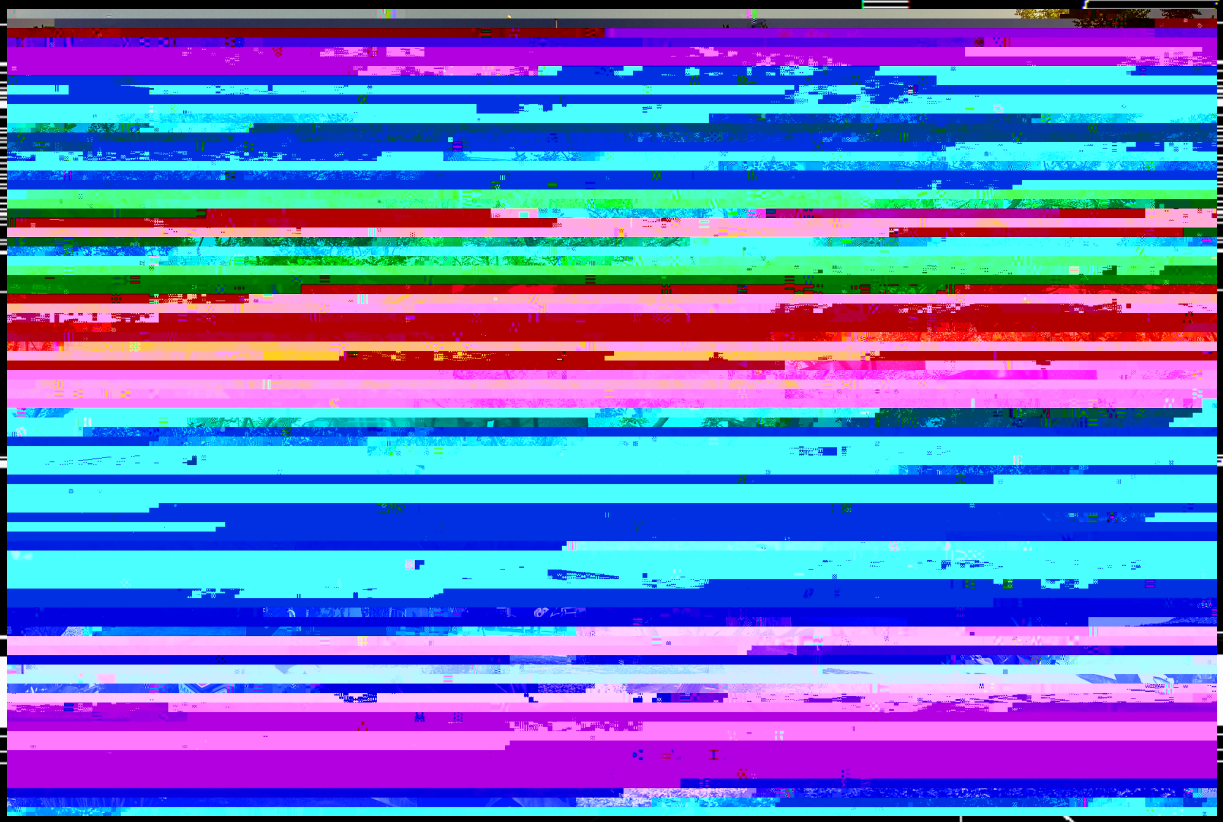
CVEN4504

Advanced Water and Wastewater Treatment

Term 3, 2022



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
David Waite	d.waite@unsw.edu.au	Consultation ‰	‰ ‰ ‰	

Phone

Course Details

Units of Credit 6

Summary of the Course

The course discusses both the fundamental concepts and practical aspects involved in the design of various conventional and advanced treatment unit processes to meet specified water quality standards with emphasis on removal of non-traditional and emerging contaminants.

Course Aims

To provide a comprehensive understanding of the fundamental concepts and design principles in both conventional and advanced water treatment unit processes.

Course Learning Outcomes

1. Identify important water quality parameters and various constituents that affect water quality.
2. Analyse the principles of chemical reactions and concepts involved in design of important treatment units in a conventional treatment plant including coagulation, flocculation, clarification, mixed-media filtration and disinfection
3. Apply various advanced treatment methods including: a) advanced oxidation and reductive processes b) membrane-based treatment processes c) electrodialysis and capacitive deionization d) adsorption and ion exchange processes to produce water of high-quality standards.
4. Evaluate and disseminate knowledge and technologies from published literature effectively in a written report or as a seminar presentation.
5. Develop interpersonal and process management skills in team-work environments.

Teaching Strategies

Please refer to the information in Moodle

Additional Course Information

For each hour of contact it is expected that you will put in at least 1.5 hours of private study.

Assessment

Late work will be penalised at the rate of 5% per day (after the due time and date have expired) and capped at 5 days (120 hours), after which a student cannot submit an assessment, and no permitted variation.

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Quizzes	25%	Each quiz is due at a different date (see course outlines)	1, 2, 3
2. Final exam	50%	During the exam period	1, 2, 3
3. Group Work Assessments	25%	See course outlines	1, 2, 3, 4, 5

Assessment 1: Quizzes

Due date: Each quiz is due at a different date (see course outlines)

All quizzes are online assessments. Quiz 1 (5%) is designed to provide an early feedback on student performance prior to the census date. Quiz 2 and Quiz 3 are both worth 7.5% while Quiz 4 is worth 5%.

Assessment 2: Final exam

Due date: During the exam period

Final exam is a 2 hr online, open book exam.

Assessment 3: Group Work Assessments (Group)

Due date: See course outlines

This is a team work assessment which consists of a) an in-class presentation worth 10%, b) a written report worth 10% and c) semina engagement worth 5%.

14 October		

Resources

Recommended Resources

1. Water Treatment: Principles and Design, 3rd Edition, MWH, Wiley, 2012.
2. Water Quality Engineering: Physical/Chemical Treatment Processes, Benjamin & Lawler, Wiley 2013.

Submission of Assessment Tasks

Please refer to the Moodle page of the course for further guidance on assessment submission.

UNSW has a standard late submission penalty of:

- 5% per day, for all assessments where a penalty applies, capped at five days (120 hours), after which a student cannot submit an assessment, and no permitted variation.

Academic Honesty and Plagiarism

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person’s work or ideas as if they were your own. When it is necessary or desirable to use other people’s material you should adequately acknowledge whose words or ideas they

Academic Information

Final Examinations:

Final exams in T3 2022 will be held online between 25th November - 8th December 2022 inclusive, and supplementary exams between 9th - 13th January 2023 inclusive. You are required to be available on