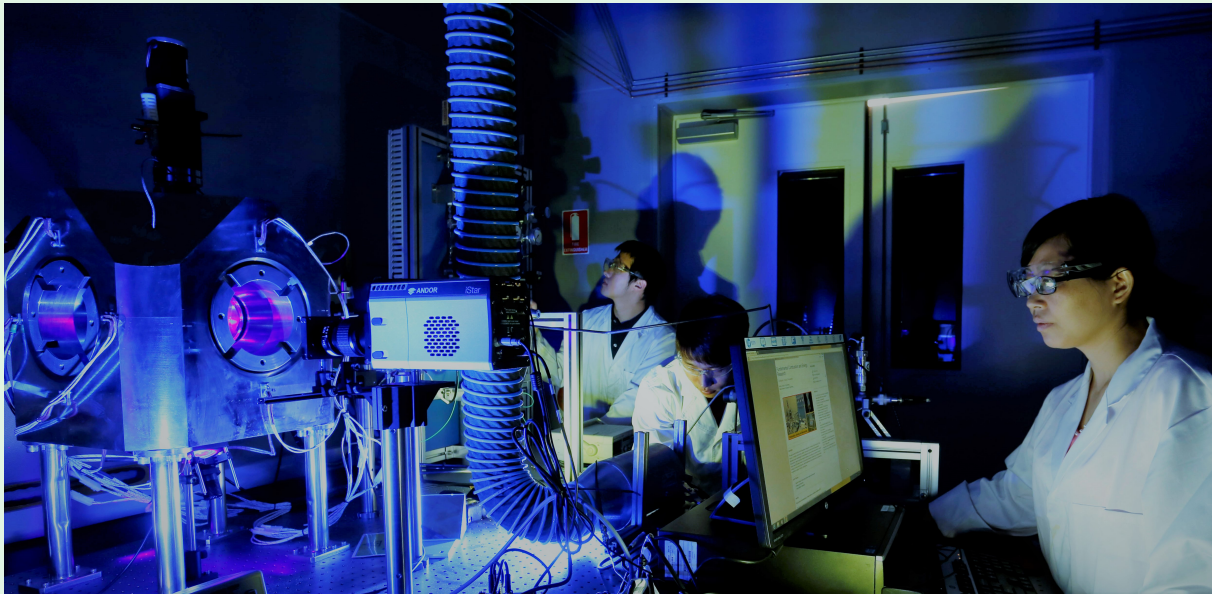


ENGG2500

Fluid Mechanics for Engineers

Term 3, 2021



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Shaun Chan	qing.chan@unsw.edu.au	By appointment	Advanced Combustion Diagnostics Laboratory, UNSW Sydney	+61293854 116

Lecturers

Name	Email	Availability	Location	Phone
Cheng Wang	c.wang@unsw.edu.au	By appointment	UNSW Fire Training Centre, UNSW Sydney	+6129065 0297

Demonstrators

Name	Email	Availability	Location	Phone
Paul Yip	h.l.yip@unsw.edu.au	By appointment	Room 402, J17	N/A
Mark Zhai	g.zhai@unsw.edu.au	By appointment	Room 402, J17	N/A

School Contact Information

Location

UNSW Mechanical and Manufacturing Engineering

Ainsworth building J17, Level 1

Above Coffee on Campus

Hours

9:00–5:00pm, Monday–Friday*

*Closed on public holidays, School scheduled events and University Shutdown

Web

[School of Mechanical and Manufacturing Engineering](#)

[Engineering Student Support Services](#)

[Engineering Industrial Training](#)

[UNSW Study Abroad and Exchange](#) (for inbound students)

[UNSW Future Students](#)

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)

(+61 2) 9385 4097 – School Office**

**Please note that the School Office will not know when/if your course convenor is on campus or available

Email

[Engineering Student Support Services](#) – current student enquiries

- e.g. enrolment, progression, 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

[School Office](#) – School general office administration enquiries

- NB: the relevant teams listed above must be contacted for all student enquiries. The School will only be able to refer students on to the relevant team if contacted

Important Links

- [Student Wellbeing](#)
- [Urgent Mental Health & Support](#)

- [Equitable Learning Services](#)
- [Faculty Transitional Arrangements for COVID-19](#)
- [Moodle](#)
- [Lab Access](#)
- [Computing Facilities](#)
- [Student Resources](#)
- [Course Outlines](#)
- [Makerspace](#)
- [UNSW Timetable](#)
- [UNSW Handbook](#)

Course Details

Units of Credit 6

Summary of the Course

This course introduces the student to the terminology, principles and methods used in engineering fluid mechanics. Fluid mechanics is a subject which deals with both fluid statics (fluids at rest) and fluid dynamics (fluids in motion). Fluid flow has a broad application area ranging from car/airplane aerodynamics, heat exchangers, combustion systems, micro-fluidics, and flows in artificial hearts. The knowledge of fluid mechanics gained in this course is a spring board for many other courses studied in the mechanical engineering degree program, including, advanced thermofluids (heat transfer and advanced thermodynamics), computational fluid dynamics (CFD), automobile engine technology, and aerodynamics and propulsion, as well as other disciplines.

Course Aims

In this course, the topics covered include fluid properties, fluid statics and buoyancy, Bernoulli's equation and its use/limitations, linear momentum, dimensional analysis, laminar and turbulent flow, flow in pipes and pipe networks including pressure drop calculations, boundary layer in external flow, drag or immersed bodies. This course will familiarize you with the terminology associated with fluid mechanics and the use of fluid properties in solving problems. At first, you will develop an intuitive understanding of fluid mechanics by placing an emphasis on physics and physical arguments. You will then be given insight into the basic principles of fluid mechanics and you will learn how to measure fluid systems and be given the tools to design fluid systems

Course Learning Outcomes

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competencies
1. Be able to explain and apply the basic properties of fluids and how these relate to fluid flow.	PE1.1, PE1.2
2. Be able to explain the fundamental principles of fluid flow in pipes and free surface flows viz continuity, momentum and energy, and know to what situations these principles can be applied.	PE1.1, PE1.2
3. Be able to assess energy losses in pipes due to friction and various pipe fittings.	PE1.1, PE1.2, PE2.1, PE2.2
4. Be able to explain and describe the conditions for flows in pipes under which various flow regimes will occur: (i) laminar and turbulent flows, (ii) turbulent flows which are hydraulically rough or hydraulically smooth.	PE1.1, PE1.2, PE2.1, PE2.2
5. Be able to carry out computations of flows through pipes. This includes being able to identify the data requirements to support such computations.	PE1.1, PE1.2, PE2.1, PE2.2, PE3.4

Learning Outcome	EA Stage 1 Competencies
6. Be able to undertake a dimensional analysis and make estimates of drag force and carry out computations related to boundary layers	PE1.1, PE1.2, PE2.1, PE2.2, PE3.4
7. Be able to resolve fundamental fluid mechanics problems in small groups during lab experiments.	PE3.2, PE3.6, PE3.4

Teaching Strategies

- **Lectures:** Lectures in the course are designed to cover the terminology and core concepts and theories in fluid mechanics. They do not simply reiterate the texts but build upon the lecture topics using practical examples to show how the theory is applied in real engineering problems and the details of when, where and how it should be applied. For this term, the lectures will be delivered live using Microsoft Teams.
- **Moodle course page:** The Moodle course page provides a discussion forum to enable students to interact with one another, the course demonstrators and staff. Links to video recordings, course materials and assignments are also available.
- **Online assignments:** Online assignments with automated feedback are provided in parallel to the lecture content on Moodle. The online assignments are designed to allow students to practice the questions as many times as they like while receiving feedback on their attempts. The online assignments are designed to ensure students can investigate problem areas in greater depth, understand the application and avoid making the same mistake.
- **Online consultation:** Weekly two-hour non-compulsory drop-in online consultation session will be held, starting from Week 1. The consultation session is intended for students to seek consultation with selected demonstrators or the academic staff in order to consult on issues related specifically to the lecture content, online assignment questions or past test or examination questions.
- **Lab assignments:** Student learning will be encouraged during practical lab classes, where the students are required to 'perform' lab experiments that are based upon fluid flow concepts. Both in-person and online delivery modes are available for selection. The lab classes are designed to encourage group work and self-directed learning.
- **Test/examinations:** There will be one mid-term test and one final examination to test everything learned at the mid-point or at the end of this course. The test and final examination are used because the course learning outcomes include a significant level of technical learning that can be effectively assessed in a test or exam environment.

Additional Course Information

Pre-requisite: (MATH1131 OR DPST1013 OR MATH1141) AND (PHYS1121 OR PHYS1131 OR PHYS1141 OR DPST1021 OR DPST1023)

Please post questions regarding demonstration/example problems on Moodle forums. When communicating via forum, you are expected to follow the same etiquette as you would in a classroom situation, please (1) be respectful of your peers, demonstrators and course staff; (2) value the opinions of others; and (3) do not attack others personally. Administrative inquiries that are personal and confidential with respect of an individual student can be made to the course convenor, when circumstance requires.

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Final Examination	55%	TBC, during UNSW exam period	1, 2, 3, 4, 5, 6, 7
2. Lab assignments	15%	Saturday 23.55 Weeks 6, 8, 10	1, 2, 3, 4, 5, 7
3. Online assignments	15%	Saturday 23.59 Weeks 3, 5, 7, 9 and 11	1, 2, 3, 4, 5, 6
4. Mid-term test	15%	Thursday 20.00 Week 7 (Unless special consideration)	1, 2, 3, 4, 5

Assessment 1: Final Examination

Assessment length: 2 hours

Due date: TBC, during UNSW exam period

Deadline for absolute fail: N/A

Marks returned: Follows UNSW official date for the release of results for T3.

There will be one 2-hour examination at the end of the session for everything learned from this course. The final exam is given because the course learning outcomes include a significant level of technical learning that can be effectively assessed in an exam environment and because exams have high reliability.

This is not a Turnitin assignment

Additional details

The exam will take place during the official exam period. We will provide details on the Moodle course page during the course.

You will need to:

- Work on the questions on your own.
- Submit your answer sheet in PDF format through Moodle, within the allocated time period (2 hours test time and an additional 10 minutes to submit).

Please note that it is your responsibility to ensure:

- All of your working steps and answers are legible.
- You are present to take the test, and submit your answer sheet within the allocated time.

To encourage timely submission for fairness reasons:

- 2 marks, out of the total 55 marks allocated to the test, will be deducted for every minute of late

submission, after the 10 minutes mark.

- We will be using Moodle submission time as our official record of your submission. Your submission time will be rounded up to the nearest minute.
- You will only be allowed to submit once.

Please be mindful that various Moodle sections (e.g., Online Video Links, Online Assignments, Practice Questions, Sample Mid-semester Test Papers and others, as stated in the descriptions in the sections) within Moodle that will be hidden during the test period.

Assessment 2: Lab assignments

Due date: Saturday 23.55 Weeks 6, 8, 10

Deadline for absolute fail: 5 days post due date of each report.

Marks returned: 2 weeks post due date of each report.

There will be 3 laboratory experiments, as outlined in the “schedule”, with work due at 23.55 on the Saturdays, at the end of Weeks 6, 8 and 10. The lab assignments will contribute 15% towards the course total.

Note:

- You must review the relevant video and lab report template, which are made available on Moodle since the start of the semester, before attending each lab session.
- If you are enrolled in an in-person lab class, it is recommended that you bring an electronic or physical lab report template to class, as it contains information that will help you complete your experiment. You will not be admitted to the laboratory unless you are appropriately dressed for safe working.
- If you are enrolled in an online lab class, your demonstrator will provide you with the relevant experimental data at the start of each online lab session. Your demonstrator will work with you to form your lab group at the start of each online session. Your demonstrator will also remain online to answer any question that you may have, during the online lab session.

This is not a Turnitin assignment

Additional details

To accommodate the large cohort of students, there will be multiple lab sessions each week, for each lab experiment type. The laboratory session that you are required to attend depends on your selection at the time of enrollment (refer to your class timetable). For example, if you are enrolled in W11A (UTL), you will have to attend the in-person lab session on Wednesday 1100-1200 in Weeks 5, 7, and 9. Alternatively, if you are enrolled in W15A (online), you will need to attend the online lab session on Mon 1500-1600 in Weeks 5, 7, and 9.

Note:

- If you are unable to attend any of your allocated lab sessions, because of circumstances that are beyond your control, you must write to inform the head lab demonstrator and to discuss alternative arrangements. The reason that you provide, must be consistent with the circumstances that are considered valid for special consideration applications (<https://student.unsw.edu.au/special-consideration>).

For both in-person and online lab classes, you will be asked to work with your group members to discuss but you will need to submit an **individual lab report** after. No deadline extension will be granted.

For in-person lab classes, the laboratory demonstrators will give general instructions on how to operate the equipment safely and will explain what is required of you. If in doubt, ask. It is important that you fully understand the experiment at the time it is being carried out when instruction is available. In some experiments, you are only required to take readings at intervals, use the intermediate time to ask questions and find out what other members of your group are doing. Little is learned merely by sitting and waiting to make a measurement. More is learned by inquiry and discussion.

Attendance at all laboratory experiments to which you are assigned is compulsory and a register is taken. If you are unable to attend due to illness, it is important that you inform the Head Lab Demonstrator as soon as possible so that you may be reassigned to another class. You will need to present a medical certificate.

Transfer from other groups. The laboratory groups are large, so transfers between groups are granted only for circumstances that are unexpected and beyond your control. The transfers must be arranged through the Head Demonstrator. Please note that according to the university's rule for special consideration: "Students are expected to give priority to their University study commitments and work commitments are not normally considered a justification."

Timely arrival and completion of laboratory experiment. We require you to arrive punctually at the lab class you enrolled in. We strongly recommend that you arrive 5 minutes before the scheduled time to make yourself known to your other group members if you have chosen to enrol in the in-person lab class.

We will need to strictly adhere to the time, because of the back-to-back nature of the classes, as well as the large number of students that are anticipated to arrive and leave the labs. The following **penalties** will therefore be applied for late arrival to your scheduled online/in-person lab class:

- If you arrive between 5 and 10 minutes late, you will receive an individual penalty of 1 out of 5 marks for the respective lab.
- If you arrive more than 10 minutes late, you will not be allowed to participate in the lab class and will receive 0 marks for the lab assignment.

Assessment 3: Online assignments

Assessment length: 2 hours

Due date: Saturday 23.59 Weeks 3, 5, 7, 9 and 11

Deadline for absolute fail: N/A

Marks returned: 1 week post due date.

You will have 5 online assignments. Each assignment will cover the topics taught in the prior weeks, with work due at 23.59 on Saturdays, at the end of Weeks 3, 5, 7, 9 and 11. The online assignments are an integral part of this course. In recognition of this, they will contribute 15% to your final grade. Each online assignment mark has a total mark out of 3.

Note:

- Your work on these must be your own work, but you are encouraged to discuss the methods required with other students.

- Each version of an online assignment will be slightly different.
- The online assignments are available from the beginning of the semester so that you have an extended period to complete them.
- No deadline extension will be granted. You should attempt these assignments with sufficient remaining time to allow for unplanned service interruptions.

This is not a Turnitin assignment

Assessment 4: Mid-term test

Start date: Thursday, Week 7

Assessment length: 1 hour

Due date: Thursday 20.00 Week 7 (Unless special consideration)

Deadline for absolute fail: N/A

Marks returned: 2 weeks post due date.

There will be one 1-hour mid-term test (Week 7). The test will cover lecture materials from Weeks 1 to 5. The mid-term test is an integral part of this course and will contribute 15% towards your course total.

The test question booklet will be made available for download from Moodle, on the planned date and time. You will need to submit your answer sheet through Moodle, within the allocated time period. The demonstrators will be online to answer any question that you may have, during the period, as well as to remind you of the submission time.

This is not a Turnitin assignment

Additional details

You will need to:

- Work on the questions on your own.
- Submit your answer sheet in PDF format through Moodle, within the allocated time period (1 hour test time and an additional 10 minutes to submit).

Please note that it is your responsibility to ensure:

- All of your working steps and answers are legible.
- You are present to take the test, and submit your answer sheet within the allocated time.

To encourage timely submission for fairness reasons:

- 1 mark, out of the total 15 marks allocated to the test, will be deducted for every minute of late submission, after the 10 minutes mark.
- We will be using Moodle submission time as our official record of your submission. Your submission time will be rounded up to the nearest minute.
- You will only be allowed to submit once.

Please be mindful that various Moodle sections (e.g., Online Video Links, Online Assignments, Practice Questions, Sample Mid-semester Test Papers and others, as stated in the descriptions in the sections) within Moodle that will be hidden during the test period.

Attendance Requirements

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

Course Schedule

[View class timetable](#)

Timetable

Date	Type	Content
Week 1: 13 September - 17 September	Lecture	Introduction, physical properties of fluids, fluids in static equilibrium, pressure measurements, manometer. (Chapters 1.1-1.7, 2.1-2.7)
Week 2: 20 September - 24 September	Lecture	Forces on submerged plane surfaces, buoyancy and stability of floating objects, pressures in accelerating fluid systems. (Chapters 3.1-3.7)
Week 3: 27 September - 1 October	Lecture	Fluid flow (Langrangian and Eulerian descriptions), continuity equation, flow visualisation, Euler's equation of motion, steady flow energy equation. (Chapters 4.1-4.2, 5.1-5.3)
	Assessment	Online assignment 1 due. Due: Saturday, 23.59. Weighting: 3% of the course grade.
Week 4: 4 October - 8 October	Lecture	Bernoulli equation, hydraulic and energy grade line, energy transfer and general energy equation. (Chapters 5.4-5.5)
Week 5: 11 October - 15 October	Lecture	Linear momentum equation (Newton's law), forces caused by deflection of jets, forces on nozzles, linear momentum + Bernoulli/Energy equations. (Chapters 6.1-6.4)
	Assessment	Online assignment 2 due. Due: Saturday, 23.59. Weighting: 3% of the course grade.
	Laboratory	Hydrostatics lab experiment.
Week 6: 18 October - 22 October	-- Select --	Flexibility week.
	Laboratory	Hydrostatics lab experiment report due.

		Due: Saturday, 23.55. Weighting: 5% of the course grade.
Week 7: 25 October - 29 October	Lecture	Dimensional analysis and similarity. Introduction to laminar and turbulent flow in ducts, Reynolds number, entrance region. (Chapters 7.1-7.5, 8.1-8.3)
	Assessment	Online assignment 3 due. Due: Saturday, 23.59. Weighting: 3% of the course grade.
	Laboratory	Flow measurement lab experiment.
	Assessment	Mid-term test. Weighting: 15% of the course grade.
Week 8: 1 November - 5 November	Lecture	Laminar and turbulent flow in pipes, analytical solutions, Moody chart and Darcy friction factor. (Chapters 8.1-8.5)
	Laboratory	Flow measurement lab experiment report due. Due: Saturday, 23.55. Weighting: 5% of the course grade.
Week 9: 8 November - 12 November	Lecture	Pipe friction, minor loss, pipe network. Rotational Motion and Angular Momentum. (Chapters 8.6-8.7, 6.5-6.6)
	Assessment	Online assignment 4 due. Due: Saturday, 23.59. Weighting: 3% of the course grade.
	Laboratory	Pipe flow lab experiment.
Week 10: 15 November - 19 November	Lecture	External flow boundary layers, characteristics of laminar, transition and turbulent zones. Drag of immersed bodies, skin friction, form drag, variation of drag coefficient with Reynold's number. (Chapters 11.1-11.6)
	Laboratory	Pipe flow lab experiment report due. Due: Saturday, 23.55. Weighting: 5% of the course grade.

Study Week: 20 November - 25 November	Assessment	Online assignment 5 due. Due: Saturday, 23.59. Weighting: 3% of the course grade.
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Resources

Prescribed Resources

Lecture notes

The lecture notes will be made available on Moodle before the first lecture of each week.

Recommended Resources

Cengel and Cimbala, Fluid Mechanics Fundamentals and Applications, 2nd Ed in SI unit.

The reference book is available from the UNSW Bookshop and the UNSW Library.

- UNSW Library website: <https://www.library.unsw.edu.au/>
- UNSW Bookshop: <https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9781259696534>
- Moodle: <https://moodle.telt.unsw.edu.au/login/index.php>

Course Evaluation and Development

Feedback on the course is gathered periodically using various means, including the UNSW myExperience process, informal discussion in the final class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

In this course, following students' feedback, we have incorporated more problem examples and solutions into the teaching of the course.

We are also now trialling a weekly non-compulsory online consultation session for students who need additional help.

Laboratory Workshop Information

Laboratory work is an essential component of this course. Your attendance and participation in all laboratory work is a requirement for the course.

To account for COVID reasons, we will have face-to-face lab classes as well as an online recording of the lab classes. We strongly encourage you to participate in the face-to-face mode since this will allow you to directly interact with the lab demonstrator and ask any questions you may have. The lab class is not designed to simply collect data (every student will receive an individual data set for the post-lab assessment), but to really understand the fundamental course concepts.

During the laboratory class, you will need to adhere to any OH&S requirements or instructions from your laboratory demonstrator or course coordinators. Closed footwear is an OH&S requirement for entry to University Laboratories.

During the lab class, you will be split into groups of a maximum of 5 students. Your group will complete 1 experiment during each laboratory session (3 in total) of 1 hour. The laboratory classes will be in Weeks 5 (Lab 1), 7 (Lab 2) and 9 (Lab 3) in various time slots as per enrolment.

Submission of Assessment Tasks

Assessment submission and marking criteria

Should the course have any non-electronic assessment submission, these should have a standard School cover sheet.

All submissions are expected to be neat and clearly set out. Your results are the pinnacle of all your hard work and should be treated with due respect. Presenting results clearly gives the marker the best chance of understanding your method; even if the numerical results are incorrect.

Marking guidelines for assignment submissions will be provided at the same time as assignment details to assist with meeting assessable requirements. Submissions will be marked according to the marking guidelines provided.

Late policy

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of 20 percent (20%) of the maximum mark possible for that assessment item, per calendar day, for a minimum of zero marks.

The late penalty is applied per calendar day (or part thereof), including weekends and public holidays, that the assessment is overdue.

Work submitted after the 'deadline for absolute fail' is not accepted and a mark of zero will be awarded for that assessment item. For example:

- Your course has an assessment task worth a total of **30 marks (Max Possible Mark)**
- You submit the assessment **2 days after the due date**
- The assessment is marked as usual and achieves a score of **20 marks (Awarded Mark)**
- The late policy is applied using **Late Mark = Awarded Mark - (Days*Penalty per Day)*Max Possible Mark**. Your adjusted final score is **8 marks** ($20 - ((2*0.2)*30)$).

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

1. Weekly online tests or laboratory work worth a small proportion of the subject mark, or
2. Online quizzes where answers are released to students on completion, or
3. Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date, or
4. Pass/Fail assessment tasks.

Examinations

You must be available for all quizzes, tests and examinations. For courses that have final examinations, these are held during the University examination periods: February for Summer Term, May for T1, August for T2, and November/December for T3.

Please visit myUNSW for Provisional Examination timetable publish dates. For further information on

exams, please see the [Exams](#) webpage.

Special Consideration

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 submitting an assessment or sitting an exam.

UNSW now has a [Fit to Sit / Submit rule](#), which means that if you attempt 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](#).

Please note that students will **not** be required to provide **any** documentary evidence to support absences from any classes missed **because of COVID-19 public health measures such as isolation**. UNSW will **not** be insisting on medical certificates from anyone deemed to be a positive case, or when they have recovered. Such certificates are difficult to obtain and put an unnecessary strain on students and medical staff.

Applications for special consideration **will** be required for assessment and participation absences – but no documentary evidence **for COVID-19 illness or isolation** will be required.

Special Consideration Outcomes

Assessments have default Special Consideration outcomes. The default outcome for the assessment will be advised when you apply for Special Consideration. Below is the list of possible outcomes:

Outcome	Explanation	Example
Time extension	Student provided more time to submit the assessment	e.g. 1 more week of time granted to submit a report
Supplementary assessment	Student provided an alternate assessment at a later date/time	e.g. a supplementary exam is scheduled during the supplementary exam period of the term
Substitute item	The mark for the missed assessment is substituted with the mark of another assessment	e.g. mark for Quiz 1 applied also applied as mark for Quiz 2, meaning if a student achieved a mark of 20/30 for Quiz 1 and was granted Special Consideration for Quiz 2, a mark of 20/30 would be applied for Quiz 2, etc
Exemption	All course marks are recalculated excluding this assessment and its weighting	e.g. The course has an assessment structure of: - Assignments 30%, - Lab report 30%, - Final Exam 40%. If the Lab report is missed and student is granted Special Consideration, then the assessment structure may be reweighted as follows: - Assignments 50% - Final Exam 50% as though the Lab report did not exist
Non-standard	Course Coordinator is contacted for the outcome when special consideration is granted as the outcome differs on a case-by-case basis	e.g. typical for group assessments where time extension supplementary assessment could be granted to the group member, time extension could be granted to the whole group, etc. Clarify with your Course Convenor for

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. 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.

If plagiarism is found in your work when you are in first year, your lecturer will offer you assistance to improve your academic skills. They may ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing another student's work or paying someone to do your work, may be investigated under the Student Misconduct Procedures.

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) even suspension from the university. The Student Misconduct Procedures are available here:

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

Academic Information

Credit points

Course credit is calculated in Units-Of-Credit (UOC). The normal workload expectation for one UOC is approximately 25 hours per term. This includes class contact hours, private study, other learning activities, preparation and time spent on all assessable work.

Most coursework courses at UNSW are 6 UOC and involve an estimated 150 hours to complete, for both regular and intensive terms. Each course includes a prescribed number of hours per week (h/w) of scheduled face-to-face and/or online contact. Any additional time beyond the prescribed contact hours should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations.

On-campus class attendance

****T3-2021 UPDATE****

Classes will be entirely ONLINE until at least Week 6, after which we will receive further advice from UNSW about the return of face-to-face classes. Students who are enrolled in face-to-face classes will have access to the course's online content but NO classes will be changed to reflect online delivery until Week 6 due to uncertainty regarding delivery mode for the rest of the term. Please go to your course's Moodle modules and MS Teams sites for further information about accessing course resources and content.

Public distancing conditions must be followed for all face-to-face classes. To ensure this, only students enrolled in those classes will be allowed in the room. No over-enrolment is allowed in face-to-face classes. Students enrolled in online classes can swap their enrolment from online to a **limited** number of on-campus classes by Sunday, Week 1. Please refer to your course's Microsoft Teams and Moodle sites for more information about class attendance for in-person and online class sections/activities.

Your health and the health of those in your class is critically important. You must stay at home if you are sick or have been advised to self-isolate by [NSW health](#) or government authorities. Current alerts and a list of hotspots can be found [here](#). **You will not be penalised for missing a face-to-face activity due to illness or a requirement to self-isolate.** We will work with you to ensure continuity of learning during your isolation and have plans in place for you to catch up on any content or learning activities you may miss. Where this might not be possible, an application for fee remission may be discussed. Further information is available on any course Moodle or Teams site.

In certain classroom and laboratory situations where physical distancing cannot be maintained or there is a high risk that it cannot be maintained, face masks will be considered **mandatory PPE** for students and staff.

For more information, please refer to the
FAQs: <https://www.covid-19.unsw.edu.au/safe-return-campus-faqs>

Guidelines

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](#)

CRICOS

CRICOS Provider Code: 00098G

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline	✓
PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline	✓
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	
PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline	
PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline	
Engineering application ability	
PE2.1 Application of established engineering methods to complex engineering problem solving	✓
PE2.2 Fluent application of engineering techniques, tools and resources	✓
PE2.3 Application of systematic engineering synthesis and design processes	
PE2.4 Application of systematic approaches to the conduct and management of engineering projects	
Professional and personal attributes	
PE3.1 Ethical conduct and professional accountability	
PE3.2 Effective oral and written communication in professional and lay domains	✓
PE3.3 Creative, innovative and pro-active demeanour	
PE3.4 Professional use and management of information	✓
PE3.5 Orderly management of self, and professional conduct	
PE3.6 Effective team membership and team leadership	✓