



# School of Civil and Environmental Engineering

7 (50)

## CVEN9855 WATER AND



## QUALITY REQUIREMENTS

### COURSE DETAILS

Units of Credit	6	
Contact hours	4 hours per week	
Field Trip	Monday, 14:00 ±18:00 (week 2)	Centennial Parklands
Laboratory Workshops	Monday, 14:00 ±18:00 (weeks 3 and 4)	Room: Vallentine Annexe (H22), G20
Classes and Workshops	Monday, 14:00 ±18:00 (weeks 1, 5, 7-8, 10-11)	Room: Civil Engineering (H20), G1
Course Coordinator and Lecturer	Dr Richard Collins email: richard.collins@unsw.edu.au office: Room 103, Vallentine Annexe (H22) (UNSW Water Research Centre) phone: (02) 9385 5214	
Lecturer	Prof Richard Stuetz email: r.stuetz@unsw.edu.au office: Room 304, Civil Engineering (H20) phone: (02) 9385 5944	

### INFORMATION ABOUT THE COURSE

This course will address the presence and implications of impurities in water and wastewater. It will consider both chemical and microbial substances that may contaminate various types of waters. Specific attention will be devoted to analytical methods for the detection and monitoring of water and wastewater contaminants.

### HANDBOOK DESCRIPTION

The effects of impurities in water and wastewater on its suitability for various beneficial uses, and methods used for detecting impurities. Analytical methods used in water and wastewater treatment for monitoring and processes.

See link to virtual handbook:

<http://www.handbook.unsw.edu.au/postgraduate/courses/2020/CVEN9855.html>

## OBJECTIVES

The objective of the course is to provide students with a sound understanding of Australian water quality standards. The course is intended to equip students with advanced knowledge of sampling, laboratory and online analytical methods used for water analysis and quality assessment. With this, students are expected to be able to properly understand, analyse and interpret chemical and microbiological water quality data.

The assessment tasks developed for this course have been designed to develop the following program attributes:

- An in-depth engagement with the relevant disciplinary knowledge in its inter-disciplinary context

## EXPECTED LEARNING OUTCOMES

This course is designed to address the learning outcomes below and the corresponding Engineers Australia Stage 1 Competency Standards for Professional Engineers as shown. The full list of Stage 1 Competency Standards may be found in Appendix A.

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competencies
LO1 <i>Describe the rationale for water quality monitoring and guidelines</i>	PE1.1, PE1.3
LO2 <i>Demonstrate advanced knowledge on sampling, instrumentation and methodology used to assess water quality</i>	PE1.1, PE1.2, PE1.3, PE1.4
LO3 <i>Undertake independent study of relevant literature through on-line resources</i>	PE1.2, PE2.2, PE2.3, PE3.1, PE3.2, PE3.5,
LO4 <i>Demonstrate the ability to analyse water quality data and prepare concise reports on its meaning</i>	PE1.1, PE1.2, PE1.3, PE3.1, PE3.2, PE3.5

For each hour of contact it is expected that you will put in at least an equivalent amount of time of private study.

## COURSE PROGRAM

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Date	Topic	Lecturer
17/02/2020 (Week 1)	Course introduction; rationale for water quality monitoring; national water quality guidelines; field trip preparation.	Richard Collins (Field Trip Quiz [5%])
24/02/2020 (Week 2)	Field trip - water sampling (Centennial Parklands)	Richard Collins (Laboratory Quiz [5%])
02/03/2020 (Week 3)	Laboratory Class I (water analyses and sample preparation)	Richard Collins (Water Quality Guidelines Quiz [5%])
09/03/2020 (Week 4)	Laboratory Class II (water analyses and sample preparation)	Richard Collins (Virtual Laboratory Quiz [5%])
16/03/2020 (Week 5)	Instrumentation for water quality analyses	Richard Collins

(Week 6)

**No classes - field trip/flexibility week**

27/04/2019 (Week 11)	Online (continuous monitoring) analytical techniques	Richard Stuetz
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ASSESSMENT

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## PENALTIES

Quizzes not undertaken before the due date and time will be assigned 0 marks. Late submission of the assignment will receive a 10% penalty (i.e. 4 of 40 marks) per day or part thereof. The deadline for absolute fail (0 marks) for the assignment is 7 days after the submission deadline.

Any requests for extensions or special consideration need to be submitted through the special considerations portal on myUNSW. Further information describing this process is described here: <https://student.unsw.edu.au/special-consideration>

## RELEVANT RESOURCES

There are no specific textbooks recommended for this course. However, relevant reading, databases and internet sites will be provided on UNSW Moodle with each lecture.

## DATES TO NOTE

Refer to MyUNSW for Important Dates available at:

<https://student.unsw.edu.au/dates>

## PLAGIARISM

Beware! If your assignment includes plagiarised material it 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.

ASSESSMENT OVERVIEW
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Item	Length	Weighting	Learning outcomes assessed	Assessment Criteria	Due date and submission requirements	Deadline for absolute fail	Marks returned
1. Online Quizzes							
Quiz 1	30 mins each	5 % each	LO1, LO2, LO4	The quizzes will test the V W X G H Q W V ¶ D E L O course material.	Before 12h00, 24/02/2020	14h00, 24/02/2020	Immediately after completion of quiz
Quiz 2					Before 12h00, 02/03/2020	14h00, 02/03/2020	
Quiz 3					Before 12h00, 16/03/2020	14h00, 16/03/2020	
Quiz 4					Before 12h00,		

Appendix A: Engineers Australia (EA) Competencies

Stage 1 Competencies for Professional Engineers

	Program Intended Learning Outcomes
PE1: Knowledge and Skill Base	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals
	PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing
	PE1.3 In-depth understanding of specialist bodies of knowledge
	PE1.4 Discernment of knowledge development and research directions
	PE1.5 Knowledge of engineering design practice
	PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice
PE2: Engineering Application Ability	PE2.1 Application of