School of Civil and Environmental Engineering

Term 1, 2020

CVEN4050
Thesis A

COURSE DETAILS

Units of Credit	6	
Contact hours	4 hours per week	
Class	Monday, 14:00 – 16:00	Room: Ainsworth G03
Workshop	Monday, 12:00 – 14:00	Room/s: TBA (see Moodle)
	Monday, 16:00 – 18:00	Room/s: TBA (see Moodle)
Course Coordinator and Lecturer	Mr Robert Holdom email: robert.holdom@unsw.edu.au office: CE211 phone: 02 9385 7773	

INFORMATION ABOUT THE COURSE

This course is available to all Civil Engineering, Environmental Engineering and Surveying students who are completing their final year of study in their four year undergraduate degree. CVEN4050 forms the first part of the Coursework Thesis program, with CVEN4051 Thesis B, following this course in a later term. The intention with this course is to bring focus to the student about what they need to prepare for themselves to become ready for employment. The Thesis A topic is presented to the student as it would be in industry and each student is required to prepare an individual Thesis submission by way of an *Engineering Report* that contains all of the elements required within the Assessment Overview.

The selected topic for Term 1, 2020 is focused on Pavements used in commercial and industrial applications.

As the course will involve several submissions throughout the term, Thesis A will be completed incrementally. The final collation of a student's Thesis A submissions will allow them to compile Thesis A in a single volume in Engineering Report format to enable them to demonstrate their work to others.

Prerequisite: 132 UOCs needed to enrol in this course.

Excluded: CVEN4032, CVEN4033, CVEN4040, CVEN4041, CVEN4951, CVEN4952, CVEN4953.

HANDBOOK DESCRIPTION

This course is the first of two parts and is undertaken before CVEN4051 Thesis B, usually in the proceeding term. The Thesis involves formulating the designs for and solution to open-ended civil and/or environmental engineering problems. The problems will be drawn from industry and will be multi-disciplinary involving application of material learnt throughout the undergraduate program and will require creative thought. The course will include the preparation of relevant professional documents. Part A involves the formulation of a project plan, project brief and documents and involves review of various literature.

https://www.handbook.unsw.edu.au/undergraduate/courses/2020/cven4050/

OBJECTIVES

List the objectives of the course.

Link the objectives with the program outcome attributes and the assessment strategies for this course. In other words, how do the assessment strategies assist in achieving these objectives, and how do the objectives contribute to achievement of program outcome attributes?

List of programme attributes:

- An in-depth engagement with the relevant disciplinary knowledge in its inter-disciplinary context
- Capacity for analytical and critical thinking and for creative problem solving
- Ability to engage independent and reflective learning
- Information literacy
- Skills for collaborative and multi-disciplinary work
- A respect for ethical practice and social responsibility
- Skills for effective communication

TEACHING STRATEGIES

The teaching strategies that will be used and their rationale:

Private Study	• Review lecture material and design manual • Do set problems and assignments • Reflect on class problems and assignments • Download materials from Moodle • Keep up with notices and find out marks via Moodle
Lectures	• Find out what you must learn • See methods that are not in the textbook • Follow worked examples • Hear announcements on course changes
Workshops	• Be guided by Demonstrators • Practice solving set problems • Ask and answer questions
Assessments	• Demonstrate your knowledge and skills • Demonstrate higher understanding and problem solving • Demonstrate presentation and documented reporting skills

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.	*Apply the concepts in the analysis and construction methods used in the design and construction of industrial pavements.*	*PE1.1, PE1.2, PE1.3, PE1.5, PE2.2, PE2.3*
2.	*Apply the concepts used in nominating and selecting materials for the construction for industrial pavements.*	*PE1.1, PE1.2, PE1.3, PE1.5, PE2.2, PE2.3*
3.	*Be able to pass critique on existing industrial pavements.*	*PE2.1, PE3.1, PE3.2, PE3.5, PE3.6*
4.	*Communicate the design concepts, actual designs and critiques through presentations and in written form, to industry expected standard.*	*PE3.2, PE3.3, PE3.4, PE3.5, PE3.6*

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

COURSE PROGRAM

In commencing CVEN4050 Thesis A in Term 1, 2020, the lectures for *Pavements used in commercial and industrial applications* will be presented by Mr Robert Holdom.

Guest Lecturers may be sought to present throughout the term to deliver topics that may assist students in the preparation of Thesis A, or develop other skills to prepare students entering the profession.

The Workshops are scheduled in two 2-hour timeslots and it is a mandatory requirement that students attend their selected Workshop that is either preceding the lecture or following the lecture. Each Workshop has been programmed to contain 16 students and students will be further subdivided into subgroups of 4 in each Workshop. Whilst students are required to make individual submissions for their Thesis components much of the learning within the Workshops will be under the direction of the Demonstrator and the subgroups will become self-directing in their learning – which requires your weekly regular commitment and participation in your allocated Workshop.

It is a course requirement that every subgroup team will spend at least 20 minutes each week speaking with their Demonstrator who will provide guidance and direction to students on the requirements in completing Thesis A.

Term 1 2020

Date	Topic and Lecture Content	Demonstration Content
17/02/2020 (Week 1)	**Course Introduction** Introduction to Pavements used in commercial and industrial applications Outline of Thesis A requirements Your employment – preparing your Resume	Workshop to organise students into 4 person teams Commence Assessment Task 1
24/02/2020 (Week 2)	Pavement types and materials of construction	Continue with Assessment Task 1
02/03/2020 (Week 3)	Design of segmental pavements	Continue with Assessment Task 1 Commence Assessment Task 2
09/03/2020 (Week 4)	Design of segmental pavements continued	Continue with Assessment Task 2
16/03/2020 (Week 5)	Design of segmental pavements continued	Continue with Assessment Task 2
23/03/2020 (Week 6)	**Non-teaching week for all courses. No Class**	Continue with Assessment Task 2
30/03/2020 (Week 7)	Special pavement types, material selection and construction considerations	Commence Assessment Task 3
06/04/2020 (Week 8)	Construction processes	Continue with Assessment Task 3
13/04/2020 (Week 9)	**Easter Monday Public Holiday. No class**	Continue with Assessment Task 3 Commence Assessment Task 4
20/04/2020 (Week 10)	Pavement maintenance and management	Continue with Assessment Task 4
27/04/2020 (Week 11)	Finalisation of Thesis A Guidance on CVEN4051 Thesis B Literature Search	Continue with Assessment Task 4 Completion of Thesis A

ASSESSMENT

The final grade for your Thesis A is based on the sum of the scores from each of the assessment tasks. The elements within those submission parts once compiled will be your completed Thesis A document. You will not be required to submit a printed copy of your compiled Thesis A, however, you should be considering doing the same so that you can take the document to an employment/ job interview. Your Final Mark for Thesis A, will be aggregated total of all Thesis A assessment tasks.

Your Assessment Task submissions will be marked by your Workshop Demonstrator and separately by another marker. This is to maintain quality standards across the course and within each Workshop.

Students who perform poorly in any of the Assessment Tasks outlined in the Assessment Overview are recommended to discuss their progress firstly with their assigned Demonstrator or with the Lecturer at the first available opportunity (within a week) during the term on receipt of that poor performance.

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

Whilst not applicable to students completing CVEN4050 Thesis A, please note:

Supplementary Examinations for Term 1 2020 will be held on Monday 25th May – Friday 29th May (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

As outlined in the Assessment Overview, there is no provision being allowed for late submissions in Thesis A. Students should consider that this course operates as does business, in that SET DEADLINES have to be met. You are thereby advised to plan and use your time wisely in preparing your work in meeting the deadlines.

ASSESSMENT OVERVIEW

Item	Length	Weighting	Learning outcomes assessed	Assessment Criteria	Due date and submission requirements	Deadline for absolute fail	Marks returned
1. Assessment Task 1						There are no extensions on any of these elements, so the posted due dates are final.	
Site Inspection Report	Appendix Written submission	20%	1 & 3	Submission requirement is for each student complete a site visit on two separate industrial pavement sites This submission will be appendix A within Thesis A.	Before 5:00pm 5th March, 2020 Upload to Moodle		Within two weeks
2. Assessment Task 2							
Industrial Pavement Design	Appendix Calculations	30%	1 & 4	Every student will complete their own calculations for their assigned design data. This submission will be Appendix B within Thesis A.	Before 5:00pm 26th March, 2020 Upload to Moodle		Within two weeks
3. Assessment Task 3							
Construction Processes and Materials of Construction	Appendix Written submission	20%	1 & 2	Students are to research the construction processes and materials of construction for the site visits and design work assigned to them This submission will be Appendix C within Thesis A.	Before 5:00pm 16th April, 2020 Upload to Moodle		Within two weeks
4. Assessment Task 4							
Thesis A Document	8 pages, plus Appendices	30%	1, 2, 3 & 4	The Thesis A document is to be presented as an *Engineering Report* and will be marked accordingly: Executive Summary: 10% Presentation/ content: 10% Writing/ reference quality: 10%	Before 5:00pm 28th April, 2020 Upload to Moodle		Post course

RELEVANT RESOURCES

There are no prescribed texts for Thesis A

The lecturer will provide you with prescribed readings for each lecture topic and:

- You are required to conduct your own Literature research in completing CVEN4050 Thesis A. This should be discussed with the UNSW library staff as to how you can undertake independent research and find your resources.
- Independent seek new material by reviewing suggested additional readings and availability (in bookshop, UNSW Library, Open Reserve).
- Additional materials provided on Moodle.
- Recommended Internet sites.

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://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
	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