

CIVL 2003 FLUID MECHANICS

Credit Points 10

Legacy Code 300762

Coordinator Ataur Rahman ([https://directory.westernsydney.edu.au/search/name/Ataur Rahman/](https://directory.westernsydney.edu.au/search/name/Ataur%20Rahman/))

Description This unit provides a basic understanding of fluid mechanics principles. Fluid mechanics is the study of the properties and movements of fluids, and key to understanding many of our engineering systems involving fluids, such as power generation, lubrication, irrigation and navigation. While the main focus is on incompressible fluids, effects of compressible fluids are also discussed. The theories learned in classes are reinforced in laboratory sessions. Students analyse fluid systems and apply principles in designing basic pipes and open-channels.

School Eng, Design & Built Env

Discipline Water and Sanitary Engineering

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Pre-requisite(s) MATH 1016 AND

ENGR 1011 OR

ENGR 1028

Equivalent Subjects CIVL 2015 - Water Engineering CIVL 2004 - Fluid Mechanics (WSTC Assoc Deg)

Assumed Knowledge

200238 - Mathematics for Engineers 2.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Apply concepts of statics, kinematics and dynamics of fluids to solve fluid related engineering problems
2. Estimate flow through basic pipes and open channels
3. Analyse and design basic pipes and open-channels

Subject Content

Fluid properties

Fluid statics

Fluid kinematics

Types of flow

Continuity, momentum and energy principles

Dimensional analysis

Flow measurements, such as using plate orifices, venturi meters, semi-venturi meters

Surface resistance

Form resistance

Basic pipe flow

Basic open channel flow principles

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are

regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/Group Task
Quiz	30 minutes (per Quiz)	20	N	Individual
Report	1,000 words (per report)	20	N	Group
Participation	1.5 hours (per participation)	6	N	Individual
Final Exam	2 hours	54	N	Individual

Prescribed Texts

- Elger, DF 2013. Engineering fluid mechanics, 10th edn, Wiley, Hoboken, NJ.

Teaching Periods

Autumn

Penrith (Kingswood)

Day

Subject Contact Ataur Rahman ([https://directory.westernsydney.edu.au/search/name/Ataur Rahman/](https://directory.westernsydney.edu.au/search/name/Ataur%20Rahman/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=CIVL2003_22-AUT_KW_D#subjects)

Parramatta - Victoria Rd

Day

Subject Contact Ataur Rahman ([https://directory.westernsydney.edu.au/search/name/Ataur Rahman/](https://directory.westernsydney.edu.au/search/name/Ataur%20Rahman/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=CIVL2003_22-AUT_PS_D#subjects)

Sydney City Campus - Term 2

Sydney City

Day

Subject Contact Ankit Agarwal ([https://directory.westernsydney.edu.au/search/name/Ankit Agarwal/](https://directory.westernsydney.edu.au/search/name/Ankit%20Agarwal/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=CIVL2003_22-SC2_SC_D#subjects)