

# CIVL 7009 ADVANCED WATER ENGINEERING

**Credit Points** 10

**Legacy Code** 300595

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

**Description** This subject introduces advanced principles of engineering hydrology as it pertains to the surface water component of the hydrologic cycle. Students are exposed to floodplain analysis techniques focusing on practical engineering solutions to issues originating from catchment development. Students are exposed to commonly used hydraulic and hydrologic software packages to delineate flooded areas resulting from such developments. Careers incorporating engineering hydrology are in demand across government, NGO and industrial sectors.

**School** Eng, Design & Built Env

**Discipline** Water and Sanitary Engineering

**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** Postgraduate Coursework Level 7 subject

**Incompatible Subjects** CIVL 4007 Hydrology EART 4001 Surface Water Hydrology

## Restrictions

This is a specialised subject in a specialist discipline in Master of Engineering program. Students must be enrolled in a postgraduate engineering program undertaking a Civil Engineering major or in the Master of Research.

## Assumed Knowledge

Exposure to basic hydraulics and engineering hydrologic principles.

## Learning Outcomes

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

1. Simulate catchment response using hydrologic principles
2. Verify catchment response using commonly used hydraulic and hydrologic software packages
3. Design on-site detention structures to meet regulatory requirements
4. Identify areas flooded from storms of specified frequencies and durations
5. Communicate effectively with peers and wider professional communities

## Subject Content

1. Components of a hydrologic cycle
2. Rainfall-runoff relationships
3. On-site detention systems
4. Commonly used hydraulic & hydrologic software packages

## 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	Mandatory
Reflection	(i) 500 words (ii) 750 words (iii) 1000 words	45	N	Individual	N
Applied Project	2000 words per student + appendices	40	N	Group/ Individual	Y
Presentation	30 minutes	15	N	Group/ Individual	N

Teaching Periods

## Autumn (2025)

### Parramatta City - Macquarie St

#### On-site

**Subject Contact** Qinghua Zeng ([https://directory.westernsydney.edu.au/search/name/Qinghua Zeng/](https://directory.westernsydney.edu.au/search/name/Qinghua%20Zeng/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=CIVL7009\\_25-AUT\\_PC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=CIVL7009_25-AUT_PC_1#subjects))