

CIVL3330: Hydrology

Singapore BCA and Callaghan
Semester 1 - 2024



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

OVERVIEW

Course Description	This course introduces students to basic and advanced hydrology and open channel hydraulics concepts and their application in a range of civil and environmental engineering contexts. It lays the foundation for subsequent environmental modelling and water resources courses studied in the following years.
Academic Progress Requirements	Nil
Requisites	Students cannot enrol in this course if they have previously successfully completed CIV4330.
Assumed Knowledge	Content covered in courses ENGG2100 Engineering Risk and Uncertainty (previously CIVL2040), CIVL2060 Numerical Methods (previously CIVL2050) and ENGG2300 Engineering Fluid Mechanics (previously CIVL2310). Students can undertake ENGG2100, CIVL2060 concurrently with CIVL3330 as the assumed knowledge material is covered before it is needed in CIVL3330.
Contact Hours	Callaghan / Singapore BCA Laboratory Face to Face On Campus 1 hour(s) per term for 1 term starting Week 8 Laboratory sessions will take place in weeks 8-10. The Course Coordinator will allocate students to one session within that period. Lecture Face to Face On Campus 4 hour(s) per week(s) for 13 week(s) starting Week 1 Tutorial Face to Face On Campus 2 hour(s) per week(s) for 13 week(s) starting Week 1
Unit Weighting Workload	10 Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

COURSE OUTLINE

CONTACTS

Course Coordinator **Singapore BCA and Callaghan**
A/Prof. In-Young Yeo
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Consultation: To be advised on the course Canvas site.

Teaching Staff A/Prof. Jose Rodriguez
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School Office **School of Engineering**
EAG02
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SYLLABUS

Course Content

1. Hydrologic cycle.
2. Precipitation and intensity-frequency-duration analysis.
3. Evapotranspiration.
4. Infiltration.
5. Runoff.
6. Energy, mass and momentum equations in open channel hydraulics.
7. Characterisation of steady flow.
8. Channel controls.
9. Channel design.
10. Flood frequency analysis.
11. Unsteady flow.
12. Reservoir routing.
13. Rainfall runoff routing.

Course Learning Outcomes

- On successful completion of this course, students will be able to:**
1. Solve elementary hydrology and open channel problems encountered by engineers
 2. Identify hydrology and open channel related problems
 3. Conduct open channel experiments in a laboratory setting
 4. Demonstrate report writing skills commensurate with 3rd year engineering students

Course Materials

- Lecture Materials:**
- Lecture Materials available on Canvas

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Contact Hour Requirements:

-

Course Assessment Requirements:

- Assessment 3 - Laboratory Report: Pass requirement - Must pass this assessment item to pass the course.

Compulsory Placement and WHS Requirements:

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ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Written Assignment	2 weeks following nomination	Pair	24%	1, 2
2	Midterm Quiz	Week 7 or 8, to be advised in class	Individual	16%	1, 2
3	Laboratory Report*	Week 12	Individual	10%	1, 2, 3, 4
4	Formal Examination	Formal Exam Period	Individual	50%	1, 2

* This assessment has a compulsory requirement.

Late Submissions

The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Written Assignment

Assessment Type

Written Assignment

Description

Four assignments submitted in groups of two. Individual assignments will be posted on the Canvas site and are to be submitted within 2 weeks following their nomination. The assignments are aimed at assisting students becoming familiar with key aspects of theory and practical application.

Weighting

24%

Due Date

2 weeks following nomination

Submission Method

Online
Specific Location

Assessment Criteria

Return Method

In Class

Feedback Provided

Online - Feedback provided through Canvas.

Opportunity to

Students WILL NOT be given the opportunity to reattempt this assessment.

Reattempt

Assessment 2 - Midterm Quiz

Assessment Type

Quiz

Description

Midterm quiz during class time to test student knowledge of key concepts covered in lectures and tutorials.

Weighting

16%

Due Date

Week 7 or 8, to be advised in class

Submission Method

In Class

Assessment Criteria

To be provided with announcement

Return Method

Feedback Provided

In Class -. Feedback provided during lectures and tutorials.

Opportunity to

Students WILL NOT be given the opportunity to reattempt this assessment.

Reattempt

Assessment 3 - Laboratory Report

Assessment Type	Report
Description	Laboratory experiments will be conducted in groups. Group members and laboratory session times will be displayed on the Canvas site. An individual technical report (conforming to the formatting requirements provided on the Canvas site) must be written for one of the labs and submitted for marking. The laboratory program is aimed at providing hands-on experience at running experiments, recording results and writing technical reports.
Weighting	10%
Compulsory Requirements	Pass requirement - Must pass this assessment item to pass the course.
Due Date	Week 12
Submission Method	Online Specific Location
Assessment Criteria	
Return Method	Specific Location
Feedback Provided	Returned Work -. Returned with comments
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment.

Assessment 4 - Formal Examination

Assessment Type	Formal Examination
Description	The formal exam is two hours long.
Weighting	50%
Due Date	Formal Exam Period
Submission Method	
Assessment Criteria	
Return Method	Not Returned
Feedback Provided	
Opportunity to Reattempt	Students WILL NOT be given the opportunity to reattempt this assessment.

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Attendance

Attendance/participation will be recorded in the following components:

- Laboratory (Method of recording: Recorded by demonstrator)

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face to face meetings or supervision.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the [Oral Examination \(viva\) Procedure](#). In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the [Student Conduct Rule](#).

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students at the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to <https://policies.newcastle.edu.au/document/view-current.php?id=35>.

Adverse Circumstances

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:

1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.

Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:

<https://policies.newcastle.edu.au/document/view-current.php?id=236>

Important Policy Information

The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at <https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures> that support a safe and respectful environment at the University.

Graduate Profile Statements

This course builds students' capacity in the following University of Newcastle Bachelor of Engineering Graduate Profile Statements (based on 2011 Engineers Australia revised Stage 1 Competency Standards for Professional Engineers):

UON Att.	University of Newcastle Bachelor of Engineering Graduate Profile Statements/ Engineers Australia Stage 1 competency statements	Taught	Practised	Assessed	Skill Level (1-4)
	Professional Attributes				
11	3.1. Ethical conduct and professional accountability				
12	3.2. Effective oral and written communication in professional and lay domains.				
13	3.3. Creative, innovative and pro-active demeanour.				
14	3.4. Professional use and management of information.				
15	3.5. Orderly management of self, and professional conduct.				
16	3.6. Effective team membership and team leadership.				
	Engineering Ability				
7	2.1. Application of established engineering methods to complex engineering problem solving.	x	x	x	x
8	2.2. Fluent application of engineering techniques, tools and resources.	x	x	x	x
9	2.3. Application of systematic engineering synthesis and design processes.				
10	2.4. Application of systematic approaches to the conduct and management of engineering projects.				
	Knowledge Base				
1	1.1. Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.				
2	1.2. Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.				
3	1.3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.	x	x	x	x
4	1.4. Discernment of knowledge development and research directions within the engineering discipline.				
5	1.5. Knowledge of contextual factors impacting the engineering discipline.				
6	1.6. Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline.				

This course outline was approved by the Head of School on the 16/02/2024. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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