hours per week

Class	Wednesday 18:00

- develop skills related to lifelong learning, such as self-reflection (ability to apply theory to practice in familiar and unfamiliar situations); and
- acquire the skills for effective collaboration and team-work
- creative and critical thinking ability to develop and design new types of structural systems based on load path

TEACHING STRATEGIES

The teaching strategies that will be used and their rationale. Give some suggested approaches to learning in the course.

Approaches to learning;

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COURSE PROGRAM

Term 1 2020

Date	Topic	Lecture Content	Reading/Demonstration Content
19/02/2020 (Week 1)	**Introduction**	Non-linear aspects of concrete and reinforcement; failure theories and surfaces.	Textbook: Chap. 1
26/02/2020 (Week 2)	**Linear stress analysis**	Revisit Mohr circle; 2D stress state; design of RC membranes by linear stress analysis	Additional notes provided. One screencast to be provided
04/03/2020 (Week 3)	**Strut-and-tie modelling:** Part 1	Terminology, definitions & principles of strut & tie modelling	Textbook Sections: 7.1 to 7.5 + Additional Notes provided
11/03/2020 (Week 4)	**Strut-and-tie modelling:** Part 2	Design of non-flexural members according to AS3600-2018	Textbook Sections: 7.6 to 7.8
18/03/2020 (Week 5)	**Design for serviceability:** Part 1	Introduction to time effects; design procedures; serviceability limit states; cracked section analysis; deflection control	Textbook Sections: 1.10; 3.3.1 to 3.3.5 + Additional notes to be provided Two video recorded demonstration to be provided
23/03/2020 (Week 6)		***Non-***	

Students who perform poorly in the assignments and demonstrations are recommended to discuss progress with the course coordinator during the semester.

The Final Examination is worth 60% of the Final Mark if class work/assignment is included and 100% if assignment marks is not included. The class work/assignments are worth 40% of the Final Mark if included. A mark of at least 35% in the final examination is required before the mark of assignments is included in the final mark. Otherwise, the final grade in the subject will be based on the performance in the final exam.

The formal exam scripts will not be returned but students are permitted to view the marked script.

Note: *Subject coordinator reserves the right to adjust final marks by scaling if agreed by the HoS.*

	Assessment	Rationale and assessment criteria
1.	Assignment 1	1 0 0 1 463.9 47.664 Tm0 g0 G[( )] TJETQ0.000008871 0 595.32914[( )1 454.397( )1 o08871 3

ASSESSMENT OVERVIEW

Item	Length	Weighting	Learning outcomes assessed	Assessment Criteria	Due date and submission requirements	Deadline for absolute fail	Marks returned
1. Assignment-1 (Individual)	Less than 2 weeks	10%	Application of systematic design processes and ability for analytical thinking in the context of structural design.	Understanding fundamentals of limit states and application of linear stress analysis for design of RC membranes	08/03/2020	11/03/2020	13/03/2020
2. Assignment-2 (Group)	Less than 3 weeks	15%	Develop team work skills & effective communication in structural design practice and developing skills for confident use of Australian standards for ultimate and serviceability states	Ability for analytical thinking and understanding of advanced reinforced concrete design with emphasis on short-term deflection control and application of strut-&-tie modelling for design of non-flexural members	05/04/2020	10/04/2020	

RELEVANT RESOURCES

Text Book: Foster, Kilpatrick and Warner, *Reinforced Concrete Basics*, 2nd Edition, Pearson Prentice Hall, 2010. [ISBN 9781442538450]

Available online at:

UNSW Bookstore:

https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9781442538450

or

Pearson:

http://www.pearson.com.au/Catalogue/TitleDetails.aspx?isbn=9781442538450

General References:

¶ AS3600-2018 18.

¶ Park and Paulay, Reinforced Concrete Structures, Wiley, NY, 1975.

¶ Park and Gamble, Reinforced Concrete Slabs, 2nd Edition, John Wiley and Sons, New York, 2000.

¶ FIB Model Code, 2010, Federation International du Beton, Vol. 1 & Vol 2 (fib Bulletins 65 and 66).

Note: Other references may be given as required reading for each topic. These will usually be contained in technical journals and available via the library or made available via Moodle.

Access to Australian Standards:

Australian Standards may be accessed through the UNSW Library as follows:

1. Go to the UNSW library home page at: **http://www.library.unsw.edu.au/**
2. **Database**
3. Search for and Click on the **Australian Standards: SAI Global**
4. You need to enter your UNSW student ID and password
5. Enter the Standard desired (for example enter 3600 to search for AS3600) into the search field.

DATES TO NOTE

Refer to MyUNSW for Important Dates available at:

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

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.

words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

https://student.unsw.edu.au/plagiarism

ACADEMIC ADVICE

(Formerly known as Common School Information)

For information about:

¶ Notes on assessments and plagiarism,

- School policy on Supplementary exams,
- Special Considerations: student.unsw.edu.au/special-consideration
- Solutions to Problems,
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC.

Refer to Academic Advice on the School website available at:

https://www.engineering.unsw.edu.au/civil-engineering/student-resources/policies-procedures-and-forms/academic-advice

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 established engineering methods to complex problem solving
	PE2.2 Fluent application of engineering techniques, tools and resources
	PE2.3 Application of systematic engineering synthesis and design processes