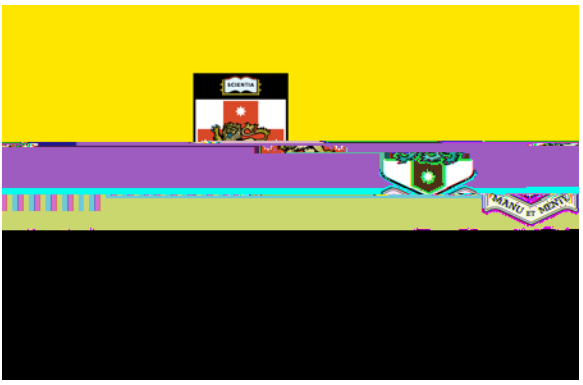

Mechanical and Manufacturing Engineering

Course Outline

Semester 2 2017

MMAN2600

FLUID MECHANICS

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1. Staff contact details

Contact details and consultation times for course convenor

Course convener and lecturer :
Name: Dr Shaun Chan
Office location: Room 402D, Building J17
Email: qing.chan@unsw.edu.au
Research: https://research.unsw.edu.au/projects/advanced-combustion-diagnostics-laboratory

Guest lecturer :
Name: Dr Jeoffrey Fisher
Office location: Room 408, Building J17
Email: jeoffrey.fischer@unsw.edu.au

For questions regarding demonstration/example problems, the demonstrators in your demonstration will be the first contact. Administrative enquiries that are personal and confidential in respect of an individual student can be made to the course convenor (Dr Shaun Chan), if the circumstances require it.

Head Demonstrator (contact for online assignment and laboratory etc.):
Name: Mr Samuel Olgers (Online assignment)
Email: s.olgers@unsw.edu.au

Name: Mr Harsh Goyal (Lab)
Email: harsh.goyal@unsw.edu.au

Contact details and consultation times for additional lecturers/demonstrators/lab staff

Please see the course Moodle.

2. Important links

- Moodle
- UNSW Mechanical and Manufacturing Engineering
- Course Outlines
- Student intranet
- UNSW Mechanical and Manufacturing Engineering Facebook
- UNSW Handbook

4.

LABORATORY TIMETABLE

Undergraduate Teaching Laboratory (UTL), J18 Willis Annexe

Laboratory Time Slots

M10A	Mon	1000 – 1200	UTL
T10A	Tue	1000 – 1200	UTL
T12A	Tue	1200 – 1400	UTL
W16A	Wed	1600 – 1800	UTL
H14A	Thu	1400 – 1600	UTL
F12A	Fri	1200 – 1400	UTL
F14A	Fri	1400 – 1600	UTL

Due to the large number of students, each of these timeslots will further be broken into 2 groups. You will be notified of which group, Archimedes or Bernoulli, you are in before the lab commences in week 3. For example, if you are enrolled to M10A and are selected for group Bernoulli, you will attend the lab on Mon 10:00-12:00 in week 4, 6, 8, 11 and 13. If you are enrolled to H14A and are selected for group Archimedes, your lab will be on Thurs 14:00-16:00 in week 3, 5, 7, 9 and12.

	Week of Semester										
Group	3	4	5	6	7	8	9	10	11	12	13
Archimedes	Lab 1		Lab 2		Lab 3		CFD	No lab		Lab 4	
Bernoulli		Lab 1		Lab 2		Lab 3		No lab	CFD		Lab 4

Laboratory Topic

Lab 1 Flow measurement
Lab 2 Hydrostatics
Lab 3 Pipe friction
CFD CFD laboratory, conducted in the computer labs
Lab 4 Pelton wheel

*There will be no waiver of labs for repeating students.

6. Assessment

Assessment overview

Assessment	Length	Weight	Learning outcomes assessed	Assessment criteria	Due date and submission requirements	Deadline for absolute fail	Marks returned
6 x Online assignments	2 hours per assignment	20%	1, 2, 3, 4	Lecture material from weeks 1-2, 3-4, 5-6, 7-8, 9-10 and 11-12	23.59 on Fridays at the end of weeks 3, 5, 7, 9, 11 and 13.	N/A	Online
5 x Laboratories	2 hours per lab session	20%	1, 2, 3, 4	Lab materials	During each allocated lab class	N/A	In lab

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Online Assignments

You will have 6 online assignments. Each assignment will cover the topics that were taught in the prior weeks, with work due at 23.59 on Fridays at the end of weeks 3, 5, 7, 9, 11 and 13. The online assignments are an integral part of this course. In recognition of this, they will contribute 20% of your final grade. Each online assignment mark has a total mark out of 5. The best 5 of the 6 online assignments will then be summed to give the online assignment component of your final grade.

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 extensions will be granted. You should attempt these assignments with sufficient remaining time to allow for unplanned service interruptions.

Lab Assignments

There will be 5 laboratory experiments held as outlined in the “Laboratory Timetable”, including 1 computer-lab based CFD experiment.

You are required to obtain a bound laboratory book (alternate lined and graph pages) to record results of each experiment and analysis carried out whilst in the laboratory.

The laboratory demonstrators will mark your preliminary work at the start of the laboratory period and mark your data collection and analysis at the end of the laboratory period. Ensure that your work is marked before you leave the laboratory, that your mark is entered in the class record and that your laboratory book is initialled by the demonstrator.

You will not be admitted to the laboratory unless you are appropriately dressed for safe working, have a laboratory book, a calculator and present the assigned preliminary work.

The laboratory demonstrators will give instructions on how to operate the equipment 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 - much 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 Demonstrator as soon as possible so that you may be reassigned to that experiment at a later date. You might be asked to present a medical certificate later.

Examination

There will be one 2-hour examination at the end of the session for everything learned from this course.

You must be available for all tests and examinations. Final examinations for each course are held during the University examination periods, which are June for Semester 1 and November for Semester 2.

Provisional Examination timetables are generally published on myUNSW in May for Semester 1 and September for Semester 2.

For further information on exams, please see the Exams section on the intranet.

Mid-session Tests

There will be two one-hour mid-session tests (held in weeks 5 and 9). For each test, there will be questions from week 1~4 lectures (Test 1) and week 5~8 lectures (Test 2).

Calculators

You will need to provide your own calculator, of a make and model approved by UNSW, for the examinations. The list of approved calculators is shown at student.unsw.edu.au/exam-approved-calculators-and-computers

It is your responsibility to ensure that your calculator is of an approved make and model, and to obtain an "Approved" sticker for it from the School Office or the Engineering Student Centre prior to the examination. Calculators not bearing an "Approved" sticker will not be allowed into the examination room.

Special consideration and supplementary assessment

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

7. Attendance

8. Expected resources for students

Textbook

Cengel and Cimbala, Fluid Mechanics Fundamentals and Applications, 2nd Ed in SI unit.
The textbook is available from the UNSW Bookshop and the UNSW Library.

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

Further information on School policy and procedures in the event of plagiarism is available on the intranet.

11 Administrative matters and links

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

- Attendance, Participation and Class Etiquette
- UNSW Email Address
- Computing Facilities
- Assessment Matters (including guidelines for assignments, exams and special consideration)
- Academic Honesty and Plagiarism
- Student Equity and Disabilities Unit
- Health and Safety
- Student Support Services

Appendix A: Engineers Australia (EA) Competencies

Stage 1 Competencies for Professional Engineers

	Program Intended Learning Outcomes
PE1: Knowledge and Skill Base	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals
	PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing
	PE1.3 In-depth understanding of specialist bodies of knowledge
	PE1.4 Discernment of knowledge development and research directions
	PE1.5 Knowledge of engineering design practice
	PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable