ENGG2500

Fluid Mechanics for Engineers

Term Three // 2020

School of Mechanical and Manufacturing Engineering // UNSW Engineering

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Shaun Chan	qing.chan@unsw.edu.au		J17 402D	

Lecturers

Name	Email	Availability	Location	Phone
Cheng Wang	c.wang@unsw.edu.au			

Demonstrators

Name	Email	Availability	Location	Phone
Paul Yip	h.l.yip@unsw.edu.au			
Mark Zhai	g.zhai@unsw.edu.au			

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

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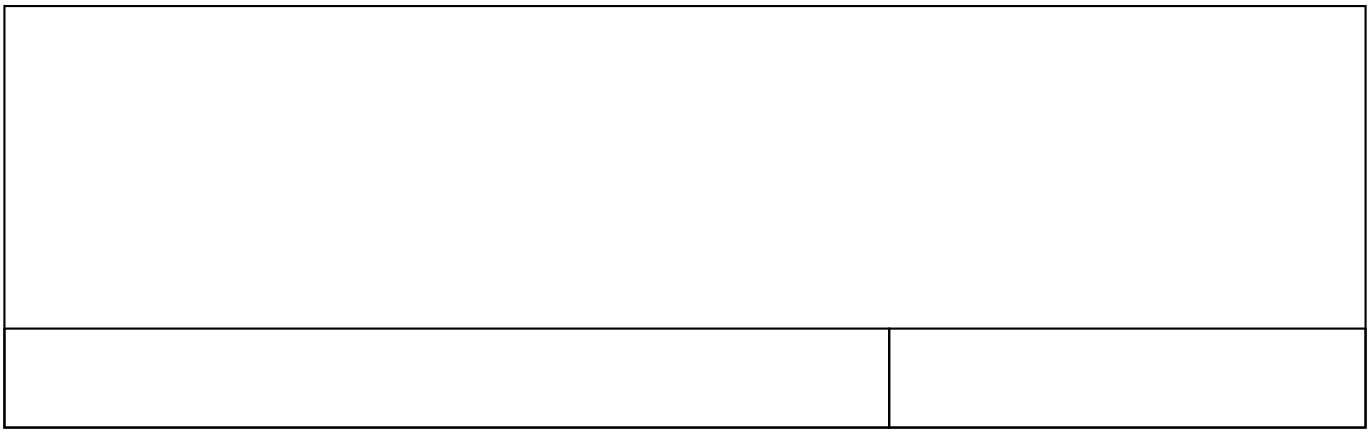

topics using practical examples to show how the theory is applied in real engineering problems and the details of when, where and how it should be applied. For this term, the lectures will be delivered live using Microsoft Teams.

Saturdays, at the end of Weeks 6, 8 and 10. The lab assignments will contribute 15% of your final grade. Each online assignment mark has a total mark of 5.

Note:

- You must review the relevant video and lab report template, which are made available on Moodle since the start of 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.

Additional details:

To accommodate the large cohort of students, there will be at least 18 possible 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 M13A (UTL), you will have to attend the in-person lab session on Mon 1300-1400 in Weeks 5, 7, and 9. Alternatively, if you are enrolled in M10A (online), you will need to attend the online lab session on Mon 1600-1700 in Weeks 5, 7, and 9.

Note:

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 the 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 punctual to 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 enroll 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 mark 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.

Turnitin setting: This is not a Turnitin assignment

Assessment 3: Mid-term test

Start date: Week 7

Details:

There will be one 1-hour mid-term test (Week 7). The test will □ ‰

The exam will be delivered online, in a similar manner to that of the mid-semester test.

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: 14 September - 18 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: 21 September - 25 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: 28 September - 2 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)
Week 4: 5 October - 9 October	Lecture	Bernoulli equation, hydraulic and energy grade line, energy transfer and general energy equation. (Chapters 5.4-5.5)
Week 5: 12 October - 16 October	Lecture	Linear momentum equation (Newton's law), forces

Resources

Prescribed Resources

Not available

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/

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.

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.

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 in T3.

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. *Nj_eg_pgqk _r SLQU gq bcdglcb _q sqgle rfc umpbq mp gbc_q md mrfcpq _lb n_qqgle rfck mdd _q wmsp mul,*

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. 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

Important Links

- Moodle
- Lab Access
- Health and Safety
- Computing Facilities
- Student Resources
- Course Outlines
- Engineering Student Support Services Centre
- Makerspace
- UNSW Timetable
- UNSW Handbook
- UNSW Mechanical and Manufacturing Engineering
- Equitable Learning Services

Image Credit

Synergies in Sound 2016

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.