advanced software engineering workshops. As such, a broad range of key software engineering topics will be taught and reinforced through a group project, that will enable students to apply the theoretical concepts acquired to solve a practical software engineering problem. An agile software delivery style has been chosen for the implementation of the group project, to make students familiar with modern agile development methodologies.

## Course Learning Outcomes

| Course Learning Outcomes  |
|---|
| CLO1 : Demonstrate effective use of software development tools to build full-stack end-user applications  |
| CLO2 : Demonstrate effective use of static testing, dynamic testing, and user testing to validate and verify software systems   |
| CLO3 : Understand key characteristics of a functioning team in terms of understanding professional expectations, maintaining healthy relationships, and managing conflict.  |
| CLO4 : Demonstrate an ability to analyse complex software systems in terms of their data model, state model, and more.  |
| CLO5 : Understand the software engineering life cycle in the context of modern and iterative software development practices in order to elicit requirements, design systems thoughtfully, and implement software correctly. |
| CLO6 : Demonstrate an understanding of how to use version control, continuous integration, and deployment tooling to sustainably integrate code from multiple parties   |

| Course Learning Outcomes  | Assessment Item   |
|---|---|
| CLO1 : Demonstrate effective use of software development tools to build full-stack end-user applications                      | <ul style="list-style-type: none"><li>• Individual Project</li><li>• Major Group Project</li><li>• Labs</li></ul> |
| CLO2 : Demonstrate effective use of static testing, dynamic testing, and user testing to validate and verify software systems | <ul style="list-style-type: none"><li>• Individual Project</li></ul>  |

|   |   |
|---|---|
|   | <ul style="list-style-type: none"> <li>• Major Group Project</li> <li>• Labs</li> </ul>                               |
| CLO3 : Understand key characteristics of a functioning team in terms of understanding professional expectations, maintaining healthy relationships, and managing conflict.  | <ul style="list-style-type: none"> <li>• Major Group Project</li> </ul>   |
| CLO4 : Demonstrate an ability to analyse complex software systems in terms of their data model, state model, and more.  | <ul style="list-style-type: none"> <li>• Individual Project</li> <li>• Major Group Project</li> </ul>                 |
| CLO5 : Understand the software engineering life cycle in the context of modern and iterative software development practices in order to elicit requirements, design systems thoughtfully, and implement software correctly. | <ul style="list-style-type: none"> <li>• Individual Project</li> <li>• Major Group Project</li> </ul>                 |
| CLO6 : Demonstrate an understanding of how to use version control, continuous integration, and deployment tooling to sustainably integrate code from multiple parties   | <ul style="list-style-type: none"> <li>• Labs</li> <li>• Individual Project</li> <li>• Major Group Project</li> </ul> |

## Learning and Teaching Technologies

Microsoft Teams | Ed Forum and GitLab

## Learning and Teaching in this course

This course uses the standard set of practice-focused teaching strategies employed by most CSE foundational courses:

- Lectures
- Tutorials
- Laboratories
- Help Sessions
- Major Group Project
- Individual Project

This course aims to provide the students with a strong foundation in the fundamental principles and practices of software engineering that will prepare them for the advanced software engineering workshops. As such, a broad range of key software engineering topics will be taught and reinforced through a group project, that will enable students to apply the theoretical concepts acquired to solve a practical software engineering problem. An agile software delivery style has been chosen for the implementation of the group project, to make students familiar with modern agile development methodologies.

# Assessments

## Assessment Structure

| Assessment Item                                   | Weight | Relevant Dates   |
|---|--------|--|
| Individual Project<br>Assessment FormatIndividual | 30%    | Start Date-<br>Due DateDeliverable due Thursday of Week 11 |
| Major Group Project<br>Assessment FormatGroup     | 60%    | Due DateDeliverables due Friday of Weeks 2, 4, 7, 10       |
| Labs<br>Assessment FormatIndividual               | 10%    | Due DateWeeks 2, 3, 4, 5, 9                                |

## Assessment Details

### Individual Project

#### Assessment Overview

This project will be individual-based. Students will complete a mini project using the knowledge and skills developed in the major project and labs. The mini project will be marked against specific assessment criteria in a marking guide and manual feedback will be provided. The marking is done with automarker and tutor manual marking.

#### Detailed Assessment Description

Details are on the [course website](#).

#### Submission notes

Submit on GitLab

### Major Group Project

#### Assessment Overview

The course staff will form groups of 4-5 students in your allocated tutorials at the beginning of the course.

The project will be implemented using an agile software delivery mode. As such, your team will be required to build and deliver the project in milestones. Each milestone will deliver a part of the requirements of the project and will encompass all the SDLC activities, namely analysis, design, coding and testing. Changes to project requirements are a natural and unavoidable part of any software project life-cycle. Hence, students will need to bear in mind that project requirements may be subject to change and enhancements to functionalities may be made at the end of each milestone. You will need to carefully design the solution for your current milestone, such that the solution is extensible to accommodate these changes.

After certain milestones, your group will present your work in the next lab project check-in that occurs. This is outlined in the major project specification. To receive a mark for that milestone, each team member must be present for the demonstration during the relevant lab time. If working online, this also includes participating with working audio and with their camera on.

Tutors will continually monitor the GitLab repositories to see the team's progress and individual members' contributions to the group project.

The marking criteria for your major project will be specified in the major project specification. In general, a component of the major project mark is based on automarking and another on manual tutor marking. The project mark is individual-based.

It should be noted that whilst the majority of your mark will come from what is submitted into the deliverables, part of your mark will also be derived from both your individual and your group's participation in tutorials (which includes attending, actively participating, and having a webcam on for online classes).

Feedback for each milestone will be provided in writing and orally in lab project check-ins.

Note that half of the mark for the group project is based on the work by the group as a whole, and half of the mark is based on individual contributions to the group.

#### **Detailed Assessment Description**

Details are on the [course website](#).

#### **Submission notes**

Submit on GitLab

## **Labs**

#### **Assessment Overview**

There are 5 assessable labs to submit throughout the course. Each lab consists of 2-3 questions. Each question is worth 1 mark. There are 12 marks attainable across the labs, but you only need to score 10 out of 12 to achieve the full 10% for the lab marking component. This means you can skip a couple of lab questions throughout the term. Choose wisely!

Each question is completely automarked. After the automarking is complete you will be able to view your marks and the lab solutions.

Lab01 will be marked for you, but those marks won't count toward your final grade. Think of it like a practice lab.

#### **Detailed Assessment Description**

Details are on the [course website](#).

#### **Submission notes**

Submit on GitLab

## **General Assessment Information**

#### **Grading Basis**

# Course Schedule

| Teaching Week/Module                 | Activity Type | Content   |
|--------------------------------------|---------------|---|
| Week 1 : 11 September - 15 September | Lecture       | Course Overview<br><br>Git - Solo Usage<br><br>Git - Team Usage<br><br>Javascript                     |
| Week 2 : 18 September - 22 September | Lecture       | Package Management<br><br>Mutli-file & Importing<br><br>Dynamic Verification<br><br>Working as a team |
| Week 3 : 25 September - 29 September | Lecture       | Data Interchange<br><br>Continuous Integration<br><br>Static Verification<br><br>Linting              |
| Week 4 : 2 October - 6 October       | Lecture       | Advanced Functions<br><br>HTTP Servers  |
| Week 5 : 9 October - 13 October      | Lecture       | Persistence<br><br>Iteration 2<br><br>Exceptions<br><br>Designing for Maintainability                 |
|                                      |               |   |

|                                     |         |  |
|-------------------------------------|---------|--|
| Week 6 : 16 October - 20 October    | Other   | Term Break (Flex Week)   |
| Week 7 : 23 October - 27 October    | Lecture | Code Coverage<br><br>Conceptual Modelling<br><br>Deployment                              |
| Week 8 : 30 October - 3 November    | Lecture | Iteration 3<br><br>Introduction<br><br>Use Cases, User Stories<br><br>Validation         |
| Week 9 : 6 November - 10 November   | Lecture | Auth<br><br>Software Complexity<br><br>Git - Undo  |
| Week 10 : 13 November - 17 November | Lecture | Individual Project Iteration<br><br>(Bonus) Web Front-end<br><br>(Bonus) Building an MVP |

## Attendance Requirements

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

## Course Resources

### Recommended Resources

There is no single textbook that covers all of the material in this course at the right level of detail and using the same technology base as we are. The lectures should provide sufficient detail to introduce topics, and you will then study them in further depth in the tutorials, labs and group projects. For some lectures, further reading material may be given to students who wish to gain a deeper understanding.

# Course Evaluation and Development

This course is evaluated each session using the MyExperience system.

## Staff Details

| Position      | Name         | Email  | Location | Phone | Availability | Equitable Learning Services Contact | Primary Contact |
|---------------|--------------|--|----------|-------|--------------|-------------------------------------|-----------------|
| Convenor      | Yuchao Jiang | <a href="mailto:yuchao.jiang@unsw.edu.au">yuchao.jiang@unsw.edu.au</a> |          |       |              | Yes                                 | No              |
| Administrator | COURSE EMAIL | <a href="mailto:cs1531@cse.unsw.edu.au">cs1531@cse.unsw.edu.au</a>     |          |       |              | 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 / Submit rule, which means that if you sit an exam or submit a piece of assessment, 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 policies. 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 convenor 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.

*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 Plagiarism

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](http://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](http://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](mailto:grievance-officer@cse.unsw.edu.au)

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

Student Reps - [stureps@cse.unsw.edu.au](mailto: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)

You should **never** contact any of the following people directly:

- Vice Chancellor
- Pro-vice Chancellor Education (PVCE)
- Head of School
- CSE administrative staff
- CSE teaching support staff

They will simply bounce the email to one of the above, thereby creating an unnecessary level of indirection and a delay in the response.