School of Civil and Environmental Engineering

Term 1, 2020

# CVEN[redacted]

# (DISTANCE MODE)

| COURSE DETAILS | |
|---|---|
| **Units of Credit** | 6 |
| **Contact hours** | The majority of the lectures in the course will be recorded and posted to Moodle the following day during the period 26 ±28 February and 2 ±4 March 2020. A full schedule of the short course lectures is provided on pages 4 and 5.<br><br>Please note that all lecture notes, presentations, recordings, workshops and assignment materials for this course will be distributed electronically via Moodle prior to or during Tuesday 3 **rd March** |
| **Class location** | CE 501, Civil Engineering Building (H20) - |

## ASSESSMENT

The

| Time and Day | Topic | Lecturer |
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**ASSESSMENT OVERVIEW**

| Item | Weighting | Learning outcomes assessed | Assessment Criteria | Due date | Deadline for absolute fail | Marks returned |
|---|---|---|---|---|---|---|
| Assignment 1 Online Pre-task (Hydrological modelling) | 5% | 1,2 | This online pre-task will help you to review the concepts required to complete Assignment 1 | Monday 9th March Week 4 | Friday 13th March Week 4 | Immediately via online marking |
| Assignment 1 (Hydrological modelling) | 10% | 1,2 | Students are expected to demonstrate their understanding of hydrologic modelling and impacts of urbanisation by performing calculations, designing a detention basin, running suitable models and explaining basic concepts. The marking of the assignment will be based upon the standard of the report, practical design strategy and the accuracy of the simulations and calculations. | Friday 20th March Week 5 | Friday 27th March Week 6 | Friday 3rd April Week 7 |
| Assignment 2 (Hydraulics) | 15% | 1,4,5,6 | Students are expected to demonstrate their understanding of engineering design and functionality of hydraulic structures in the context of urban hydrology. Students are also expected to demonstrate their ability to critically assess urban stormwater systems. The marking of the assignment will be based upon the standard of the report, the accuracy of their work and their critical assessment.<br>In the second part of the assignment, students are expected to demonstrate their ability to undertake detailed hydraulic computations either by hand or using computer calculations with appropriate documentation of their working. Marks will be awarded for correct methods, calculations and clear setting out. | Friday 3rd April Week 7 | Friday 10th April Week 8 | Friday 17th April Week 9 |
| Assignment 2 (Biofilter design) | 10% | 1,4,5 | Students are expected to demonstrate understanding of engineering design of a biofiltration system used for stormwater pollution and/or flow reduction (based on specific | Friday 17th April Week 9 | Friday 24th April Week 10 | Friday 1st May Week 11 |

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| | | | requirement). Students will be asked to perform calculation in order to size different elements of biofiltration system, with additional understanding and description of the choice of plants for such system. The marking of the assignment will be based upon the standard of the report, the accuracy of calculation and their critical assessment of the overall system. | | | |
| 4. Final exam (2 hours) | 60% of final marks | 1,2,3,4,5 | Students are expected to demonstrate their understanding of hydrological modelling, urbanisation and the design of basic hydraulic structures and water quality improvement structures by performing calculations, drawings and explaining basic concepts. | During UNSW Session 1 examinations period. | | |

## RELEVANT RESOURCES

There is no textbook for this course but a number of recommended reference books for this course are indicated below - there will be further recommended reading indicated within the lecture notes and course delivery


- Akan, AO, (2006) Open Channel Hydraulics, Butterworth-Heineman
- Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) Australian Rainfall and Runoff: A Guide to Flood Estimation, © Commonwealth of Australia (Geoscience Australia), 2016.(available from http://arr.ga.gov.au/arr-guideline)
- Chow, VT, (1959) Open Channel Hydraulics, McGraw-Hill Book Co, Tokyo, Japan
- French, RH, (1986) Open Channel Hydraulics, McGraw-Hill Book Co, Singapore
- Henderson, FM, (1966) Open Channel Flow, Macmillan Publishing Co, Inc, New York, NY, USA
- Jain, SC, (2001) Open-Channel Flow, John Wiley
- Ladson, T, (2005) Hydrology - An Australian Introduction. Oxford University Press, South Melbourne
- Stephenson, D, (1981), Stormwater Hydrology and Drainage, Elsevier, Amsterdam, Holland
- Sturm, TW, (2001) Open Channel Hydraulics, McGraw-Hill
- Urbonas, B and Stahre, P, (1993), Stormwater ±Best management practices and detention for water quality, drainage, and CSO management, PRT Prentice Hall, Englewood Cliffs, NJ, USA:
- Wanielista, MP, (1978), Stormwater Management: Quantity and Quality, Ann Arbor Science Publishers, Ann Arbor, Michigan, USA
- Melbourne Water, 2005. WSUD Engineering Procedures: Stormwater. CSIRO Publishing.
- Payne, E.G.I., Hatt, B.E., Deletic, A., Dobbie, M.F., McCarthy, D.T. and Chandrasena, G.I., 2015. Adoption guidelines for Stormwater Biofilter systems (Version 2). Cooperatove Research Centre for Water Sensitive Cities, Melbourne, Australia.


## DATES TO NOTE

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