



MECH2002

Fluid Mechanics

Session 1, Weekday attendance, North Ryde 2020

School of Engineering

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Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

General Information

Unit convenor and teaching staff

Lecturer

Fatemeh Salehi

fatemeh.salehi@mq.edu.au

Contact via email

Room 121, 44 Waterloo Rd

Monday 1-3 pm

Credit points

10

Prerequisites

(MECH1001 or ENGG1050 or ENGG150 or CIVL1001 or PHYS140) and (MATH1025 or MATH1020 or MATH136 or MATH133)

Corequisites

Co-badged status

Unit description

This unit will examine the basic concepts of fluid mechanics. It will examine the roles of static fluid systems, dynamic fluid systems, and techniques to analyse these systems. This will include the concepts of pressure and head; hydrostatics; buoyancy; fundamental laws of fluid motion; accounting for losses, experimental and numerical techniques.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Exhibit proficiency in mathematical analysis, and the application of physics, associated with fluid mechanics.

ULO2: Explain the fundamentals of static and dynamic fluid systems.

ULO3: Analyse simple static and dynamic fluid problems applied to real world problems.

ULO4: Apply appropriate technology to investigate more complex fluid flow problems.

Assessment Tasks

Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult [iLearn](#) for revised unit information.

[Find out more about the Coronavirus \(COVID-19\) and potential impacts on staff and students](#)

General Assessment Information

Student Responsibilities

Be familiar with University policy and College procedures and act in accordance with those policy and procedures.

It is the responsibility of the student to retain a copy of any work submitted. Students must produce these documents upon request. Copies should be retained until the end of the grade appeal period each term.

Notifications

Formal notification of assessment tasks, grading rubrics and due dates will be posted on iLearn. Although all reasonable measures to ensure the information is accurate, The University reserves the right to make changes without notice. Each student is responsible for checking iLearn for changes and updates.

Assignment submissions and plagiarism policies

All assignments and reports must be submitted electronically through iLearn (in pdf format) unless otherwise explicitly stated. Submissions will undergo plagiarism checkers using the turnitin software and any work deemed to have 30% or higher similarity score may incur academic penalty. For more details on the policies of academic penalties relating to academic honesty, please refer to the policies and procedures section below.

Submissions are expected to be typed set in a logical layout and sequence and graphs are expected to be drawn using suitable software. Markers WILL NOT grade poorly organized or illegible scans or drafts. The expected workload includes preparation of final copies and clear diagrams.

Late submissions

Late submissions or absences from tutorials and laboratories will not be accepted. In the event that an assignment or report is submitted late, between 0 and 24 hours a deduction of 25% will be made, between 24 and 48 hours a deduction of 50% will be made, more than 48 hours will result in no marks being awarded. Extenuating circumstances will be considered upon lodgement of a formal notice of disruption of studies.

Grading and passing requirement for unit

For further details about grading, please refer below in the policies and procedures section. In order to pass this unit a student must obtain a mark of 50 or more for the unit (i.e. obtain a passing grade P/ CR/ D/ HD).

Final Examinations

Final examinations will typically take place at the end of the semester. For further information, please refer to the Examination Timetable website on www.mq.edu.au

Delivery and Resources

Coronavirus (COVID-19) Update

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: https://ask.mq.edu.au/account/pub/display/unit_status

The main text required for this course is: Potter, Wiggert and Ramadan, Mechanics of Fluids, 4th or 5th Ed.

Unit Schedule

Coronavirus (COVID-19) Update

The unit schedule/topics and any references to on-campus delivery below may no longer be relevant due to COVID-19. Please consult [iLearn](#) for latest details, and check here for updated delivery information: https://ask.mq.edu.au/account/pub/display/unit_status

Week	Lecture Topic	Lecturer	Laboratory/ Tutorial	Assessment
1	Introduction to Fluid Mechanics, Fluid Properties	Dr Salehi	No Tutorials or Laboratories	
2	Fluids Statics, Pressures in Fluids, Accelerating Fluids	Dr Salehi	Tutorial	In-class skills test

3	Forces of Fluids Acting on Surfaces	Dr Salehi	Tutorial	
4	Buoyancy and Stability	Dr Salehi	Tutorial and Laboratory	
5	Description and Classification of Fluids in Motion	Dr Salehi	Tutorial and Laboratory	
6	Bernoulli's Equation and the Fundamental Laws of Fluid Motion	Dr Salehi	Tutorial	
7	Midterm Examination	Dr Salehi	Tutorial and Laboratory	In-class midterm exam
8	Internal Flows	Dr Salehi	Tutorial	
9	Dimensional Analysis and Similitude	Dr Salehi	Tutorial and Laboratory	
10	External Flows	Dr Salehi	Tutorial	
11	Techniques to Investigate Fluid Mechanics	Dr Salehi	Tutorial	
12	Pump and Turbine	Dr Salehi	Tutorial and Laboratory	
13	Revision	Dr Salehi	Tutorial	

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)

- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

The topic on Compressible Flows is replaced by a new topic on Pump and Turbines. This change has been made to include topics which are more relevant to practical applications, enhancing students learning outcomes. Considering students' feedback, the assessment tasks have been modified to balance students workload and improve the learning process.

Changes since First Published

Date	Description
21/02/2020	The unit schedule has been added.