School of Civil and Environmental Engineering

Term 1, 2021

CVEN9742 PROFESSIONAL CIVIL ENGINEERING

COURSE DETAILS

Units of Credit	6	
Contact hours	4 hours per week	
Class	Monday, 18:00 – 20:00	online
Workshop	Monday, 20:00 – 21:00	online
	Other: TBA, 1 hour online	online
Course Coordinator and Lecturer	Mr Robert Holdom email: robert.holdom@unsw.edu.au office: CE211 phone: 02 9385 7773	

INFORMATION ABOUT THE COURSE

This purpose of this course is to develop key skills that will enable a Civil Engineer to successfully deliver infrastructure projects that meet their clients' performance requirements and expectations. Those performance requirements and expectations are most often defined in terms of: 'schedule', 'cost', 'quality' and 'sustainability', and as such, the Civil Engineer is delving into project management issues. The course is designed to enable you to draw key focus towards identifying clients' needs, examining the project planning process and being able to recognise a project team's strength and weaknesses, the formation of teams and dealing with the associated people handling and development issues that unfold in the process and aspects of managing the estimating and tendering process. Additionally, you will be introduced to project costing and control measures and managing the work administration process. Weekly scheduled workshops will provide the opportunity for you to develop your skills across a wide scope of disciplines that are needed for the delivery infrastructure projects. There are no specific prerequisites for this course but it is assumed that students commencing this course have either an undergraduate degree in engineering or allied experience in civil construction operations. All communications shall be made using the course Moodle.

HANDBOOK DESCRIPTION

The development of civil engineering infrastructure requires skills including that of planning, estimating, work administration, people handling and costing. These skills are crucial in order that infrastructure projects satisfy the clients' needs in terms of schedule, cost, quality and sustainability. The course explores some necessary skills required of a civil engineer.

https://www.handbook.unsw.edu.au/postgraduate/courses/2021/CVEN9742/

OBJECTIVES

The objectives of the course are to:

- Provide the student with an outline of key considerations in developing project management strategies that address the client's expectations of: 'schedule', 'cost', 'quality' and 'sustainability' in project delivery;
- Provide an outline of the key issues of: planning, estimating, work administration, people handling and costing associated with infrastructure delivery;
- Investigate state-of-the-art practices and techniques presently being employed in industry;
- Enabling the student to identify their preferences, strengths and weaknesses when working within a team; and
- Develop professional civil engineering practices that are ethically sound and sociably responsible.

In addition the course aims to foster:

- Capacity for analytical thinking and for creative problem solving;
- Ability to engage independent and reflective learning;
- Develop the skills for collaborative and multi-disciplinary work by working effectively in small teams;
- Information literacy; and,
- Skills for effective communication.

These objectives and course aims will be achieved using:

- Lectures and assigned readings;
- Workshops; and,
- Assessment Tasks (which includes a Final Examination)

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

This course will be presented as a series of lectures, each accompanied by additional reading material. Following each lecture, a workshop will be conducted for you to practice implementation of key knowledge acquired from the lecture.

In Term 1, 2021 the CVEN9742 course will be delivered in nominally two × (3-week) sessions and one × (2-week) session. These separate sessions will each have a separate Class Test that will be conducted throughout the term on the Saturday of the Weeks: 3, 8 & 10.

Specific teaching and learning strategies include:

Private Study	• Download materials from UNSW Moodle • Review lecture material and additional reading • Complete all assignments

	• Do the set class problems • Join Moodle discussions of problems • Reflect on class problems and assignments • Keep up with notices and find out marks via Moodle
Lectures	• Find out what you must learn • Summarise essential course material from lectures and associated reading • Follow worked examples • Hear announcements on course changes
Workshops	• Be guided by Demonstrators • Practice solving set problems • Ask and answer questions
Assessments	• Enhance you knowledge by undertaking necessary research to complete given tasks • Demonstrate your knowledge and skills • Demonstrate higher understanding and problem solving • Do not copy sections from textbooks or websites, always use appropriate references for sourced material • In preparing an assessment element pay particular attention to the instructional advice provided by the lecturer to maximise your mark

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.	*Develop an understanding of how 'schedule', 'cost', 'quality', and 'sustainability impact upon the project management process.*	*PE1.1, PE1.3, PE2.3, PE2.4*
2.	*Through independent research (which is student-centred and self-directed learning), a student should be able to apply the principles associated with 'planning', 'estimating', 'work administration', 'people handling', and 'costing' associated in delivering project infrastructure.*	*PE1.1, PE1.2, PE1.4, PE2.3, PE2.4*
3.	*Communicate developed solutions concisely, by presenting their work as a written submission or verbally*	*PE3.1, PE3.2, PE3.3, PE3.4, PE3.5, PE3.6*
4.	*Complete such work if assigned to a multi-disciplinary team*	*PE2.2, PE2.3, PE2.4, PE3.1, PE3.2, 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

All Lectures and Workshops will be ordinarily be presented by Mr Robert Holdom and students will be advised of changes to this expectancy.

The weekly Lecture and Workshop will be an integrated evening program. The weekly allocated time (18:00 – 21:00h) will be recorded as a 'Lecture' and made available on the course Moodle should you want to review any content. The Week 1 Lecture uploading may take several days for it to be made available on the Moodle, but beyond that, the weekly lecture recordings are normally expected to be available on the course Moodle within 24 hours.

Term 1, 2021

Date	Topic and Lecture Content	Demonstration Content
15/02/2021 (Week 1)	Introduction to organisations and management Your Professional standing and the Institution of Engineers (Engineers Australia) Change Management and its impact to construction	Outline of Assignments Preparing your Reflective Journal Outline of the requirements imposed on the profession Minzberg managerial roles Implementing organisational change
22/02/2021 (Week 2)	Project Management role in infrastructure projects Team formation, selection and leadership issues	Reading articles and reports Conduct of Belbin analysis Conduct of Honey and Mumford analysis
01/03/2021 (Week 3)	Defining a client's expectation Identifying the factors that impact upon: 'schedule', 'cost', 'quality' and 'sustainability' in project delivery	Sustainability overview in project work **Class Test 1 on Saturday**
08/03/2021 (Week 4)	Factors impacting on project planning and estimates The Value Management process	Similarities and differences in the Value Management documents used by the NSW Treasury and the Queensland Department of Public Works **Submit Dot-point Brief**
15/03/2021 (Week 5)	Complex projects and multi-disciplinary teams Managing risk within a project team	The discipline needed with project teams and their Leadership Creating 'Virtual Teams'
22/03/2021 (Week 6)	***Flexibility week for all courses (non-teaching)*** ***No class.***	***No class.***
29/03/2021 (Week 7)	Managerial Control Introduction to Project Control	Issues associated with 'Managerial Control' and 'Project Control' 'Benchmarking' as a process
05/04/2021 (Week 8)	***Easter Monday Public Holiday*** ***No class.***	***No class.*** **Class Test 2 on Saturday**
12/04/2021 (Week 9)	Managing personnel turnover and project impacts Commissioning, completion and handover	Personal employment expectancies The 'work-life' balance **Submit Reflective Journal**

19/04/2021 (Week 10)	Marketing issues and maintaining industry relevance Impacts in dealing with disruptive technologies Sustainability issues in the delivery of infrastructure projects	Discussion on your professional development Dealing with Disruptive technology Sustainability specifics in the delivery of infrastructure projects **Class Test 3 on Saturday**

ASSESSMENT

There will be NO formal examination for CVEN9742 Professional Civil Engineering. Instead, the final mark and grade for this course will be determined based on the aggregated scores from each of the following assessment tasks.

Assessment Task 1 (individual submission) – Dot-point Brief (20%) – due Week 4

Assessment Task 2 (individual submission) – Reflective Journal of your Learning (35%) – due Week 9

Assessment Task 3 (three Class Tests) – (at 15% each) – to be held on Saturday of Weeks: 3, 8 & 10

Your Final Mark for CVEN9742 Professional Civil Engineering will be the aggregated total of all above assessment tasks. The Final Grade for CVEN9742 Professional Civil Engineering is as per the university's Mark/ Grade scale.

You should be mindful that your Assignment submissions are documents that you can take to interview is seeking future employment. Therefore you should be very mindful of the layout and content you submit as it has application for you beyond the course delivery.

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

1. Individual Assignment
   This assignment allows you to investigate the status of companies and organisations based in Australia and working in the Australian civil engineering and construction. The way you present your findings will feature as a significant part of the assessment of this task. The successful completion of this Assignment will provide you with the ability and processes that can be utilised as employability skills in investigating and reporting on other organisations allied to the engineering industry.

2. Reflective Journal of your Learning
   Each student will be required to produce a Reflective Journal of their learning throughout the semester. The submission of the Reflective Journal shall be due in Week 9, as noted below In the Assessment overview. The Reflective Journal will be set-out as a Report and each chapter will correspond to the learnings for each week (and should include their progress in their Assignments and Class Test reflective comments),up to and including Week 9's material for which you will be required to maintain regular weekly input. It is emphasised that you will need to be regular with you journal input and proof of your diligence will be seen in the improvement of your weekly chapter writings throughout the semester, which forms part of the marking criteria. This submission will provide you with a substantial document which you will be able to utilise beyond this course as documentary proof of your ability to write a coherent Report on civil engineering management matters, which is in this case, is self-reflective by type.

3. Class Tests

The course has been structured along particular topics that form the basis of each Class Test, viz:

a. Organisations, Professional standing, Project Management and Client Expectations.

b. Project planning, Value Management, Multi-disciplinary teams, Risk issues, Managerial Control and Project Control measures.

c. Personnel Management, Project Commissioning, Marketing, Individual Development matters, Disruptive Technology and Project Sustainability.

The grouping of these topics will be taught and examined by way of separate Class Tests:
Class Test 1 will examine the content of lecture and workshop material covered in Weeks 1, 2 & 3.
Class Test 2 will examine the content of lecture and workshop material covered in Weeks 4, 5, & 7.
Class Test 3 will examine the content of lecture and workshop material covered in Weeks 9 & 10.

Class Test 1 will be held on Saturday 6th March, 2021.
Class Test 2 will be held on Saturday 10th April, 2021.
Class Test 3 will be held on Saturday 24th April, 2021.

All Class Tests will be conducted as 'open-book' examinations, be completed individually from a student's home as an online test and will be of 75 minutes nominal duration.

Learning and assessing in this manner will require students to summarise their work on a weekly basis, complete the workshop material tasks and seek out the assistance they need by way of discussing it with other peers, or the Lecturer, and/ or, asking questions on the Moodle Discussion Board.

All assignments are to be submitted by uploading onto the Moodle. Your submissions shall be subject to a 'Turnitin' submission tool review. All Class Tests are to be submitted by uploading onto the Moodle. Each Class Test will be issued with particular instructions.

[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 CVEN9742 Professional Civil Engineering, please note: Supplementary Examinations for Term 2, 2021 will be held between Monday 24th May 2021 and Friday 28th May 2021, 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** *(this needs to explicitly describe what students are expected to demonstrate in the task)*	**Due date and submission requirements**	**Deadline for absolute fail**	**Marks returned**
1. Individual Assignment							
Dot-point Brief	3-page limit	20%	2 & 3	Each student is required to prepare an individual Dot-point Brief on a company of their choosing allied to the engineering profession that contributes to the construction industry. The submission requires students to work to a provided heading structure and strictly adhere to the page-limit requirement. Marks will be allocated on content, format of the submitted document, its conciseness and its readability.	Before 5pm on 11th March 2021	After 5pm on 16th March 2021	Within 2 weeks
2. Individual Assignment							
Reflective Journal	4500 words	35%	1, 2 & 3	Students are to prepare a Reflective Journal on their learning within the course for Weeks 1-9 inclusively. Each week is limited to three pages within the submission which is inclusive of all writing, pictures and figures that have been utilised in their reflections upon the delivered weekly coursework, assignments and Class Tests.	Before 5pm on 15th April 2021	After 5pm on 20th April 2021	Within 2 weeks
3.Class Tests							
Class Test 1	75 mins	15%	1, 2 & 3	Content covered in Weeks 1, 2, & 3 Students will be required to provide answers by way of any of the following forms: calculations, or, written answers, or, select an answer to a question from	Saturday 6th March, 2021 online 10:00 – 11:15am	Not sitting event	Within 2 weeks

				multiple-choice options			
Class Test 2	75 mins	15%	1, 2 & 3	Content covered in Weeks 4, 5, & 7 Students will be required to provide answers by way of any of the following forms: calculations, or, written answers, or, select an answer to a question from multiple-choice options	Saturday 10th April, 2021 online 10:00 – 11:15am	Not sitting event	Within 2 weeks
Class Test 3	TBA mins	15%	1, 2 & 3	Content covered in Weeks 9, & 10 Students will be required to provide answers by way of any of the following forms: calculations, or, written answers, or, select an answer to a question from multiple-choice options	Saturday 24th April, 2021 online 10:00 – 11:15am	Not sitting event	Within 2 weeks

RELEVANT RESOURCES

There are no prescribed texts for CVEN9742.

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

- You are required to conduct your own Literature Research in completing the assessment elements of CVEN9742 Professional Civil Engineering. This should be discussed with the UNSW library staff as to how you can undertake independent research and find your resources.
- Independently 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

For information about:

- Notes on assessments and plagiarism;
- Special Considerations: student.unsw.edu.au/special-consideration;
- General and Program-specific questions: The Nucleus: Student Hub
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC/ SURVSOC/ CEPCA

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