UNSW Course Outline

ZEIT4601 Civil Design Practice Extension - 2024

Published on the 01 Jul 2024

General Course Information

Course Code : ZEIT4601
Year : 2024
Term : Semester 2
Teaching Period : Z2
Is a multi-term course? : No
Faculty : UNSW Canberra
Academic Unit : School of Engineering and Technology
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : UNSW Canberra at ADFA
Campus : UNSW Canberra
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

Scrutiny of the Bachelor of Civil Engineering (Hons) reveals that it is currently highly focused on engineering science and technical courses with limited integration of topics compared to real-world practice. Engineers today must constantly deal with regulatory uncertainty, data

limitations, evolving methodologies, and a range of conflicting demands and opinions from clients, governments, public authorities and the community. Consequently, they need to understand (and be able to apply) sound engineering principles to the projects they undertake.

These principles involve technical competence, ethical practice, appropriate management, professionalism, courtesy, safety awareness, and thorough task execution. Relevant skills include (but are not limited to) problem-solving expertise, proficiency in liaison and negotiation (with both professional bodies and individuals), research and report preparation competence, and good communication ability. In addition, engineers must cope with continual technological and organisational change in the workplace and the commercial realities of industry practice. They should also be generally aware of the legal and environmental consequences of their professional actions and commit to ongoing learning and contributions to their organisation, profession, and the community.

Therefore, to facilitate the transition of the final-year students and prepare them for the tasks they will likely face once they join their respective services, the course aims to enhance the learning process through authentic problem-solving. Students pursuing this course must work in teams and attend supplementary lectures, demonstration sessions and other regular meetings. These may include both team meetings and other project-related activities.

The course has been developed as a “project-based” assessment scheme, focusing on students taking leadership in project activities under minimum supervision. Students must understand that the course outcomes will not only consider the learnings from this unit but will recapture the whole learning experience in a four-year degree period. Therefore, the lecture series intends to provide additional knowledge in broader areas of civil engineering, not just focus on the project itself.

The scheduled regular teaching session is 6 hours weekly. Extra consultation can be arranged with teaching staff at the agreed time and in various forms. Students are expected to work seven additional hours each week on the project, conducting weekly project meetings and project-related activities.

Course Aims

The aim of this course is to give the students the best opportunity to familiarize themselves with the design procedure of a typical civil engineering project and acquire the knowledge and experience required to work in a team on the design of a civil engineering project under minimal

supervision after graduation.

Relationship to Other Courses

Prerequisite: ZEIT3600, ZEIT4600

This project-based set of courses (ZEIT4600 and ZEIT4601) extends over two semesters.

The knowledge gained throughout the Civil Engineering Degree will be useful in conducting the assessment tasks of this course.

Course Learning Outcomes

Course Learning Outcomes	Australian Institute of Project Management (AIPM), Engineers Australia - Professional Engineer (Stage 1)
CLO1 : Apply concepts and principles of project management in the practice of civil engineering	• PM1 : The program aims, and program-level learning outcomes are to be aligned to the PMBOK® Guide 7th Edition (2021) OR relevant alternative standard or professional reference
CLO2 : Apply and analyse a complex civil engineering project to determine design requirements and constraints	• PEE2.1 : Application of established engineering methods to complex engineering problem solving
CLO3 : Practice effective and persuasive communication to technical and nontechnical audiences	• PEE3.2 : Effective oral and written communication in professional and lay domains
CLO4 : Formulate a possible solution to a complex problem, question or issue relevant to civil engineering	• PEE1.1 : Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline • PEE1.5 : Knowledge of engineering design practice and contextual factors impacting the engineering discipline • PEE2.1 : Application of established engineering methods to complex engineering problem solving • PEE2.3 : Application of systematic engineering synthesis and design processes • PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain • PEE3.4 : Professional use and management of information
CLO5 : Show ability to demonstrate leadership in Civil Engineering projects, making decisions independently, executing them and achieving outcomes.	• PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain • PEE3.5 : Orderly management of self, and professional conduct
CLO6 : Show ability to work in diversified groups and collaboratively in project activities and effective communication in a team environment.	• PEE3.1 : Ethical conduct and professional accountability • PEE3.2 : Effective oral and written communication in professional and lay domains • PEE3.3 : Creative, innovative and pro-active demeanour • PEE3.4 : Professional use and management of information • PEE3.5 : Orderly management of self, and professional conduct • PEE3.6 : Effective team membership and team leadership

Course Learning Outcomes	Assessment Item
CLO1 : Apply concepts and principles of project management in the practice of civil engineering	
CLO2 : Apply and analyse a complex civil engineering project to determine design requirements and constraints	
CLO3 : Practice effective and persuasive communication to technical and nontechnical audiences	
CLO4 : Formulate a possible solution to a complex problem, question or issue relevant to civil engineering	
CLO5 : Show ability to demonstrate leadership in Civil Engineering projects, making decisions independently, executing them and achieving outcomes.	
CLO6 : Show ability to work in diversified groups and collaboratively in project activities and effective communication in a team environment.	

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | Blackboard Collaborate

Learning and Teaching in this course

The Learning Management System

Moodle is the Learning Management System used at UNSW Canberra. All courses have a Moodle site which will become available to students at least one week before the start of semester. Please find all help and documentation (including Blackboard Collaborate) at the Moodle Support page.

UNSW Moodle supports the following web browsers:

» Google Chrome 50+

» Safari 10+

** Internet Explorer is not recommended

** Addons and Toolbars can affect any browser's performance.

Operating systems recommended are:

Windows 7, 10, Mac OSX Sierra, iPad IOS10

For further details about system requirements click here.

Log in to Moodle here.

If you need further assistance with Moodle:

For enrolment and login issues please contact:
IT Service Centre
Email: itservicecentre@unsw.edu.au
Phone: (02) 9385-1333
International: +61 2 9385 1333

For all other Moodle issues please contact:
External TELT Support
Email: externalteltsupport@unsw.edu.au
Phone: (02) 9385-3331
International: +61 2 938 53331

Opening hours:
Monday – Friday 7:30am – 9:30 pm
Saturday & Sunday 8:30 am – 4:30pm

Additional Course Information

The course may involve a certain amount of sensitive information provided by the Department of Defence on a “commercial in confidence” basis which must not be passed on to anyone who is not entitled to receive it. If site visits are undertaken, these will require stringent safety procedures to be followed.

The intensity of this course is such that good time management will be essential. Students will need to make use of both session breaks to complete the work. Detailed requirements for the project will be advised progressively throughout the course. Oral presentations are an integral part of the programme and liaison with external organisations will often be necessary.

All students are required to wear appropriate footwear and other PPE whilst attending the field visits. Students who do not have appropriate footwear and PPE will not be allowed to take part in the field visits.

Referencing

In this course, students are required to reference following the APA 7 / Chicago NB referencing style. Information about referencing styles is available at:

https://guides.lib.unsw.adfa.edu.au/c.php?g=472948&p=3246720

Academic Integrity and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to this principle of academic integrity. All students are expected to adhere to UNSW's Student Code of Conduct https://www.unsw.edu.au/content/dam/pdfs/governance/policy/accessible/studentcode.pdf

Plagiarism undermines academic integrity and is not tolerated at UNSW. *It is defined as using the words or ideas of others and passing them off as your own, and* can take many forms, from deliberate cheating to accidental copying from a source without acknowledgement.

For more information, please refer to the following:

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

Study at UNSW Canberra

https://www.unsw.adfa.edu.au/study

Study at UNSW Canberra has lots of useful information regarding:

- *Where to get help*
- *Administrative matters*
- *Getting your passwords set up*
- *How to log on to Moodle*
- *Accessing the Library and other areas.*

Additional Information as required

CRICOS Provider no. 00098G
The University of New South Wales Canberra.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates	Australian Institute of Project Management (AIPM), Engineers Australia - Professional Engineer (Stage 1)
Stage 1 Report Assessment Format: Individual	25%	Start Date: Already completed in S1 Due Date: Already completed in S1	• PEE1.1 : Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline • PEE1.2 : Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline • PEE1.3 : In-depth understanding of specialist bodies of knowledge within the engineering discipline • PEE1.5 : Knowledge of engineering design practice and contextual factors impacting the engineering discipline • PEE1.6 : Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline • PEE2.1 : Application of established engineering methods to complex engineering problem solving • PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain • PEE3.1 : Ethical conduct and professional

			accountability • PEE3.2 : Effective oral and written communication in professional and lay domains • PEE3.3 : Creative, innovative and pro-active demeanour • PEE3.5 : Orderly management of self, and professional conduct • PEE3.6 : Effective team membership and team leadership
Stage 2 Report Assessment Format: Individual Short Extension: Yes (1 day)	35%	Start Date: 15/07/2024 12:00 AM Due Date: 04/11/2024 12:00 AM	• PEE1.3 : In-depth understanding of specialist bodies of knowledge within the engineering discipline • PEE1.5 : Knowledge of engineering design practice and contextual factors impacting the engineering discipline • PEE2.1 : Application of established engineering methods to complex engineering problem solving • PEE2.2 : Fluent application of engineering techniques, tools and resources • PEE2.3 : Application of systematic engineering synthesis and design processes • PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain • PEE3.1 : Ethical conduct and professional accountability • PEE3.2 : Effective oral and written communication in professional and lay domains • PEE3.3 : Creative, innovative and pro-active

			demeanour • PEE3.4 : Professional use and management of information • PEE3.5 : Orderly management of self, and professional conduct • PEE3.6 : Effective team membership and team leadership • PM4 : A clear explanation must be provided in the program handbook entailing the breadth and depth of coverage of the nominated PMBOK® Guide elements and how they relate to the overall management of the project
Logbook Assessment Format: Individual Short Extension: Yes (1 day)	10%	Start Date: 15/07/2024 12:00 AM Due Date: 31/07/2024 12:00 AM	• PEE3.2 : Effective oral and written communication in professional and lay domains • PEE3.5 : Orderly management of self, and professional conduct • PM1 : The program aims, and program-level learning outcomes are to be aligned to the PMBOK® Guide 7th Edition (2021) OR relevant alternative standard or professional reference
Test Assessment Format: Individual	20%	Start Date: Not Applicable Due Date: Not Applicable	• PEE3.4 : Professional use and management of information • PEE3.5 : Orderly management of self, and professional conduct • PEE3.6 : Effective team membership and team leadership • PM1 : The program aims, and program-level learning outcomes are to be aligned to the PMBOK® Guide 7th Edition (2021) OR relevant alternative standard or professional reference • PM3 : The program demonstrates alignment

			with the respective AQF level, i.e. AQF 9: Specialized coverage of project management knowledge and skills
Presentation Assessment Format: Individual	10%	Start Date: 15/07/2024 12:00 AM Due Date: 25/10/2024 12:00 AM	• PEE3.2 : Effective oral and written communication in professional and lay domains • PEE3.6 : Effective team membership and team leadership • PEE3.3 : Creative, innovative and pro-active demeanour • PM2 : The program must collectively covers all 47 project processes across the ten PMBOK® Guide knowledge areas; and/or the five PMBOK® Guide process groups

Assessment Details

Stage 1 Report

Assessment Overview

n/a

Detailed Assessment Description

This is a Semester 1 component - Already completed in S1 under ZEIT 4600

A comprehensive design report submitted based on the project activities conducted by the groups in Semester 1.

This is a group submission identifying individual contributions and based on this the final marks will be adjusted.

Learning outcomes - CLO 1, 2,3,4,5,6

Stage 2 Report

Assessment Overview

n/a

Detailed Assessment Description

A comprehensive report based on the project work done in S1 and S2. All desing calculations and other required details must be included. A detail guidelines will be issued at the start of the semester.

This is a group submission identifying individual contributions and based on this the final marks will be adjusted.

Learning outcomes - CLO 1, 2,3,4,5,6

Assessment information

Use of Generative AI in Assessments

This section must identify which level of use of generative AI is appropriate for your assessment, and you may want to suggest particular uses of AI that can assist students without detracting from the assessment being their own work.

The permitted generative AI tools should be made clear to students in the course outline or separately for each assignment.

Statements are designed to clarify the University's position on assessment integrity, given the rise in access to generative AI platforms.

Please select respective parts and remember to remove text in parentheses before use.

1. NO ASSISTANCE

(This is most relevant for invigilated exams)

It is prohibited to use any software or service to search for or generate information or answers. If its use is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

2. SIMPLE EDITING ASSISTANCE

For this assessment task, you may use standard editing and referencing software, but not Generative AI. You are permitted to use the full capabilities of the standard software to answer the question (e.g. you may wish to specify particular software such as Microsoft Office suite, Grammarly, etc.).

If the use of generative AI such as ChatGPT is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

Assignment submission Turnitin type

Not Applicable

Logbook

Assessment Overview

n/a

Detailed Assessment Description

Fortnightly submission of diary of what has been learned in the class and the project including the self reflection.

Students to report what they have learned from the lectures, project activities within the period (submitting via Moodle fortnight basis)

Log book submisison for Semester 1 carries 5% of the total marks and 5% for the Semester 2 (ZEIT 4601).

5% done in the Semester 1 under ZEIT 4600

Learning outcomes - CLO 2,3,4,5,6

Submission notes

Fortnightly submission of diary

Assessment information

Use of Generative AI in Assessments

This section must identify which level of use of generative AI is appropriate for your assessment, and you may want to suggest particular uses of AI that can assist students without detracting from the assessment being their own work.

The permitted generative AI tools should be made clear to students in the course outline or separately for each assignment.

Statements are designed to clarify the University’s position on assessment integrity, given the

rise in access to generative AI platforms.

Please select respective parts and remember to remove text in parentheses before use.

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It is prohibited to use any software or service to search for or generate information or answers. If its use is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

2. SIMPLE EDITING ASSISTANCE

For this assessment task, you may use standard editing and referencing software, but not Generative AI. You are permitted to use the full capabilities of the standard software to answer the question (e.g. you may wish to specify particular software such as Microsoft Office suite, Grammarly, etc.).

If the use of generative AI such as ChatGPT is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

Assignment submission Turnitin type

Not Applicable

Test

Assessment Overview

n/a

Detailed Assessment Description

Not applicable for this semester. This is a S1 task.

Individual course assessment as an exam, conducted in the class based on the Constrction Management Lectures

Learning outcomes - CLO1

Presentation

Assessment Overview

n/a

Detailed Assessment Description

End of semester progress presentations (Semester 1 = 5%, Semester 2 = 5%)

The summary of the project activities done and presented in Stage 1 report will be presented.

All students must present the contributions they made to the project

Leanring outcomes- CLO3

Assignment submission Turnitin type

Not Applicable

General Assessment Information

A detail description of project report, diary requirements and the format including the templates will be avaible in Moodle.

Students will get the feedback of progress of the project and week 1-2 Diary/
Logbook assessment by the census date (S2 2024)

Late Submission of Assessment

Unless prior arrangement is made via short extension path or other ways with the lecturer or a formal application for special consideration is submitted, a penalty of 5% of the total available mark for the assessment will apply for each day that an assessment item is late up to a maximum of 5 days (120 hours) after which an assessment can no longer be submitted and a grade of 0 will be applied.

Use of Generative AI in Assessments

For all the class tests and final examination, it is prohibited to use any software or service to search for or generate information or answers. If its use is detected, it will be regards as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion

Grading Basis

Standard

Requirements to pass course

To be assured of receiving a pass grade each student must achieve at least 40% of the maximum mark in all assessable components (group and individual components) and an overall score of at least 50% of the maximum total mark.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 15 July - 19 July	Lecture	• 15th July - Semester 2 briefing Team Meeting 1 with UNSW Staff • 17th July - Seismic design- low to medium-rise buildings (Online) (Staff coordination - Damith Mohotti, Chi King lee)
Week 2 : 22 July - 26 July	Lecture	• 22nd July - Wind loading (Staff coordination - Kasun Wijesooriya) • 24th July - Traffic Management planning (Staff coordination - Damith Mohotti, Chi King Lee)
Week 3 : 29 July - 2 August	Lecture	• 29th July - Fire Safety Design 1 (Staff coordination - Damith Mohotti, Chi King lee) • 31st July -Fire Safety Design 1 (Staff coordination - Damith Mohotti, Chi King lee)
	Assessment	Logbook due
Week 4 : 5 August - 9 August	Lecture	• Designing and building more sustainable building (Staff coordination - Damith Mohotti, Chi King lee) • Team Meeting 2 (UNSW Staff (Staff coordination - Damith Mohotti, Chi King lee))
Week 5 : 12 August - 16 August	Lecture	• 12th August - Steel design and construction (Staff coordination - Damith Mohotti, Chi King lee) • 14th August - Environmental risk assessment and planning (Staff coordination - Damith Mohotti, Chi King lee)
Week 6 : 19 August - 23 August	Lecture	19th August -Project activities day (No class) 21st August- Mid Semester progress update meeting - (UNSW Staff)
Week 7 : 9 September - 13 September	Lecture	9th September - Guest Lecture - On-site water treatments of raw water and sewage discharge (Staff coordination - Damith Mohotti, Chi King lee) 11th September - Guest Lecture - (Staff coordination - Damith Mohotti, Chi King lee)
Week 8 : 16 September - 20 September	Lecture	16th September - Guest Lecture -to be confirmed - (Staff coordination - Damith Mohotti, Chi King lee) 18th - September - Military training day -No lectures
Week 9 : 23 September - 27 September	Lecture	23rd September - Guest Lecture -to be confirmed - (Staff coordination - Damith Mohotti, Chi King lee) 25th - September - Guest Lecture -to be confirmed - (Staff coordination - Damith Mohotti, Chi King lee)
Week 10 : 30 September - 4 October	Lecture	30th September - Guest Lecture -to be confirmed - (Staff coordination - Damith Mohotti, Chi King lee) 2nd - October - Guest Lecture -to be confirmed - (Staff coordination - Damith Mohotti, Chi King lee)
Week 11 : 7 October - 11 October	Lecture	7th October - Labour day-No lectures 9th -October - Guest Lecture -to be confirmed - (Staff coordination - Damith Mohotti, Chi King lee)
Week 12 : 14 October - 18 October	Group Work	14th October - Project activities (No class) 16th October - Team Meeting with UNSW Staff
Week 13 : 21 October - 25 October	Group Work	• 21st October - No lectures (preperation day) • 23rd October - Final presentation

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

Regular lectures on Monday 2pm to 5 pm and Wednesday 10am to 12pm.

A detailed schedule is avaible in Moodle.

Course Resources

Prescribed Resources

Constrction Extension of PMBOK Guide (PMI)

Rawlinsons Australian Construction Handbook

Gorenc, Tinyou and Syam "Steel Designers Handbook", 8*th* edition. and (2) Trahair and Bradford, The Behaviour and Design of Steel Structures to AS 4100, 3*rd* Edition

Reinforced Concrete Basics: Analysis and Design of Reinforced Concrete Structures, Pearson Original Edition

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) Australian Rainfall and Runoff: A Guide to Flood Estimation

Recommended Resources

Structural/Building

AS3600: Concrete structures

AS4600: Steel Structure

AS1170: Structural design actions

AS1288: Glass in buildings

AS1428: Design for access and mobility

AS1668: The use of ventilation and air conditioning in buildings

AS1680: Interior and workplace lighting

National Construction Code 2016, The Australian Building Codes Board

Civil Design

•AS2890: Parking facilities

•AS350: Part3: Plumbing and drainage

•AS3798: Guidelines on earthworks for commercial and residential developments

Geotechnical and Env Standards

Environmental Planning and Assessment Regulation 2000 (NSW)

AS2159: Piling

AS2870: Residential slabs and footing

AS3798: Guidelines on earthworks for commercial and residential developments

Construction Management

An Introduction to project management – 6th Edition (2017). Kathy Schwalbe.

PMI Project Management Body of Knowledge (PMBOK) – 6th Edition (2018).

AS ISO 21500:2016

Software

ETABS

RAPT

SPACEGAS

REVIT

Civil3D

Drains

MS Project

Additional Costs

No addtional cost is involved

Course Evaluation and Development

One of the key priorities in the 2025 Strategy for UNSW is a drive for academic excellence in education. One of the ways of determining how well UNSW is progressing towards this goal is by listening to our own students. Students will be asked to complete the myExperience survey towards the end of this course.

Students can also provide feedback during the semester via: direct contact with the lecturer, the "On-going Student Feedback" link in Moodle, Student-Staff Liaison Committee meetings in schools, informal feedback conducted by staff, and focus groups. Student opinions really do make a difference. Refer to the Moodle site for this course to see how the feedback from previous students has contributed to the course development.

Important note: Students are reminded that any feedback provided should be constructive and professional and that they are bound by the Student Code of Conduct Policy

https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Damith Mohotti		Room 106, Building 20	0425531977	Online with a prior email (Monday to Friday)	No	Yes
Lecturer	Chi King Lee		Room 106, Building 20		Online with a prior email (Monday to Friday)	No	No
	Kasun Wijesooriya		Room 106, Building 20		Online with a prior email (Monday to Friday)	No	No