

# CIVL 2004 FLUID MECHANICS (WSTC ASSOCD)

**Credit Points** 10

**Legacy Code** 700111

**Coordinator** Abbas Ranjbar ([https://directory.westernsydney.edu.au/search/name/Abbas Ranjbar/](https://directory.westernsydney.edu.au/search/name/Abbas%20Ranjbar/))

**Description** The subject provides a basic understanding of fluid mechanics principles. While the main focus will remain on incompressible fluids, effects of compressible fluids will also be discussed. The theories learned in classes will be reinforced in laboratory sessions. Offerings of alternate subjects are dependent on there being sufficient student enrolment numbers. If enrolments are low, the College may cancel delivery of the alternate subject.

**School** Eng, Design & Built Env

**Discipline** Other Engineering And Related Technologies

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 2 subject

**Pre-requisite(s)** MATH 1017 AND ENGR 1012

**Equivalent Subjects** CIVL 2003 - Fluid Mechanics

**Restrictions** Students must be enrolled in 7022 Associate Degree in Engineering

**Assumed Knowledge**

700102 - 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 water 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.

| Type                | Length                                                                               | Percent | Threshold | Individual/Group Task     |
|---------------------|--------------------------------------------------------------------------------------|---------|-----------|---------------------------|
| Quiz                | 5 x 20 minutes = 100 minutes                                                         | 15      | N         | Individual                |
| Practical           | 2 x 1,000 words each report                                                          | 20      | N         | Both (Individual & Group) |
| Intra-session Exam  | 1 hour + 30 minutes for online submission                                            | 15      | N         | Individual                |
| End-of-session Exam | Part 1: 2 hours + 30 minutes for online submission<br>Part 2: 20 minutes per student | 50      | Y         | Individual                |

Prescribed Texts

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

Teaching Periods

## Quarter 4 (2024)

### Nirimba Education Precinct

#### Hybrid

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View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=CIVL2004\\_24-Q4\\_BL\\_3#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=CIVL2004_24-Q4_BL_3#subjects))