UNSW Course Outline

CEIC3005 Process Plant Design - 2024

Published on the 28 Jan 2024

General Course Information

Course Code : CEIC3005
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : School of Chemical Engineering
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Postgraduate, Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

A core value and capability of chemical engineers is the ability to design, operate and manage complex systems like process plants. This requires the chemical engineer to combine multiple sources of information on the function of individual equipment and use it to create value by

designing an entire plant. A systems thinking approach also extends to understanding and evaluating process economics and implications on the environment and society. Thus, this course will give you a holistic understanding of process plant design methodology used by chemical engineers, to enable individual unit operations to work in tandem satisfying the functional, safety, and economic objectives of the plant.

You will become familiar with the steps associated with planning and evaluating a new process plant, as well as collecting and documenting the information needed to make engineering decisions about designs. This course focuses on four broad areas in the design of process plants:

1. **Design Documentation** (DD) – prioritising design constraints and objectives, identifying relevant design guidelines and environmental standards, drawing block flow diagrams (BFD), process flow diagrams (PFD), piping and instrumentation diagrams (P&ID) and general arrangement (GA) of equipment in line with industry conventions.
2. **Process Simulation** (PS) – designing, simulating and optimising chemical unit operations using commercial simulation software.
3. **Process Risk and Safety** (PRS) – identifying, evaluating and managing hazard and safety issues in a chemical plant or process and using control system design and risk analysis tools such as HAZOP, HAZAN and HACCP.
4. **Process Economics** (PE) – estimating revenue and costs, performing cash flow analysis and using various economic indicators to evaluate engineering projects.

You will integrate and apply your knowledge of these areas via a collaborative portfolio focused on the preliminary design stages of a project.

Course Aims

This course aims to equip students with the knowledge and skills required for the preliminary design, documentation and evaluation of process plants.

Relationship to Other Courses

This CEIC3005 Process Plant Design assessment has been designed to complement the CEIC3004 Process Equipment Design assessment but you are not required to be enrolled in CEIC3004 to complete the CEIC3005 assessment. We have also worked to align the assessment requirements and deadlines to help you manage your workload. The tasks have been designed so your group can complete the project/s independently (in the case that you are only completing one of the courses in T1, 2024).

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Prepare engineering drawings of sufficient detail for the preliminary design stages of an engineering project
CLO2 : Develop budgetary cost estimates, discounted cash flow analyses and economic indicators to make decisions about chemical engineering projects using standard cost estimating methods.
CLO3 : Systematically identify, assess and control hazards in process plants using standard process safety approaches.
CLO4 : Use industry standard specialist software to simulate the performance and establish basic sizing of a range of common unit operations

Course Learning Outcomes	Assessment Item
CLO1 : Prepare engineering drawings of sufficient detail for the preliminary design stages of an engineering project	• Online Quizzes • Design Portfolio • Final exam
CLO2 : Develop budgetary cost estimates, discounted cash flow analyses and economic indicators to make decisions about chemical engineering projects using standard cost estimating methods.	• Online Quizzes • Design Portfolio • Final exam
CLO3 : Systematically identify, assess and control hazards in process plants using standard process safety approaches.	• Online Quizzes • Design Portfolio • Final exam
CLO4 : Use industry standard specialist software to simulate the performance and establish basic sizing of a range of common unit operations	• Online Quizzes • Design Portfolio

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | Echo 360

Other Professional Outcomes

Engineers Australia, Professional Engineer Stage 1 Competencies

This course contributes to your develpment of the following EA Professional Engineer competencies:

PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline

PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline

PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline

PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline

PE2.1 Application of established engineering methods to complex engineering 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

PE3.1 Ethical conduct and professional accountability

PE3.4 Professional use and management of information

Relationship with the discipline and the rest of your program

Whether you are part of the Chemical Engineering, Chemical Product Engineering or Industrial Chemistry stream, this course is a key part of your training in engineering design. The skills acquired in this course are used by engineers in the development of a business case to upgrade an existing plant, develop a new facility or create new or improved products.

Students considering a career in consulting engineering or project planning would be expected to be familiar with these methods. The course also offers an introduction to the theory behind hazard analysis which is central to the design process, but is also an essential component of construction, commissioning, operation and production activities in all sectors of the engineering industry.

In this course you will use your knowledge of engineering design (DESN1000 and DESN2000) in formulating the design problem, generating and evaluating possible solutions – skills which will be further developed in courses like CEIC3004, CEIC4001 and CEIC4007/8. These design skills will be augmented by training in process economics to bring a commercial perspective to decisions related to the design and deployment of chemical products and processes.

This course requires your knowledge of material and energy balances (CEIC2000), transport phenomena (CEIC2001, CEIC2002) and numerical methods (MATH2089) to prepare preliminary process stream tables for chemical plants and then full computer-based process simulations. These capabilities will be further developed and applied when students take CEIC3004, CEIC3007, CEIC4001 or CEIC4007/8.

You will also employ your knowledge of statistics (MATH2089), chemistry and thermodynamics (CEIC2000) to evaluate process risks and ensure the safe operation of chemical plants – these capabilities will be further developed in CEIC3006.

Finally, you will expand your knowledge of engineering communications, developed through courses like DESN1000, DESN2000 and CEIC2007, by learning about design documentation conventions and engineering drawings used in the chemical process industries. These types of documentation will be required in CEIC3004 and CEIC4001.

Additional Course Information

Integrity and Respect

The UNSW Student Code of Conduct (https://student.unsw.edu.au/conduct) among other things, expects all students to demonstrate integrity in all the academic work and to treat all staff, students and visitors to the University with courtesy, tolerance and respect.

Time commitment

UNSW expects students to spend approximately 150 hours to successfully complete a 6 UOC course like CEIC3005. We expect 71 hours to be spent participating in face-to-face classes, 9 hours completing online quizzes and the final exam, with the remaining 80 hours provided for private study, working on your design portfolio and preparing for the final exam. Therefore, outside class, you should be spending at least 7 hours per week working on CEIC3005.

Competence

Students are expected to enter CEIC3005 having developed competencies in all the material covered in the pre-requisite courses, at least. Little time is available to remediate any deficiencies in your knowledge of those topics. Over the course of the term, you will be developing new competencies and to illustrate the standards we expect, marking rubrics or guidelines will be provided for all assessments. The teaching staff will apply these marking guides fairly and provide you with feedback so you can continue to improve over the term and beyond.

Participation

When you attend workshops and studios, we expect you to actively participate in the activities organised. This may mean listening, taking notes, asking questions or engaging in peer discussions. It may also mean working by yourself or in groups on exercises.

To complete the design assignment, you are required to work in a team. We expect all team members to agree on how they will manage the team (e.g. making and documenting decisions), to assign the project work equitably and contribute to the delivery of project outputs to the best of their ability.

Students are expected to contribute to online discussions through the course forum on Moodle. You may wish to discuss challenges faced through this course, ask questions about course content, discuss solutions to practice questions. It is expected that students will help each other, and the lecturers will contribute as required.

Attendance and punctuality

We expect students to be punctual and attend at all classes. University commitments take precedence over regular work activities, holidays etc. Students who attend less than 80% of their possible classes may be refused final assessment. If you miss a class, we expect you to catch up in your time, seminars will be recorded and made available through Moodle.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Online Quizzes Assessment Format: Individual	20%	Start Date: See Table below (in Assessment Details) Due Date: See Table
Design Portfolio Assessment Format: Individual	50%	Start Date: See Table below (in Assessment Details) Due Date: See Table
Final exam Assessment Format: Individual	30%	Start Date: Not Applicable Due Date: Exam period

Assessment Details

Online Quizzes

Assessment Overview

Students will complete a series of online quizzes to provide regular feedback on their understanding of the course content. The quizzes on Process Simulation also certify student competence for this module.

Course Learning Outcomes

- CLO1 : Prepare engineering drawings of sufficient detail for the preliminary design stages of an engineering project
- CLO2 : Develop budgetary cost estimates, discounted cash flow analyses and economic indicators to make decisions about chemical engineering projects using standard cost estimating methods.
- CLO3 : Systematically identify, assess and control hazards in process plants using standard process safety approaches.
- CLO4 : Use industry standard specialist software to simulate the performance and establish basic sizing of a range of common unit operations

Assessment Length

Most quizzes are 15 minutes except Process Simulation quizzes which are 50 minutes.

Submission notes

All quizzes will be completed in Moodle. The simulation quizzes will require access to ASPEN Plus.

Assessment information

The eight quizzes on Design Documentation, Process Economics and Process Risk & Safety are worth 1% each. They will be released weekly on Tuesday and generally will close the following Monday at 2pm.

The two Process Simulation quizzes will be released on Friday. The first quiz is worth 4%, while the second quiz is worth 8% closes at the times below.

Quiz	Marks	Opens	Closes
DD Quiz 1	1	Tue, 13 Feb	Mon, 19 Feb at 2pm
DD Quiz 2	1	Tue, 20 Feb	Mon, 26 Feb at 2pm
PE Quiz 1	1	Tue, 27 Feb	Mon, 4 Mar at 2pm
PE Quiz 2	1	Tue, 5 Mar	Mon, 11 Mar at 2pm
PS Quiz 1	4	Fri, 8 Mar	Thu, 14 Mar at 9pm
PE Quiz 3	1	Tue, 12 Mar	Mon, 25 Mar at 2pm
PRS Quiz 1	1	Tue, 26 Mar	Mon, 1 Apr at 2pm
PRS Quiz 2	1	Tue, 2 Apr	Mon, 8 Apr at 2pm
PRS Quiz 3	1	Tue, 9 Apr	Mon, 15 Apr at 2pm
PS Quiz 2	8	Fri, 5 Apr	Fri, 19 Apr at 9pm (extended)

Assignment submission Turnitin type

This is not a Turnitin assignment

Design Portfolio

Assessment Overview

Students will complete aspects of the preliminary design of some or all of a chemical process plant. Their design will be documented through a series of deliverables that will apply the content covered in previous weeks. As part of this process, students will complete an in-class peer review exercise so that students will receive and reflect on feedback before submission. Students will also complete peer evaluations for any team-based components to provide feedback to their team mates and moderate grades.

Course Learning Outcomes

- CLO1 : Prepare engineering drawings of sufficient detail for the preliminary design stages of an engineering project
- CLO2 : Develop budgetary cost estimates, discounted cash flow analyses and economic indicators to make decisions about chemical engineering projects using standard cost

estimating methods.
- CLO3 : Systematically identify, assess and control hazards in process plants using standard process safety approaches.
- CLO4 : Use industry standard specialist software to simulate the performance and establish basic sizing of a range of common unit operations

Assessment Length

Please refer to Design brief on Moodle

Submission notes

All submissions will be through Moodle.

Assessment information

Task	Marks	Due
Peer review materials 1	1	Wed, 28 Feb at 6pm
Peer review report 1	2	Fri, 1 Mar at 6pm
Deliverable 1	12	Wed, 6 Mar at 6pm
Peer review materials 2	1	Wed, 27 Mar at 6pm
Peer review report 2	2	Fri, 5 Apr at 6pm
Deliverable 2	12	Wed, 10 Apr at 6pm
Peer review materials 3	1	Wed, 17 Apr at 6pm
Peer review report 3	2	Fri, 19 Apr at 6pm
Deliverable 3	17	Sun, 21 Apr at 6pm

Marks for the Design Portfolio will be adjusted based upon the Team Evaluations. More details on the process and how marks will be adjusted can be found in the Design Portfolio brief (on Teams and Moodle). The week for the Team Evaluation are as follows: Week 4, 8, 9* and 11.

* to reduce workload, if you are doing both CEIC3004 + CEIC3005 you will have the option to complete a new evaluation in Week 9, or to use the same Week 8 Evaluation for Week 9.

Assignment submission Turnitin type

Not Applicable

Final exam

Assessment Overview

Students will complete an exam on the Design Documentation, Process Risk & Safety, and Process Economics components to assess their competency in these topic areas.

Course Learning Outcomes

- CLO1 : Prepare engineering drawings of sufficient detail for the preliminary design stages of an engineering project
- CLO2 : Develop budgetary cost estimates, discounted cash flow analyses and economic indicators to make decisions about chemical engineering projects using standard cost estimating methods.
- CLO3 : Systematically identify, assess and control hazards in process plants using standard process safety approaches.

Assessment Length

2 hours

Submission notes

The exam will be completed in-person.

Assignment submission Turnitin type

Not Applicable

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Homework	Complete Team Builder Survey - closes Sunday 11 Feb 6pm
	Seminar	DD Seminar 1: Course Introduction & Process Plant Design DD Seminar 2: Chemical Process Diagrams (includes workshop on research literature and standards)
	Workshop	DD Workshop: Constructing Chemical Process Diagrams (BFDs and PFDs)
	Laboratory	Process Simulation Module 1
	Studio	Design Studio: Team building and planning exercises (Gantt chart)
Week 2 : 19 February - 25 February	Seminar	DD Seminar 3 and 4: Piping and Instrumentation Diagrams (P&ID)
	Workshop	DD Workshop 2: Piping and Instrumentation Diagrams (P&ID)
	Laboratory	Process Simulation Module 1 (repeated)
	Studio	Design Studio: Development of BFD and MEB
Week 3 : 26 February - 3 March	Seminar	PE Seminar 1: Intro to Process Economics. Cost estimation PE Seminar 2: Cash flows, financing and Leasing
	Workshop	PE Workshop: Preparing cost estimates and cash flow analyses
	Laboratory	Process Simulation Module 2
	Studio	Design Studio: In-class peer review of preliminary BFD and MEB
Week 4 : 4 March - 10 March	Seminar	PE Seminar 3: Time value of money PE Seminar 2: Cash Flows, Financing and Leasing
	Workshop	PE Workshop 2: Preparing cost estimates and cash flow analyses
	Laboratory	Process Simulation Module 2 (repeated)
	Studio	Design Studio: Developing your project cost estimates
Week 5 : 11 March - 17 March	Seminar	PE Seminar 5: Inflation and Depreciation PE Seminar 6: Taxation, modelling & risk
	Workshop	PE Workshop 3: Economic evaluation and decision making
	Laboratory	Process Simulation Module 3
	Studio	Design Studio: Developing your project business case
Week 6 : 18 March - 24 March	Blended	Flexi-week
Week 7 : 25 March - 31 March	Seminar	PRS Seminar 1: Introduction to PRS PRS Seminar 2: HAZID + Risk register
	Workshop	PRS Workshop: Risk Register
Week 8 : 1 April - 7 April	Seminar	PRS Seminar 3: HAZOP PRS Seminar 4: Quantitative Risk Assessment
	Workshop	PRS Workshop 2: HAZOP
	Laboratory	Process Simulation Module 3 (repeated)
	Studio	Design Studio: In-class peer review of preliminary cost estimates
Week 9 : 8 April - 14 April	Seminar	PRS Seminar 5: Bowtie and LOPA PRS Seminar 6: Risk evaluation and safeguarding systems
	Workshop	PRS Workshop 3: QRA
	Laboratory	Process Simulation Module 4
	Studio	Design Studio: HAZOP Development
Week 10 : 15 April - 21 April	Seminar	DD Seminar 5: Plant Layout, Environmental Documentation and Machine Drawing DD Seminar 6: DD wrap & project workshop
	Workshop	DD Workshop 3: project/final exam practice
	Laboratory	Process Simulation Module 4 (repeated)
	Studio	Design Studio: In-class peer review

Attendance Requirements

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

Course Resources

Prescribed Resources

Videos, lecture slides and suggested readings, exercises and solutions, plus links to other online resources will be provided on the course Moodle page (http://moodle.telt.unsw.edu.au/). These will be progressively released as the term progresses.

Recommended Resources

There is no set textbook for this course. However, the following texts will be helpful resources in completing the learning activities in this course, additional resources are posted on Moodle.

Other resources

ASPEN Plus is available in the School of Chemical Engineering computer laboratories (Rooms M03 in the Chemical Sciences Building). ASPEN Plus and @Risk are available online through https://www.myaccess.unsw.edu.au/.

You can access the full text of online resources available from the UNSW library using the UNSW VPN Service (https://www.myit.unsw.edu.au/services/students/remote-access-vpn).

Visio Professional 2021. Can be accessed through Microsoft Azure Platform https://azureforeducation.microsoft.com/devtools

Study space for project courses

Students enrolled in selected project- and laboratory-based courses are granted access to Room 102 on Level 1 of the Science and Engineering Building (Map Ref. E8). Access to this space is subject to the following conditions:

- Students must follow any directions from teaching and technical staff.
- This space is provided for private study and/or small group project meetings related to courses taught by the School of Chemical Engineering.
- Some classes have booked this space and students should vacate the space during these classes.
- Students using the space are expected to leave the space in the same or better condition than they found it. Keeping this in mind, limited consumption of food and drink is permitted.

Failure to observe any of these conditions may result in your access being revoked.

Course Evaluation and Development

We want your feedback on this course whether positive or negative. You can provide verbal or written feedback directly to lecturers, through our course's anonymous feedback forum or through the University's myExperience survey.

Feedback we received from previous offerings has resulted in us

- Coordinating due dates with all year three courses (CEIC3004, CEIC3005, CEIC3000). All year 3 lecturers have a shared communication channel to ensure consistent communication and best align assesment timing.
- Changed the due date of the design portfolio to before the Studio so that Studio time can be spent working toward upcoming deliverables.
- Reducing the number of forums on the Moodle page to make it easier to track conversations and announcements. This was further improved by switching to Microsoft Teams as our main communications platform.
- Simplifying the assessment of the course (e.g. getting rid of the mid-session, having a single stream of quizzes and having one design assignment over the whole term).
- Splitting the design assignment from a single report into a portfolio of connected tasks.
- Reorganising the course structure into a block mode, so that class time is focused on one area at a time. Further, the Process Simulation area has now been spread across the whole term to give students more time to digest and practice the content.
- Dedicating part of class time for a design studio to provide specific guidance and practice on applying course content in the context of the design assignment.
- Rearranging class time to reduce the length of lectures/seminars, increase the length of the studios and add a dedicated workshop for practicing course content separate from the design portfolio.
- Streamlining lecturers so there is a separation between CEIC3004 and CEIC3005 teaching staff.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lecturer	Peter Neal		Hilmer (E10) 216		Via Teams	No	No
Convenor	Sarah Grundy		SEB (E8) 433		Via Teams	No	Yes
Lecturer	Yasemin Fadil		n/a		Via Teams	No	No

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- Attendance
- UNSW Email Address
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Equitable Learning Services

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: https://www.unsw.edu.au/engineering/student-life/student-resources/program-design.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

Engineering Student Support Services – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

Engineering Industrial Training – Industrial training questions

UNSW Study Abroad – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School-specific Information

Course Workload

Course workload is calculated using the Units-Of-Credit (UOC). The normal workload expectation for one UOC is approximately 25 hours per term. This includes class contact hours, private study, other learning activities, preparation and time spent on all assessable work.

Most coursework courses at UNSW are 6 UOC and involve an estimated 150 hours to complete, for both regular and intensive terms. Each course includes a prescribed number of hours per week (h/w) of scheduled face-to-face and/or online contact. Any additional time beyond the prescribed contact hours should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations. Most 6 UoC courses will involve approximately 10-12 hours per week of work on your part. If you're not sure what to do in these hours of independent study, the resources on the UNSW Academic Skills pages offer some suggestions including: making summaries of lectures, read/ summarise sections from the textbook, attempt workshop problems, reattempting workshop problems with some hints from the solutions, looking for additional problems in the textbook.

Full-time enrolment at university means that it is a *full-time* occupation for you and so you would typically need to devote 35 hours per week to your studies to succeed. Full-time enrolment at university is definitely incompatible with full-time employment. Part-time/casual employment can certainly fit into your study schedule but you will have to carefully balance your study obligations with that work and decide how much time for leisure, family, and sleep you want left after fullfilling your commitments to study and work. Everyone only gets 168 hours per week; overloading yourself with both study commitments and work commitments leads to poor outcomes and dissatisfaction with both, overtiredness, mental health issues, and general poor quality of life.

On-campus Class Attendance

Most classes at UNSW are "In Person" and run in a face-to-face mode only. Attendance and

participation in the classes is expected. As an evidence-driven engineer or scientist, you'll be interested to know that education research has shown students learn more effectively when they come to class, and less effectively from lecture catch-up recordings. If you have to miss a class due to illness, for example, we expect you to catch up in your time, and within the coming couple of days.

For most courses that are running in an "in person" mode:

- Lectures are normally recorded to provide an opportunity to review material after the lecture; lecture recordings are not a substitute for attending and engaging with the live class.
- Workshops/tutorials are not normally recorded as the activities that are run within those sessions normally cannot be captured by a recording. These activities may also include assessable activities in some or all weeks of the term.
- Laboratories are not recorded and require in-person attendance. Missing laboratory sessions may require you to do a make-up session later in the term; if you miss too many laboratory sessions, it may be necessary to seek a Permitted Withdrawal from the course and reattempt it next year, or end up with an Unsatisfactory Fail for the course.
- Assessments will often require in-person attendance in a timetabled class or a scheduled examination.

Submission of Assessment Tasks

In the School of Chemical Engineering, all written work will be submitted for assessment via Moodle unless otherwise specified. Attaching cover sheets to uploaded work is *not* required unless specifically requested for a specific assessment task; when you submit work through Moodle for assessment you are agreeing to uphold the Student Code.

Some assessments will require you to complete the work online and it may be difficult for the course coordinator to intervene in the system after the due date. You should ensure that you are familiar with assessment systems well before the due date. If you do this, you will have time to get assistance before the assessment closes.

All submissions are expected to be neat and clearly set out. Your results are the pinnacle of all your hard work and should be treated with respect. Presenting results clearly gives the marker the best chance of understanding your method; even if the numerical results are incorrect. Please make it easy for the markers who are looking at your work to see your achievement and give you due credit.

Marking guidelines for assignment submissions will be provided at the same time as assignment details to assist with meeting assessable requirements. Submissions will be marked according

to the marking guidelines provided.

Academic Integrity

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage (International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013). At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and plagiarism can be located at:

- The Current Students site
- The ELISE training site

The Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct.

To help describe what we are looking for, here are some things that we consider to be quite acceptable (even desirable!) actions for many assessments, and some that we consider to be unacceptable in most circumstances. Please check with the instructions for your assessments and your course coordinator if you're unsure. As a rule of thumb, if you don't think you could look the lecturer in the eye and say "this is my own work", then it's not acceptable.

Acceptable actions

 reading/searching through material we have given you, including lecture slides, course notes, sample problems, workshop problem solutions

 reading/searching lecture transcripts

 reading/searching resources that we have pointed you to as part of this course, including textbooks, journal articles, websites

 reading/searching through your own notes for this course

 all of the above, for any previous courses

 using spell checkers, grammar checkers etc to improve the quality of your writing

 studying course material with other students

Unacceptable actions

 asking for help completing an assessment from other students, friends, family

 asking for help on Q&A or homework help websites

 searching for answers to the specific assessment questions online or in shared documents

 copying material from any source into your answers

 using generative AI tools to complete or substantially complete an assessment for you

 paying someone else to do the assessment for you

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism. Further information about referencing styles can be located at https://student.unsw.edu.au/referencing.

For assessments in the School of Chemical Engineering, we recommend the use of referencing software such as Mendeley or EndNote for managing references and citations. Unless required otherwise specified (i.e. in the assignment instructions) students in the School of Chemical Engineering should use either the APA 7th edition, or the American Chemical Society (ACS) referencing style as canonical author-date and numbered styles respectively.

Artificial intelligence tools such as ChatGPT, CodePilot, and built-in tools within Word are modern tools that are useful in some circumstances. In your degree at UNSW, we're teaching you skills that are needed for your professional life, which will include how to use AI tools responsibly plus lots of things that AI tools cannot do for you. AI tools already are (or will soon be) part of professional practice for all of us. However, if we were only teaching you things that AI could do, your degree would be worthless, and you wouldn't have a job in 5 years.

Whether the use of AI tools in an assessment is appropriate will depend on the goals of that assessment. As ever, you should discuss this with your lecturers – there will certainly be assessments where the use of AI tools is encouraged, as well as others where it would interfere with your learning and place you at a disadvantage later. Our goal is to help you learn how to ethically and professionally use the tools available to you. To learn more about the use of AI, see

this discussion we have written where we analyse the strengths and weaknesses of generative AI tools and discuss when it is professionally and ethically appropriate to use them.

While AI may might provide useful tools to help with some assessments, UNSW's policy is quite clear that taking the output of generative AI and submitting it as your own work will never be appropriate, just as paying someone else to complete an assessment for you is serious misconduct.

Asking Questions

Asking questions is an important part of learning. Learning to ask good questions and building the confidence to do so in front of others is an important professional skill that you need to develop. The best place to ask questions is during the scheduled classes for this course, with the obvious exception being questions that are private in nature such as special consideration or equitable learning plans. Between classes, you might also think of questions — some of those you might save up for the next class (write them down!), and some of them you might ask in a Q&A channel on Teams or a Q&A forum on Moodle. Please understand that staff won't be able to answer questions on Teams/Moodle immediately but will endeavour to do so during their regular working hours (i.e. probably not at midnight!) and when they are next working on this particular course (i.e. it might be a day or two). Please respect that staff are juggling multiple work responsibilities (teaching more than one course, supervising research students, doing experiments, writing grants, …) and also need to have balance between work and the rest of their life.

School Contact Information

For assistance with enrolment, class registration, progression checks and other administrative matters, please see the Nucleus: Student Hub. They are located inside the Library – first right as you enter the main library entrance. You can also contact them via http://unsw.to/webforms or reserve a place in the face-to-face queue using the UniVerse app.

For course administration matters, please contact the Course Coordinator.

Questions about the this course should normally be asked during the scheduled class so that everyone can benefit from the answer and discussion.