School of Civil and Environmental Engineering

Term 3, 2021

CVEN2101
ENGINEERING CONSTRUCTION

COURSE DETAILS

Units of Credit	6		
Contact hours	6 hours per week		
Class	Tue,	16:00 – 18:00	Online
	Thu,	09:00 – 11:00	Online
Workshop	Thu,	11:00 – 13:00 (6280)	Online
	Thu,	11:00 – 13:00 (6282)	Online
	Thu,	13:00 – 15:00 (6288)	Online
	Thu,	13:00 – 15:00 (6289)	Online
	Fri,	10:00 – 12:00 (6276)	Online
	Fri,	10:00 – 12:00 (6277)	Online
	Fri,	14:00 – 16:00 (6278)	Online
	Fri,	16:00 – 18:00 (6279)	Online

Course Coordinator Dr. Khalegh Barati
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Office: CE209

Lecturers Dr. Khalegh Barati
Mr. Robert Holdom

INFORMATION ABOUT THE COURSE

This course extends the students' knowledge on basic construction processes, equipment and operations. It covers various topics in construction field including equipment, processes, operations and sustainability issues. The technologies and techniques employed for designing and planning in construction industry are introduced to students as well. Emphasis will be placed on quantifying various aspects of some construction processes and operations. At the end of the course, you will have a deep understanding about a variety of construction processes, engineering designs and construction equipment.

HANDBOOK DESCRIPTION

See link to virtual handbook:

http://www.handbook.unsw.edu.au/undergraduate/courses/2021/CVEN2101.html

OBJECTIVES

The aim of this course is to provide and introduction to construction activities and equipment and to develop the understanding of the importance and their execution and operation to the successful delivery of construction projects. The course achieves this through a combination of lecture presentations, workshops and assessment exercises that are designed to introduce students the engineering construction principles and enable them to critically reflect on how these principles are employed in the real world. Upon completion of this subject, students are expected to be able to:

- Provide an overview of the construction industry
- Introduce a variety of construction processes and equipment
- Investigate the state-of-the-art construction methods currently being employed in practice
- Calculate the production rate and costs of different construction equipment
- Introduce quantitative techniques for planning and managing construction activities and machinery
- Identify different methods and techniques to improve the sustainability in construction industry
- Work effectively in teams
- Skills for collaborative and multi-disciplinary work
- Skills for effective communication

TEACHING STRATEGIES

The teaching strategies that will be used and their rationale:

Private Study	• Download materials from Moodle • Review lecture material • Do set problems and assignments • Join and contribute to Moodle discussions • Reflect on class problems and assignments • Keep up with notices via Moodle
Lectures	• Find out what you must learn • Follow worked examples • Hear announcements
Workshops	• Be guided by demonstrators • Practice solving set problems • Ask questions
Assessments	• Demonstrate your knowledge and skills • Demonstrate higher understanding and problem solving • Enhance your knowledge by undertaking necessary research to complete given tasks • In preparing an assessment element pay attention to the instructional advice provided by the lecturers to maximise your mark
Observations	• Pay attention to construction sites and look through the fence to see what is going on! Feel free to discuss any questions with your lecturers or demonstrators!

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
1.	Explain various construction processes and equipment	PE1.1, PE1.3, PE1.5, PE, 2.2, PE2.3, PE2.4, PE3.2, PE3.4
2.	Work independently and effectively in teams on the design and construction of a permanent or temporary structure	PE1.5, PE2.1, PE2.2, PE3.2, PE3.3, PE3.5, PE3.6
3.	Introduce several techniques and machinery employed in construction practices	PE1.1, PE1.2, PE1.3, PE1.5, PE1.6, PE2.1, PE2.2
4.	Identify construction equipment and plan to employ them in the construction projects	PE1.1, PE1.3, PE1.5, PE1.6, PE2.1, PE2.2, PE2.4, PE.3.3,

For each hour of contact it is expected that you will put in at least 1.5 hours of private study.

COURSE PROGRAM

Term 3 2021

Date	Topic and Lecture Content	Demonstration Content	Lecturer	Assessment Due
14/09/2020 (Week 1)	Course Introduction/ Demolition	Demolition	Dr. Barati	-
21/09/2020 (Week 2)	Earthmoving	Earthmoving	Dr. Barati	-
28/09/2020 (Week 3)	Concreting	Concreting	Dr. Barati	-
06/10/2020 (Week 4)	Temporary Structures	Temporary Structures	Dr. Barati	Individual Assignment – Part A
12/10/2020 (Week 5)	Building Structures	Building Structures	Dr. Barati	Mid-term Examination
19/10/2020 (Week 6)	Term Break	Term Break	-	-
26/10/2020 (Week 7)	Construction Sustainability	Construction Sustainability	Mr. Holdom	-
02/11/2020 (Week 8)	Construction Equipment 1	Construction Equipment 1	Dr. Barati	-
09/11/2020 (Week 9)	Construction Equipment 2	Construction Equipment 2	Dr. Barati	-
16/11/2020 (Week 10)	Construction Equipment 3	Construction Equipment 1	Dr. Barati	Individual Assignment – Part B

ASSESSMENTS

Assessment of this course comprises of an Individual Assignments, a Mid-term Examination, and a Final Examination.

1. **<u>Individual Assignment</u>**

   This submission is to be your own work and provides students the opportunity to work independently. Each student needs to inspect an under-construction project and prepare an Engineering Report on the selected construction processes and equipment. Detailed description of the assignment and instruction of Engineering Report preparation will be provided in the Moodle. Each student is required to submit a pdf version of their assignment onto the Moodle by the deadline.

2. **Mid-term Examination**
   The Mid-term Examination is an online open-book exam, and students can have access to all formulas and sources deemed necessary to complete questions. This Examination will be based on the lecture and workshop materials up to and including **WEEK 4**.

3. **Final Examination**
   The Final Examination will be externally conducted and scheduled by the UNSW Examinations Branch. Students will be informed via MyUNSW of the timetabling of this 2-hour Examination. This Examination is to assess student understanding of the course's significant technical content, based upon the presented lecture and workshop material from **WEEK 5 TO WEEK 10 inclusive**. The Final Examination is an online open-book exam, and students can have access to all formulas and sources deemed necessary to complete questions.

Students' final grade for this course requires that they complete the Mid-term Examination and Final Examination with the aggregated mark total of 24 or more marks for both Examinations before their assignment marks will be added. The 24 marks represents the minimum of 40% of the Examination component (40% of 60 marks allocated to Examinations). It is emphasised that a student does not have to gain 24 marks in each Examination to pass the course. Students who do not achieve this minimum Examination marks total will not be eligible to have the assignment marks added to their summed Examination mark, and so will only receive their Examinations mark as their final grade for this course.

Students who perform poorly in the Mid-term Examination and Workshops are recommended to discuss progress with the lecturer during the term.

[Note: The lecturer reserves the right to adjust the final scores by scaling if agreed by the Head of School.]

Supplementary Examinations for Term 3 2021 will be held on Monday 10th January - Friday 14th January 2022 (inclusive) should you be required to sit one. You are required to be available during these dates. Please do not to make any personal or travel arrangements during this period.

PENALTIES

Late submissions will receive a 10% deduction penalty per day. Late submissions up to 5 days late will be marked and will receive the appropriate penalty deductions. Any submissions made that are more than 5 days late will not be accepted for marking.

ASSESSMENT OVERVIEW

Item	Length	Weighting	Learning outcomes assessed	Assessment Criteria	Due date	Deadline for absolute fail	Marks returned
1. Assignments							
Individual Assignment	1 page	Part A 5 marks	1, 2, 3, 4	Students need to nominate a construction project and fill out the provided form.	Before 17:00h on 08OCT2021 Uploaded onto the Moodle	Part A - By 17:00h on 13OCT2021	Within 1 day
	Nominally 3000 words	Part B 35 marks	1, 2, 3, 4	Students conduct site inspection during the term and prepare an Engineering Report on the specific construction equipment and processes.	Part B - Before 17:00h on 14NOV2021 Uploaded onto the Moodle	Part B - By 17:00h on 19NOV2021	Within 2 weeks
2. Examinations							
Mid-term Examination	1.5 hours	25 marks	1, 3, 4	Mid-term Examination on material covered from Week 1 to Week 4 inclusive.	Tuesday 12OCT2021 Starting at 16:00h AEST		Within 2 weeks
Final Examination	2 hours	35 marks	1, 3, 4	Final Examination on material covered from Week 5 to Week 10 inclusive.	In the Formal Examination period		

RELEVANT RESOURCES

Textbook:
There is no prescribed textbook for this course

Moodle:
This subject has a Moodle site. It will contain additional resources for you.

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.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose 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://intranet.civeng.unsw.edu.au/key-staff-to-contact-during-your-studies-at-unsw

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
	PE2.4 Application of systematic approaches to the conduct and management of engineering projects
PE3: Professional and Personal Attributes	PE3.1 Ethical conduct and professional accountability
	PE3.2 Effective oral and written communication (professional and lay domains)
	PE3.3 Creative, innovative and pro-active demeanour
	PE3.4 Professional use and management of information
	PE3.5 Orderly management of self, and professional conduct
	PE3.6 Effective team membership and team leadership