School of Civil and Environmental Engineering

Term 1, 2020

CVEN9050 Masters Practice Project A

COURSE DETAILS		
Units of Credit	6	
Contact hours	4 hours per week	
Class	Friday, 11:00 – 13:00	Room: ChemicalSc M17 (K-F10-M17)
Workshops	Weeks 2, 3, 4, and 7	
	Friday, 09:00 – 11:00	Rooms: As outlined for each demonstrator
	or	
	Friday, 13:00 – 15:00	Rooms: As outlined for each demonstrator
Labs	Week 5, 9, 10	
	Friday, 09:00 – 11:00	Rooms: CE201, CE611
	or	
	Friday, 13:00 – 15:00	Rooms: CE201, CE611
Extra Lab	Week 8	
	Wednesday, 09:00 – 11:00	Rooms: CE201, CE611
	or	
	Wednesday, 13:00 – 15:00	Rooms: CE201, CE611
Course Coordinators and Lecturers	Dr Divya Jayakumar Nair Email: divya.nair@unsw.edu.au	
	Dr Ruth Fisher email: ruth.fisher@unsw.edu.au	

INFORMATION ABOUT THE COURSE

This course is available to students in the Masters of Engineering 8621 program specialising in Civil or Environmental Engineering. CVEN 9050 forms the first part of the Coursework Thesis program, with CVEN9051, following in T2. The intention with this course is to bring focus to what is required for employment in a professional/technical role. The Thesis A topic is presented to the student to as an Engineering Report which contains all of the elements required with the Assessment Overview.

The selected theme for T1 and T2 2020 is Light Rail Infrastructure.

As the course will involve several submissions throughout the semester, Thesis A will be completed incrementally with guidance provided at each stage. Included in the lecture schedule will be several Guest Lecture slots who will add further knowledge and skills for students which will be needed

HANDBOOK DESCRIPTION

See link to virtual handbook

https://www.handbook.unsw.edu.au/postgraduate/courses/2020/cven9050/

OBJECTIVES

The objective of this course is to provide students the opportunity to complete an assigned project task that they might be expected to complete in their professional employment. Students will be required to complete their work mostly individually, however still collaborate with others in assigning tasks, managing data collection and critiquing data quality. Thesis A will build on the skills developed in previous practice related subjects and address 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 supplied documentation • 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 • Engage with guest lecturer presentations • Hear announcements on course changes
Workshops	• Be guided by Demonstrators • Participate in group discussions and co-learning • Ask questions and clarify understanding
Assessments	• Demonstrate your knowledge and skills • Demonstrate higher understanding, critical thinking and problem solving • Demonstrate presentation and reporting skills to a professional level

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

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.	*Assemble comprehensive and reliable data from site visit relating to the current operation of an infrastructure system*	*PE 1.5, PE2.2, PE2.4, PE3.1, PE3.4*
2.	*Appraise and critique an aspect of the infrastructure system identifying current status, limitations of approaches and implications.*	*PE 1.3, PE1.4, PE2.1, PE2.2*
3.	*Demonstrate critical thinking and research skills such as compiling a literature review, conducting a critique and learning from the experiences of guest lecturers by applying them in the context of specified projects.*	*PE 1.3, PE1.4, PE1.5*
4.	*Applying engineering principles, such as transport modellers, to identify and investigate real-world problems and to produce designs for sustainable solutions.*	*PE1.2, PE2.1, PE2.4, PE3.2, PE3.4*
5.	*Student will demonstrate professional level written and verbal skills through the production of a self-contained technical report and a critique presentation.*	*PE3.1, PE3.2, PE3.4, PE3.5, PE3.6*

COURSE PROGRAM

Term 1 2020

Date	Topic	Lecture Content	Demonstration Content
21/02/2020 (Week 1)	Introduction (Ruth Fisher & Divya Nair)	Outline of Thesis A requirements, Light Rail Project, Site safety and documentation	No Demonstration
28/02/2020 (Week 2)	Site Visit Requirements (Ruth Fisher)	Site Visit details Personal development and Report writing	Introduction to Demonstrator Groups Work on Task 1 submission
06/03/2020 (Week 3)	Environmental Impact Assessment (Ruth Fisher)	Liveability, sustainability, noise, vibration, socio-economic characteristics Literature Review and conducting a critique	Feedback on Task 1 during session. Site Visit progress for Task 2
13/03/2020 (Week 4)	Environmental Impact Assessment (Divya Nair)	Landuse, traffic, transport and access	Site visit progress and documentation (Task 2)
20/03/2020 (Week 5)	CBD and South East Light Rail: Scenario Analysis (Divya Nair)	Introduction of LRT, Changes in infrastructure, road transport network, O-D matrix, route choice behaviour, active transport	**Lab:** Introduction to Simulation Software, Installation, understanding the base model (Task 3)
27/03/2020 (Week 6)		***Non-teaching week for all courses***	

03/04/2020 (Week 7)	CBD and South East Light Rail: Scenario Analysis (Divya Nair)	Performance Evaluation	Critique of reports (Task 4)
10/04/2020 (Week 8)		***No class due to Public Holiday***	**Extra Lab Session:** Scenario Analysis
17/04/2020 (Week 9)	Guest Lecture	Light rail operations and safety	**Lab:** Scenario Analysis
24/04/2020 (Week 10)	Guest Lecture	Critical thinking/Literature review	**Lab:** Scenario Analysis
28/04/2020 (Week 11)*	Course conclusion (Ruth Fisher & Divya Nair)	Guidance on Thesis B literature search **Extra consultation session with the demonstrators**	No demonstration

*Note: this class is on Tuesday

ASSESSMENT

This semester you are required to conduct a critique of the major infrastructure project, the Sydney Light rail project.

The initial leg of the project running from Circular Quay to High St in Randwick opened in December 2019. You will be completing a number of assessments aimed at understanding the current operation, potential impacts and improvements.

You will be assessed on

- preparation, documentation and presentation of findings from a site visit.
- delivery of a simulation model
- critique of reports and performance
- presentation of findings verbally and in written format

At the end of the semester you will have delivered an individual professional level final report compiling these aspects. You will also have gained a greater understanding of infrastructure projects like the Sydney light rail which will inform opportunities for a more in-depth, individualised research project conducted in CVEN9051.

The assessments for Thesis A are staged so that there are periodic assessments for different stages of the project. The final report will be a compilation of various components relating to the methodology of data collection (Task 1), results of the primary data gathered from the site visit (Task 2), discussion of the simulation component (Task 3) presented using an Executive Summary along with reflections as to learnings throughout the semester and opportunities for future investigations. The staged approach provides students with summative feedback in order to improve and refine techniques and performance throughout the course. Additional critique and self-reflection is provided by Critique presentation in Task 4 which encourages students to consider data quality as well as practice presentation skills.

The course is designed so that students are familiar with the structure and requirements of an Engineering Report as they may be required to produce in their future professions.

Details of each assessment component, the marks assigned to it, the criteria by which marks will be assigned, and the dates of submission are set out below.

PENALTIES

Late work will be penalised at the rate of 10% per day after the due time and date have expired. Any reports submitted 5 or more days after the deadline will receive a mark of zero.

ASSESSMENT OVERVIEW

Item	Length	Weighting	Learning outcomes assessed	Assessment Criteria	Due date and submission requirements	Marks returned
Project Development						
Task 1. Site visit plan	5 pages max	5% Individual report	CLO1, CLO2	Plan for how the site visit will be completed, including scheduling, responsibilities, data management, safety and contingencies.	Monday, 2nd March 9AM (Week 3)	Friday, 6th March (Week 3)
Task 2. Site visit report	10 pages maximum, Appendices excluded from limit	25% Individual report	CLO 1, CLO2, CLO5	The Site visit report will document the data relating to site analysis, traffic flows, passenger usage, noise assessment and active transport relating to the students allocated site and time of day. The report will also include a critique of the data quality and usefulness in order to evaluate the light rails operation.	Friday, 27th March 9AM (Week 6)	Friday, 10th April (Week 8)
Task 3. Light rail scenario analysis	10 pages maximum, see Brief for details	30% Group report	CLO 1, CLO3, CLO4	The group project report will document the light rail scenario analysis: considerations and assumptions (engineering judgement and/or references), datasets and usage, stability analysis, Calculations, Discussion and comparison (base and scenario), innovation, conclusions, references and appendices (If required)	Friday, 24th April 11:59PM (Week 10)	Friday, 8th May (During Exam period)
Critique						
Task 4. Site visit presentation	10 minute presentation	10% (see Moodle for details)	CLO 1, CLO2, CLO5	The group presentation will be assessed based on the oral fluency, content of the presentation and clarity.*	Friday, 3rd April (Week 7 workshop)	Thursday, 9th April (week 8)
Practice Project Report A						
Task 5. Engineering Report	Individual report	30% Individual report	CLO1, CLO2, CLO3, CLO4, CLO5	This final report will compile the previous work into one complete document evaluating the operation of the new light rail. The main feature will be an Executive Summary as well as discuss future opportunities and research areas, as well as an initial literature review proposal. Marks will also be allocated relating to the professional presentation of the whole document.	Friday, 1st May 11:59PM (week 11)	Friday, 15th May (During Exam period)

* Failure to attend the presentation will result in a mark of zero. Students who miss the assessment as a result of illness or unforeseen circumstances must apply for special considerations through the School of Civil and Environmental Engineering and contact the course-coordinator.

RELEVANT RESOURCES

- Resources relating to the preparation of Engineering Reports and scientific writing can be found at iWrite http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Getting-Started/For-Students.html
- Documentation relating to the Sydney Light Rail can be found at https://sydneylightrail.transport.nsw.gov.au/
- Additional materials provided on Moodle.

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

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