COURSE OUTLINE

CIV700 Management of Water Resources

School: School of Science, Technology and Engineering

2026 | Trimester 2

UniSC Moreton Bay	BLENDED LEARNING	Most of your course is on campus but you may be able to do some components of this course online.
Online	ONLINE	You can do this course without coming onto campus, unless your program has specified a mandatory onsite requirement.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

In this course you will gain advanced knowledge of typical issues related to rural and urban land use and their potential impacts on water quantity and quality. You will undertake water quantity modelling using industry standard computer tools and techniques. In addition, you will be exposed to techniques to improve water demand management, considering planning frameworks, and environmental and social aspects.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Asynchronous weekly learning material	1hr	Week 1	12 times
Seminar – On campus	1hr	Week 1	3 times
Tutorial/Workshop 1 – On campus	2hrs	Week 1	10 times
ONLINE			
Learning materials – Asynchronous weekly learning material	1hr	Week 1	12 times
Seminar – Online	1hr	Week 1	3 times
Tutorial/Workshop 1 – Online	2hrs	Week 1	10 times

1.3. Course Topics

Topics may include:

- Introduction to management concepts.
- Frameworks and cause effect analysis.
- Non-structural and economic instruments and analysis in water management.
- System analysis.
- Water and environmental management policies.
- Integrated urban water management.
- Water, energy and climate change.
- Water sensitive urban design technologies

2. What level is this course?

700 Level (Specialised)

Demonstrating a specialised body of knowledge and set of skills for professional practice or further learning. Advanced application of knowledge and skills in unfamiliar contexts.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...	GRADUATE QUALITIES MAPPING Completing these tasks successfully will contribute to you becoming...	PROFESSIONAL STANDARD MAPPING * Engineers Australia Stage 1 Professional Engineer Competency Standards
1 Evaluate different options for water resource management and decision making to justify optimal solutions for specific applications.	Creative and critical thinker	2, 2.1.f, 2.1
2 Apply methods in statistics such as probability, uncertainty analysis, sensitivity analysis and contribution analysis to solve water management problems.	Creative and critical thinker Empowered	2, 2.1.a, 2.2.b, 2.2.d, 2.1, 2.2
3 Design water management projects in a holistic way using principles of integrated resource management and integrating economic analysis.	Empowered	2, 2.3.a, 2.3.b, 2.4.c, 2.3, 2.4
4 Describe fundamental elements of the hydrological cycle and of water resources management, and the technologies used in water sensitive urban design for storm water management.	Knowledgeable	1, 1.3.a, 1.6.c, 1.3
5 Discuss different water and environmental management policies in the context of Australia.	Sustainability-focussed	1, 1.6.a, 1.6
6 Identify different stakeholders and interpret their roles and economic instruments used in water management.	Sustainability-focussed	1, 1.6.c, 1.6

* Competencies by Professional Body

CODE	COMPETENCY
ENGINEERS AUSTRALIA STAGE 1 PROFESSIONAL ENGINEER COMPETENCY STANDARDS	
1	Elements of competency: Knowledge and Skill Base
1.3.a	Knowledge and Skill Base - In-depth understanding of specialist bodies of knowledge within the engineering discipline: Proficiently applies advanced technical knowledge and skills in at least one specialist practice domain of the engineering discipline.
1.6.c	Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline: Appreciates the social, environmental and economic principles of sustainable engineering practice.
1.6.a	Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline: Appreciates the basis and relevance of standards and codes of practice, as well as legislative and statutory requirements applicable to the engineering discipline.

CODE	COMPETENCY
1.3	Knowledge and Skill Base: In-depth understanding of specialist bodies of knowledge within the engineering discipline.
1.6	Knowledge and Skill Base: Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline.
2	Elements of competency: Engineering Application Ability
2.1.f	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Conceptualises alternative engineering approaches and evaluates potential outcomes against appropriate criteria to justify an optimal solution choice.
2.1.a	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Identifies, discerns and characterises salient issues, determines and analyses causes and effects, justifies and applies appropriate simplifying assumptions, predicts performance and behaviour, synthesises solution strategies and develops substantiated conclusions.
2.2.b	Engineering Application Ability - Fluent application of engineering techniques, tools and resources: Constructs or selects and applies from a qualitative description of a phenomenon, process, system, component or device a mathematical, physical or computational model based on fundamental scientific principles and justifiable simplifying assumptions.
2.2.d	Engineering Application Ability - Fluent application of engineering techniques, tools and resources: Applies a wide range of engineering tools for analysis, simulation, visualisation, synthesis and design, including assessing the accuracy and limitations of such tools, and validation of their results.
2.3.a	Engineering Application Ability - Application of systematic engineering synthesis and design processes: Proficiently applies technical knowledge and open ended problem solving skills as well as appropriate tools and resources to design components, elements, systems, plant, facilities and/or processes to satisfy user requirements.
2.3.b	Engineering Application Ability - Application of systematic engineering synthesis and design processes: Addresses broad contextual constraints such as social, cultural, environmental, commercial, legal political and human factors, as well as health, safety and sustainability imperatives as an integral part of the design process.
2.4.c	Engineering Application Ability - Application of systematic approaches to the conduct and management of engineering projects: Accommodates relevant contextual issues into all phases of engineering project work, including the fundamentals of business planning and financial management
2.1	Engineering Application Ability: Application of established engineering methods to complex engineering problem solving.
2.2	Engineering Application Ability: Fluent application of engineering techniques, tools and resources.
2.3	Engineering Application Ability: Application of systematic engineering synthesis and design processes.
2.4	Engineering Application Ability: Application of systematic approaches to the conduct and management of engineering projects.

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Enrolled in GC002, GD002 or MC002

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Report	Group	40%	2800 words	Week 7	Online Assignment Submission with plagiarism check
All	2	Report	Group	40%	2800 words	Week 10	Online Assignment Submission with plagiarism check
All	3	Oral	Individual	20%	10 minutes	Week 12	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Interim group report

GOAL:	To report on baseline water footprint for a household incorporating information from field visits.
PRODUCT:	Report
AUTHORSHIP STATEMENT:	
FORMAT:	Interim group report on baseline water footprint for a household incorporating field visits.
CRITERIA:	

No.		Learning Outcome assessed
1	Analysis and evaluation of different options for water resource management and decision making.	1
2	Application of methods in statistics such as probability, uncertainty analysis, sensitivity analysis and contribution analysis to solve water management problems.	2
3	Discussion of different water and environmental management policies in the context of Australia.	5
4	Identification of different stakeholders and interpretation of their roles and economic instruments used in water management.	6

GENERIC SKILLS:	Communication, Collaboration, Problem solving, Applying technologies

All - Assessment Task 2: Group design project report

GOAL:	Design a water management system and generate a report.
PRODUCT:	Report
AUTHORSHIP STATEMENT:	
FORMAT:	Group design project report for a water management system.

CRITERIA:

No.		Learning Outcome assessed
1	Analysis and evaluation of different options for water resource management and decision making.	1
2	Application of methods in statistics such as probability, uncertainty analysis, sensitivity analysis and contribution analysis to solve water management problems.	2
3	Design of water management projects in a holistic way using principles of integrated resource management and integrating economic analysis.	3
4	Description of different elements of the hydrological cycle and their significance and discernment of fundamental elements of water resources management and the technologies used in water sensitive urban design for storm water management.	4
5	Discussion of different water and environmental management policies in the context of Australia.	5
6	Identification of different stakeholders and interpretation of their roles and economic instruments used in water management.	6

GENERIC SKILLS:	Communication, Collaboration, Problem solving, Organisation, Applying technologies, Information literacy

All - Assessment Task 3: Presentation

GOAL:	Individual presentation on specific water management issue.
PRODUCT:	Oral
AUTHORSHIP STATEMENT:	
FORMAT:	Presentation on water management issues

CRITERIA:

No.		Learning Outcome assessed
1	Analysis and evaluation of different options for water resource management and decision making.	1
2	Application of methods in statistics such as probability, uncertainty analysis, sensitivity analysis and contribution analysis to solve water management problems.	2
3	Description of different elements of the hydrological cycle and their significance and discernment of fundamental elements of water resources management and the technologies used in water sensitive urban design for storm water management.	4
4	Discussion of different water and environmental management policies in the context of Australia.	5
5	Identification of different stakeholders and interpretation of their roles and economic instruments used in water management.	6

GENERIC SKILLS:	Communication, Problem solving, Organisation, Applying technologies, Information literacy

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

> There are no required/recommended resources for this course.

8.2. Specific requirements

N/A

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

Eligibility for Supplementary Assessment Your eligibility for supplementary assessment in a course is dependent of the following conditions applying: - The final mark is in the percentage range 47% to 49.4% - The course is graded using the Standard Grading scale - You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- UniSC Student Central
- UniSC Adelaide Student Central