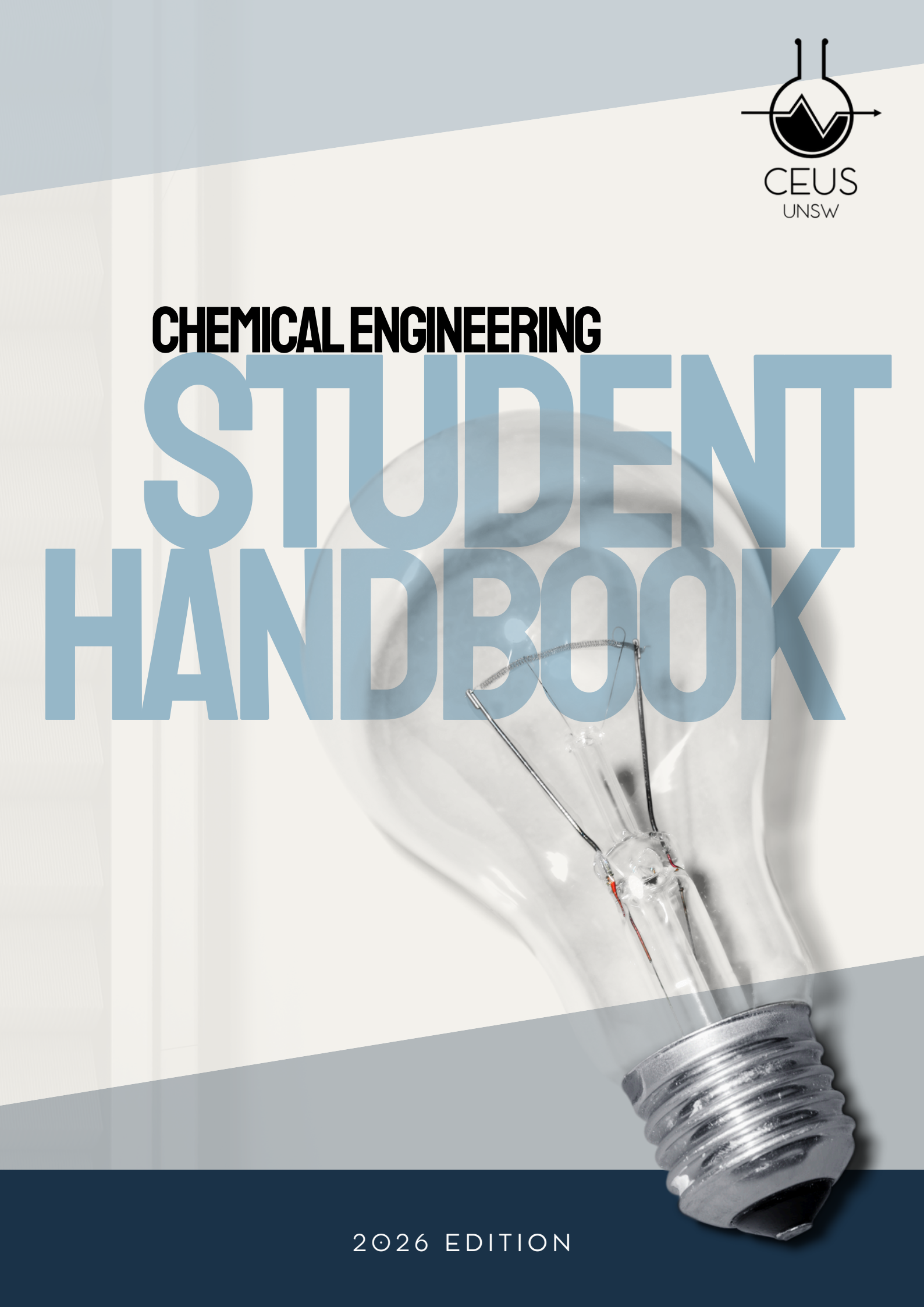
CEUS
UNSW

CHEMICAL ENGINEERING STUDENT HANDBOOK



2026 EDITION

INTRODUCTION

Welcome to the 2026 Chemical Engineering Undergraduate Society (CEUS) Student Handbook. On behalf of CEUS, congratulations on joining the UNSW Chemical Engineering and Chemical Product Engineering community!

This resource has been developed by the 2021 CEUS Executive Team then reviewed and edited by the 2026 CEUS Executive Team, specially curated to give students studying Chemical Engineering or Chemical Product Degrees a collective guide on how to structure their degree as well as how to maximise the opportunities the faculty provides

In this handbook you will find suggested degree structures, course information, exchange subjects, and practical advice to help you navigate your studies and curate the best possible university experience for yourself.

University life can be both exciting and overwhelming, particularly in a demanding program such as Chemical or Chemical Product Engineering. Whether you are just starting this degree or approaching its final years, we hope this handbook serves as a reliable point of reference and a good starting point for your own digging.

This is a continuous document and will be updated regularly. For more careers related information, make sure to check out our Careers Handbook.

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Disclaimer

Please note, whilst all due care has been taken in collecting this information and ensuring that the material is correct at the time of publishing, it is still based primarily on collective experiences and may be biased. Information obtained from public websites may change without notice. Course structures for future terms may change due to curriculum edits.

The Chemical Engineering Undergraduate Society of UNSW takes no responsibility for any errors and any such reliance upon them.

We suggest students planning their degree double check term availabilities and prerequisites on the UNSW website.

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ALL ABOUT YOUR DEGREE

YOUR GUIDE TO CHEM ENG, CHEM PRODUCT, DOUBLE DEGREES AND TIMETABLING

SUGGESTED DEGREE STRUCTURES

IT'S HARD TO PLAN TRIMESTERS

Degree planning is painful, especially with trimesters.

To help navigate the UNSW website and plan your degree, we have put together some information about Units of Credit (UOC) and sample degree plans.

You can use websites like *https://notangles.devsoc.app/* to plan your trimester before class enrolments open!

UNITS OF CREDIT CRAP:

Most courses are worth 6 Units of Credit (UOC)

- Thesis A/B/C are worth 12 UOC altogether (so 4 UOC each)
- CEIC4001 Design Project is worth 12 UOC

Full-time enrolment for one year is defined as 48 UOC with at least one enrolment in each term.

Full-Time domestic students need to enrol in a minimum of 12 UOC each term, or 36 UOC across three standard terms with at least one course enrolment in each term.

CHEMICAL ENGINEERING [CEICAH]

(STARTING T1)

Course Code *(Term/s available)*

Year 1	Year 2	Year 3	Year 4
Term 1			
CHEM1811 *(T1)*	CEIC2000 *(T1)*	CEIC3000 *(T1)*	Thesis A
PHYS1121/1131 *(all)*	CEIC2001 *(T1)*	CEIC3004 *(T1)*	CEIC4001 *(T1)* *12 UoC
MATH1131/1141 *(all)*	MATH2018/19 *(all/T1)*	CEIC3005 *(T1)*	
Term 2			
CHEM1821 *(T2)*	CEIC2002 *(T2)*	CEIC3006 *(T2)*	Thesis B
MATH1231/1241 *(all)*	CEIC2005 *(T2)*	CEIC3007 *(T2)*	Depth Elective
ENG1811 *(all)*	General Education	CEIC4000 *(T2/T3)*	General Education
Term 3			
MATH2089 *(T1/T3)*	CEIC2007 *(T3)*	Industrial Training ENGG4999	Thesis C
DESN1000 *(T1/T3)*	DESN2000 *(T3)*		Breadth Elective
	CEIC3001 *(T3)*	Free Elective	Free Elective

- This is just an EXAMPLE course structure, you can move things around but be careful of prerequisites!
- You may leave Year 3 Term 3 empty to do your Industrial Training

NOTES:

- CEICAH students must take at least 6 UOC of depth electives, at least 6 UOC of breadth electives
- You must also take 12 UOC of Gen Ed electives and 12 UoC of free electives. These may be taken in any term.
- A small amount of these courses are available in the Summer Term which can help your degree progression and lighten the load in older years

CHEMICAL ENGINEERING [CEICAH] *(STARTING T3)*

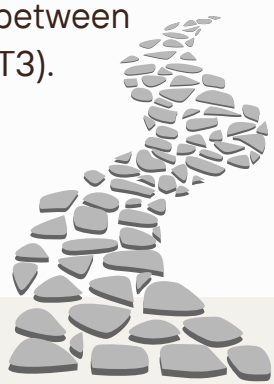
Course Code *(Term/s available)*

Year 1	Year 2	Year 3	Year 4	Year 5
Term 1				
	CHEM1811 *(T1)*	CEIC2000 *(T1)*	CEIC3000 *(T1)*	CEIC4001 *(T1)* *12 UoC
	MATH1231/1241 *(all)*	CEIC2001 *(T1)*	CEIC3004 *(T1)*	
	ENG1811 *(all)*		CEIC3005 *(T1)*	Thesis A
Term 2				
	CHEM1821 *(T2)*	CEIC2002 *(T2)*	CEIC3006 *(T2)*	Thesis B
	MATH2018 *(all)*	CEIC2005 *(T2)*	CEIC3007 *(T2)*	Depth Elective
	Free Elective	General Education	CEIC4000 *(T2/T3)*	Breadth Elective
Term 3				
PHYS1121/1131 *(all)*	MATH2089 *(T1/T3)*	CEIC2007 *(T3)*	Industrial Training ENGG4999	Thesis C
MATH1131/1141 *(all)*	General Education	DESN2000 *(T3)*		Free Elective
DESN1000 *(T1/T3)*		CEIC3001 *(T3)*		

FIRST YEAR TIPS

- MATH2089 is technically a level 2 course. However, we recommend taking it T3 of First Year instead of doing it alongside CEIC2000 and CEIC2001 (notorious for being difficult)
- We do not recommend doing T3 intake. If you can, wait until T1 the next year. This will ensure cohort cohesion - taking essentially the same courses with the same cohort throughout your degree.
- DESN1000 is a project-based course involving a lot of teamwork. It is recommended for CEICAH students to take it in T3. Projects are generally sorted by specialisation. The Chem Eng/Chem Product project differs between Term 1 and 3. When enrolling make sure to enrol in CR07 (T1) or CR04 (T3).

Alternative course arrangements can be found *here*!



CHEM ENG VS CHEM PRODUCT

Contrary to popular belief, chemical engineering does not involve a lot of chemistry. Instead, you apply the principles of chemistry and physics to large-scale production processes. If you're more interested in the chemistry-side of things or want to pursue product design and development, chemical product engineering is for you! It is similar to chemical engineering in 1st year then begins to diverge in 2nd year. It consists of 4 chemistry courses (whereas chem eng has one combined chemistry course), and core courses such as polymer chemistry and complex fluids and rheology, which very much focus on moresmall scale interactions (compared to chemical process engineering which is larger scale). The honours year consists of a product design project thesis A and B instead of a research thesis.

CHEMICAL PRODUCT ENGINEERING [CEICDH] *(STARTING T1)*

Course Code *(Term/s available)*

Year 1	Year 2	Year 3	Year 4
Term 1			
CHEM1811 *(T1)*	CEIC2000 *(T1)*	MATH2018/19 *(all/T1)*	Thesis A
PHYS1121/1131 *(all)*	CEIC2001 *(T1)*	CEIC3021 *(T1)*	CEIC6711 *(T1)*
MATH1131/1141 *(all)*	MATH2089 *(T1/T3)*	General Education	Discipline Elective
Term 2			
CHEM1821 *(T2)*	CEIC2002 *(T2)*	CEIC8104 *(T2)*	Thesis B
MATH1231/1241 *(all)*	CEIC2005 *(T2)*	CEIC4000 *(T2/T3)*	Discipline Elective
ENG1811 *(all)*	CHEM2021 *(T2)*	Free Elective	
Term 3			
CHEM2041 *(T1/T3)*	CHEM2031 *(T3)*	Industrial Training ENGG4999	Free Elective
DESN1000 *(T1/T3)*	DESN2000 *(T3)*		General Education
	CEIC3001 *(T3)*	CEIC3711 *(T3)*	

4TH YEAR THESIS

Your thesis project is made up of 3 subjects - **Thesis A, B, and C** (4 UoC each). They ***must*** be taken consecutively in that order.

Students in the Chemical Engineering stream take *Research Thesis* while Chemical Product students take *Product Design Thesis.*

1. ***Research Thesis*** *- you* ***must*** *identify a supervisor and project prior to commencing Thesis A*
2. ***Product Design Thesis*** *- You do not need to secure a supervisor before commencing Product Design Project Thesis A*

Contact your desired supervisor in Year 3 Term 2/3! You are required to pick a supervisor and topic to do over 3 terms but some projects will require you to start earlier (during the summer term).

Some things to note...

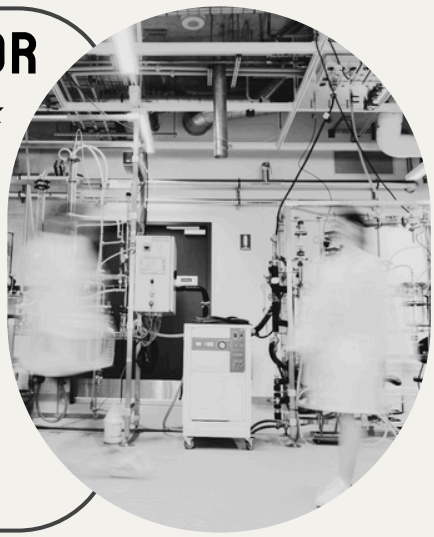
- Thesis A is typically started in the first term of 4th year
- Thesis A can by done with CEIC4001 but is NOT advised since they are both very time consuming...
- Thesis A/B/C can be done in the summer term, but you must consult your supervisor first (they could be on holiday!)
- Thesis B & C may be done together if you and your supervisor are confident (but not recommended)
- You can do thesis during industrial training but must discuss with supervisors who allow this (check Thesis Moodle Page)
- A common alternative is to extend your degree by a term and complete CEIC4001 in T1 of 5th year

CHOOSING A TOPIC AND SUPERVISOR

Pick a Thesis Topic that interests you the most. Think about...

What are you passionate about? Water, environment, energy, polymers, health, food science, process control?

What were your favourite courses, lab experiments or simulations?



Don't stress too much about picking a topic though!
All thesis topics will roughly follow the same techniques and methods. Plus, exploring a topic will give you insight into what you want and don't want to do in your career.

Look for a supervisor with shared interests and you have good chemistry with.
Talk to a variety of supervisors before you decide (they are all super friendly and keen to talk about their research topics). It is also good to discuss work style and expectations.

PSSST.. ANY THESIS HINTS?

The aim for Thesis A is to get all of your training done, so that you can start simulations/experiments in Thesis B.

Get a head start to lock in your supervisor!! Thesis is very self-guided, so

"make sure you are proactive not reactive"

CEUS has previously conducted interviews with students doing a variety of thesis projects. *Scan the QR code* to find out more about what challenges they faced and how to they got a head start!

FAQ WITH PAST THESIS STUDENTS!

TOMAS BEAK

My thesis topic is about designing catalysts for the methanation of CO2 in the Particles and Catalysis Research Unit at UNSW.

SEAN PAUL

My thesis topic was aimed at characterizing the effects bushfire and flooding have on water catchment systems, specifically in the Warragamba and Nepean Dams.

ADAM HALMY

My thesis topic is focused on investigating the speed that water molecules can flow over graphene sheets through molecular dynamics in energy storage applications

SOHINI CHAKRABARTI

My thesis topic was about utilising nanoparticles for drug delivery, in particular, formulating sugar-based nanoparticles for the delivery of chemotherapeutic drugs as part of WichLab UNSW.

By the end of thesis, when everybody is sick of it, it's the supervisor who counts, not the topic.

DOUBLE DEGREE STRUCTURES

As a student doing a double degree, it is often difficult to plan out your degree with all the prerequisites and limited term offerings for certain subjects. But don't worry because CEUS has got your back! Below are sample course structures for popular degrees that are done in conjunction with Chemical Engineering.

Chemical Eng/BioMed Eng

Black: Courses associated with Chemical Engineering

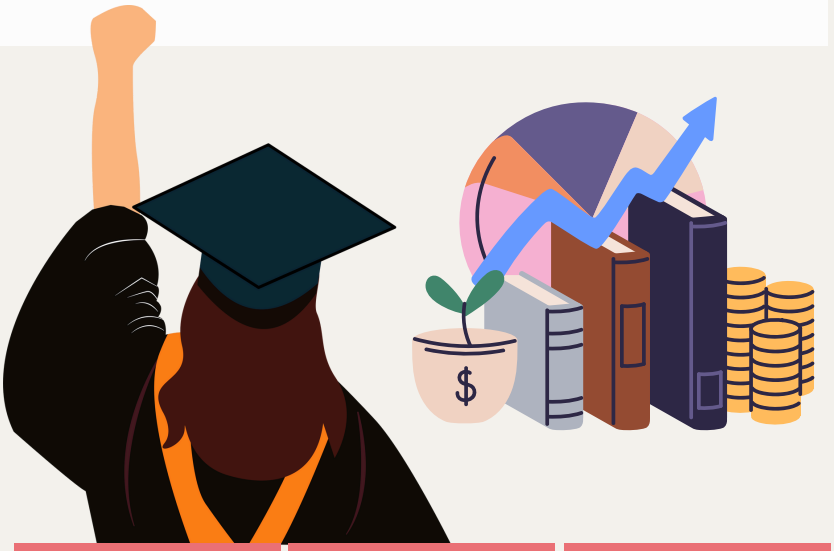
Yellow: Courses associated with Biomedical Engineering. Note that the majority of the Biomedical courses are electives. The full list of BIOM elective courses are available on the UNSW Handbook Website.

Year 1	Year 2	Year 3	Year 4	Year 5
Term 1				
CHEM1811 *(T1)*	CEIC2000 *(T1)*	CEIC3004 *(T1)*	CEIC4001 *(T1)* *12UOC	Biomed Course
PHYS1121/1131 *(all)*	CEIC2001 *(T1)*	CEIC3005 *(T1)*		Research Thesis A
MATH1131/1141 *(all)*	PHSL2121 *(T1)*	CEIC3000 *(T1)*	Biomed Course	BIOM9410 *(T1)*
Term 2				
CHEM1821 *(T2)*	CEIC2002 *(T2)*	CEIC3006 *(T2)*	BIOM9420 *(T2)*	Research Thesis B
ENGG1811 *(all)*	CEIC2005 *(T2)*	CEIC3007 *(T2)*	Breadth Elective	BIOM9332 *(T1)*
MATH1231/1241 *(all)*	MATH2018 *(all)*	CEIC4000 *(T2/T3)*	Biomed Course	Depth Elective
Term 3				
DESN1000 *(T1/T3)*	CEIC2007 *(T3)*	Biomed Course	Breadth Elective	Research Thesis C
MATH2089 *(T1/T3)*	DESN2000 *(T3)*	Biomed Course	Biomed Course	Industrial Training ENGG4999
	CEIC3001 *(T3)*	Free Elective	BIOM9311 *(T3)*	

Chemical Eng/Commerce

Black: Courses associated with Chemical Engineering

Yellow: Courses associated with Commerce. Note that for the Commerce degree, this template follows a Finance major. For other Commerce majors, see the UNSW Handbook.
Note: the mandatory WIL component of the Commerce degree will be met through the 60 days of Industrial Training as part of the Chemical Engineering degree.



Year 1	Year 2
Term 1	
CHEM1811 *(T1)*	CEIC2000 *(T1)*
DESN1000 (T1/T3)	CEIC2001 *(T1)*
COMM1100 *(all)*	MATH2089 *(T1/T3)*
Term 2	
CHEM1821 *(T2)*	CEIC2002 *(T2)*
MATH1131/1141 *(all)*	CEIC2005 *(T2)*
COMM1120 *(summer, all)*	COMM1140 *(all)*
Term 3	
PHYS1121/1131 *(all)*	CEIC2007 *(T3)*
ENGG1811 *(all)*	CEIC3001 *(T3)*
MATH1231/1241 *(all)*	MATH2018/19 *(all/T1)*

Year 3	Year 4	Year 5	Year 6
Term 1			
CEIC3004 *(T1)*	CEIC3000 *(T1)*	CEIC4001 *(T1)* *12UOC	Thesis A
CEIC3005 *(T1)*	FINS2615 *(all)*		Depth Elective
FINS1612 *(all)*	FINS2624 *(all)*		
Term 2			
COMM1150 *(all)*	CEIC3006 *(T2)*	CEIC3007 *(T2)*	Thesis B
COMM1170 *(all)*	CEIC4000 *(T2/T3)*	Finance Elective	Breadth Elective
COMM1180 *(all)*			
Term 3			
DESN2000 *(T3)*	FINS3616 *(all)*	Discipline Elective	Thesis C
COMM1190 *(all)*	Finance Elective	Finance Elective	Finance Elective
FINS2618 *(all)*			

Note: You're not required to take COMM1110 or ECON1202 if you're taking engineering math courses

Chemical Eng/Science

Structuring a double degree with chemical engineering and science is entirely dependent on the specific science major. Some science majors (e.g. Bioinformatics, Biotechnology, Genetics) have much higher required UOC's (up to 78), whilst others (e.g. Mathematics, Statistics, Pharmacology, Pathology, Physiology) have much lower required UOC's (down to 60).

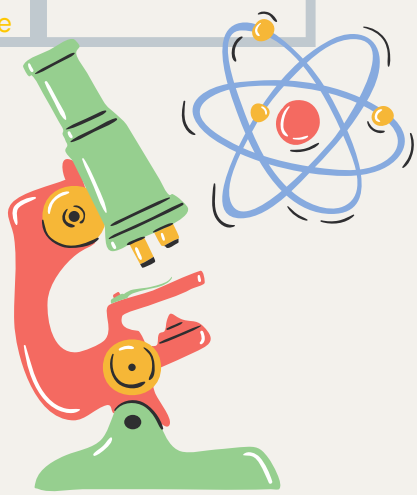
Black: Courses associated with Chemical Engineering

Yellow: Courses associated with Science. Note that for the Science degree, this template follows a Microbiology major. For other Science majors, see the UNSW Handbook. If you have any questions specific to certain majors, please don't hesitate to contact us (See the student contact sections below).

Year 1	Year 2	Year 3	Year 4	Year 5
Term 1				
CHEM1811 *(T1)*	CEIC2000 *(T1)*	CEIC3004 *(T1)*	CEIC3000 *(T1)*	CEIC4001 *(T1)* *12UOC
PHYS1121/1131 *(all)*	CEIC2001 *(T1)*	CEIC3005 *(T1)*	Level 3 Elective	
MATH1131/1141 *(all)*	MATH2018/19 *(all/T1)*	CHEM2041 *(T1/T3)*	Free Science Elective	Thesis A
Term 2				
CHEM1821 *(T2)*	CEIC2002 *(T2)*	CHEM2011 *(T2)*	CEIC3006 *(T2)*	Thesis B
ENGG1811 *(all)*	CEIC2005 *(T2)*	CHEM2021 *(T2)*	CEIC3007 *(T2)*	Employability Experience Course
MATH1231/1241 *(all)*		CEIC4000 *(T2/T3)*	Level 3 Elective	Depth Elective
Term 3				
DESN1000 *(T1/T3)*	CEIC2007 *(T3)*	CHEM2031 *(T3)*	Discipline Elective	Thesis C
MATH2089 *(T1/T3)*	CEIC3001 *(T3)*	Level 3 Elective	Level 3 Elective	Breadth Elective
SCIF1000 *(T3)*	DESN2000 *(T3)*		Employability Experience Course	

If you are doing Advanced Science, it's also worth sticking to this plan as your 6th year will be filled with three 16 UOC science honours courses, leaving no space to catch up on missed electives.

Remember to enroll in SCIF0000 and SCIF3010!!



Chemical Eng/Comp Sci

Black: Courses associated with Chemical Engineering

Yellow: Courses associated with Computer Science. Note that for the Computer Science degree, the default stream was used in creating this template. The five Computing electives that were chosen are only recommendations. The full list of Computing electives (any level 3, 4, 6 or 9 Computer Science course) is available on the UNSW Handbook Website.

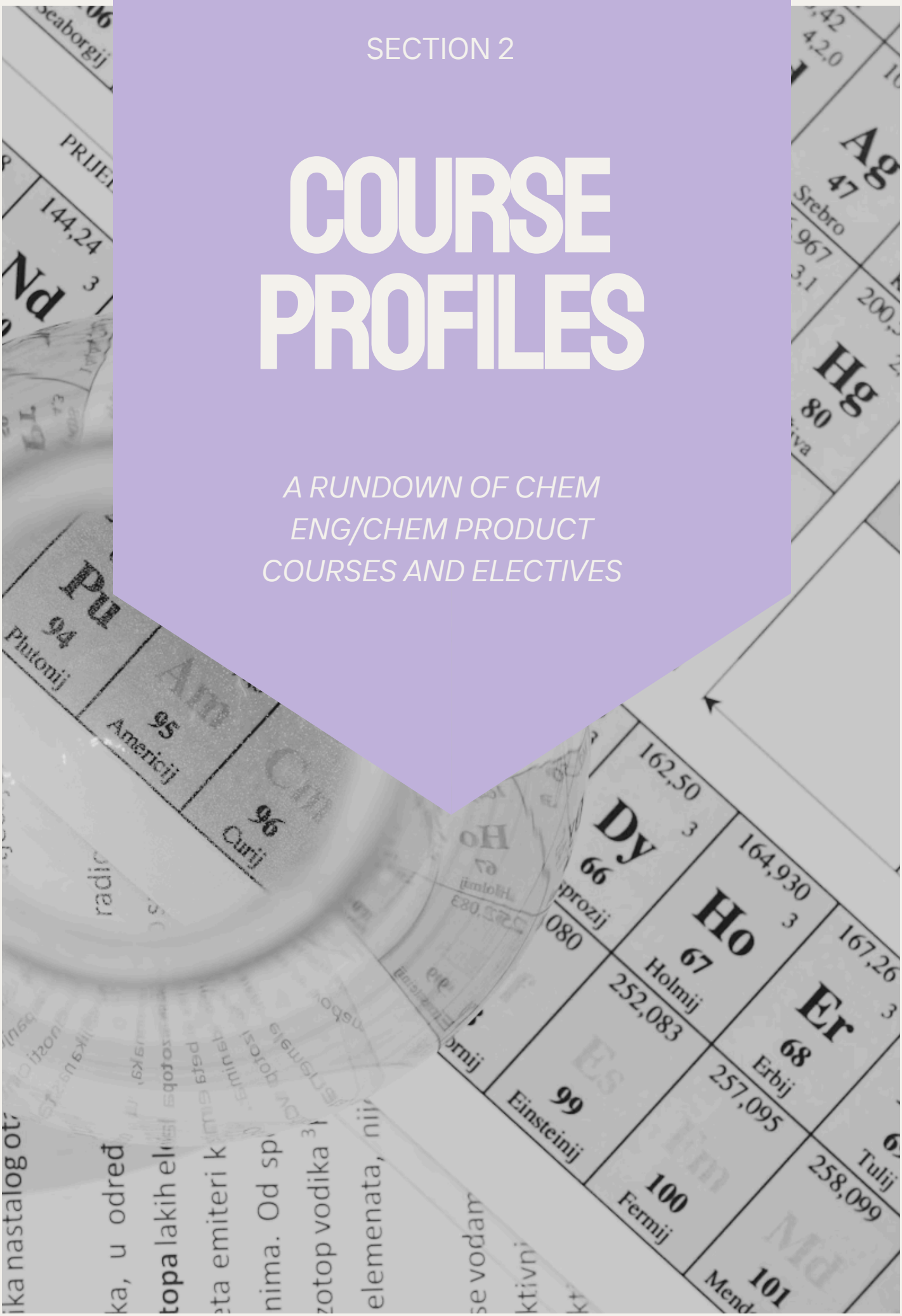
Year 1	Year 2	Year 3	Year 4	Year 5
Term 1				
CHEM1811 *(T1)*	CEIC2000 *(T1)*	CEIC3004 *(T1)*	CEIC4001 *(T1)* *12UOC	Thesis A
MATH1131/1141 *(all)*	CEIC2001 *(T1)*	CEIC3005 *(T1)*		Computing Elective
COMP1511 *(all)*	MATH2089* *(T1/T3)*	CEIC3000 *(T1)*	COMP4920 (T1/T3)	
Term 2				
CHEM1821 *(T2)*	CEIC2002 *(T2)*	COMP2511 *(all)*	CEIC3006 *(T2)*	Thesis B
PHYS1121/1131 *(all)*	CEIC2005 *(T2)*	Computing Elective	CEIC3007 *(T2)*	Depth Elective
MATH1231/1241 *(all)*	MATH2018/19 *(all/T1)*	COMP3121 *(all)*	Computing Elective	Computing Elective
Term 3				
COMP1521 *(all)*	CEIC2007 *(T3)*	DESN2000 *(T3)*	Breadth Elective	Thesis C
DESN1000 *(T1/T3)*	CEIC3001 *(T3)*	COMP3900 *(all)*	CEIC4000 *(T2/T3)*	Computing Elective
COMP1531 *(all)*	COMP2521 *(summer, all)*	Free Elective	Computing Elective	

* MATH2089 is the Level 2 Math Course that replaces MATH1081 as part of the Computer Science Major

SECTION 2

COURSE PROFILES

A RUNDOWN OF CHEM ENG/CHEM PRODUCT COURSES AND ELECTIVES



CORE COURSE PROFILES

Core courses are the foundation of UNSW's Chemical Engineering program and include everything from foundational knowledge in Maths and Physics through to Process Control and Engineering design courses. Keep an eye out on this as you plan your degree!

- Pre-requisites - must be taken before
- Co-requisites - can be taken at the same time
- Exclusions - Courses that can't be taken if you've already taken others
- Some courses are only offered in certain terms

Log in to myPlan for an easy way to check your progression online and see what courses you have left to complete.

CHEM1811

Engineering Chemistry 1A

Pre/Corequisites	Exclusions
none	CHEM1011 CHEM1031 CHEM1051 DPST1031

Terms Available: T1

COURSE OVERVIEW AND AIMS:

Fundamental chemistry concepts. Covers atom structure, chemical properties, bonding & molecular geometry, equilibrium, acids & bases, thermochemistry, and electrochemistry.

STYLE:

- Online lessens teach "threshold" basic content with accompanying online quiz per weekly basis - to be attempted before respective lecture
- "Mastery" lectures to cover further mastery content throughout the week.
- Weekly small group tutorials to go through questions
- Weekly 3-hour laboratory class to build "core" and "non-core" laboratory skills.

ASSESSMENTS:

- Weekly Threshold Quizzes: 8%
  - 10 multiple choice questions, online
  - each question corresponds to a threshold learning outcome covered in the online lesson
  - Must get 10/10 to receive the 1% course mark per quiz

- Laboratory Work: 20%
  - Tests practical lab skills
  - Mandatory pre-lab work on Moodle and in lab manual
  - Assessed on CORE skills and non-CORE skills
  - Must attend a minimum of 6/8 laboratory classes and obtain ALL core skills to meet the hurdle pass requirement for this course

- In-term Tests: 32%
  - Two tests, 16% each
  - multiple choice questions, drawn from the same question bank as the weekly threshold quizzes
  - Must achieve 15/20 in the test - opportunities to resit test before a deadline but mark will be capped at 15/20

- Final Exam: 40%
  - Tests mastery content
  - Online exam, typically 2hrs 10 minutes and consists of MCQ, short numerical and written answer responses
  - Attendance not an essential requirement for passing the course; no minimum mark required

CHEM1821

Engineering Chemistry 1B

Pre/Corequisites	Exclusions
Pre: CHEM1811	CHEM1021 CEIC1001 DPST1032 MATS1101 CHEM1041 CHEM1061

Terms Available: T2

COURSE OVERVIEW AND AIMS:

Builds on introductory chemistry concepts to explore the engineering aspects of chemistry. Covers organic/inorganic chemistry, investigating topics such as kinetics, control of reactions, structure determination, stereochemistry, main group chemistry, transition metal chemistry, and the chemistry of organic compounds

STYLE:

- Online lessens teach "threshold" basic content with accompanying online quiz per weekly basis - to be attempted before respective lecture
- "Mastery" lectures to cover further mastery content throughout the week.
- Weekly small group tutorials to go through questions
- Weekly 3-hour laboratory class to build "core" and "non-core" laboratory skills.

ASSESSMENTS:

- Weekly Threshold Quizzes: 8%
  - 10 multiple choice questions, online
  - each question corresponds to a threshold learning outcome covered in the online lesson
  - Must get 10/10 to receive the 1% course mark per quiz

- Laboratory Work: 20%
  - Tests practical lab skills
  - Mandatory pre-lab work on Moodle and in lab manual
  - Assessed on CORE skills and non-CORE skills
  - Must attend a minimum of 6/8 laboratory classes and obtain ALL core skills to meet the hurdle pass requirement for this course

- In-term Tests: 32%
  - Two tests, 16% each
  - multiple choice questions, drawn from the same question bank as the weekly threshold quizzes
  - Must achieve 15/20 in the test - opportunities to resit test before a deadline but mark will be capped at 15/20

- Final Exam: 40%
  - Tests mastery content
  - Online exam, typically 2hrs 10 minutes and consists of MCQ, short numerical and written answer responses
  - Attendance not an essential requirement for passing the course; no minimum mark required

MATH1131/41

Mathematics/ Higher Mathematics 1A

Pre/Corequisites	Exclusions
none	MATH1151 ECON1202 DPST1013

Terms Available: T1, T2, T3

COURSE OVERVIEW AND AIMS:

The course introduces the theorems and definitions on which Calculus is built and vectors, matrices and Gaussian elimination which will form the basis for the study of Linear Algebra
This course also introduces the use of Maple math software.

MATH1141, has greater depth and a greater emphasis on proof and rigorous argument than MATH1131.

STYLE:

- Two streams of in-person lectures, for calculus and algebra (recorded)
- Option for pre-recorded lectures
- Online, Maple TA tutorials, self-paced, with deadlines
- Classroom tutorials covering questions - calculus/algebra divide up to discretion of tutor

ASSESSMENTS:

- Weekly Lesson Quizzes: 10%
  - online self-paced lessons for algebra, calculus, and Maple
  - Unlimited attempts
  - Best 6 out of 9 Weekly Lessons will be counted towards your final grade

- Lab Tests: 30%
  - 2 in-person lab tests conducted on Mobius, 15% each
  - You will be provided with the test question bank on mobius
  - Both tests will provide the Algebra, Calculus, Maple course notes + Maple self-paced lessons
  - Lab Test 1 will require NO Maple, only “pen and paper” calculations
  - Lab Test 2 will require Maple for some questions

- Assignment: 10%
  - Assesses mathematical writing and communication
  - Produce and explain solutions to a set of questions
  - Typed solutions using software such as equation writer in Microsoft Word or Latex

- Final Exam: 50%
  - 2 hour exam conducted on Mobius
  - Consists of seen (from provided question banks) and unseen question

MATH1231/41

Mathematics/ Higher Mathematics 1B

Pre/Corequisites	Exclusions
Pre: MATH1131 or MATH1141 or DPST1013	MATH1251

Terms Available: T1, T2, T3

COURSE OVERVIEW AND AIMS:

The course introduces the theorems and definitions on which Calculus is built and vectors, matrices and Gaussian elimination which will form the basis for the study of Linear Algebra
This course also introduces the use of Maple math software.

MATH1141, has greater depth and a greater emphasis on proof and rigorous argument than MATH1131.

STYLE:

- Two streams of in-person lectures, for calculus and algebra (recorded)
- Option for pre-recorded lectures
- Online, Maple TA tutorials, self-paced, with deadlines
- Classroom tutorials covering questions - calculus/algebra divide up to discretion of tutor

ASSESSMENTS:

- Weekly Lesson Quizzes: 10%
  - online self-paced lessons for algebra, calculus, and Maple
  - Unlimited attempts
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- Lab Tests: 30%
  - 2 in-person lab tests conducted on Mobius, 15% each
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  - Lab Test 2 will require Maple for some questions

- Assignment: 10%
  - Assesses mathematical writing and communication
  - Produce and explain solutions to a set of questions
  - Typed solutions using software such as equation writer in Microsoft Word or Latex

- Final Exam: 50%
  - 2 hour exam conducted on Mobius
  - Consists of seen (from provided question banks) and unseen question

DESN1000

Introduction to Engineering Design & Innovation

Pre/Corequisites	Exclusions
none	DPST1071

Terms Available: T1, T3

COURSE OVERVIEW AND AIMS:

Familiarise with the engineering design process and the use of design methods to generate solutions for an open-ended design problem. Also develop professional skills, such as technical writing, public speaking, teamwork and project management.

STYLE:

- Selection of a project, and placement into a group
- Lectures pertaining to project based concepts
- Variable between different projects
- Class sessions to work on project (reports, presentations, etc.)

ASSESSMENTS:

Variable between different projects but in general,

- Individual design journal - entries assessed separately
- Presentations, Design Proposal, Final Report

ENG1811

Computing for Engineers

Pre/Corequisites	Exclusions
Enrolment in non-CSE major (no BINF, COMP, SENG)	COMP1010

Terms Available: T1, T2, T3

COURSE OVERVIEW AND AIMS:

Introduction to computing for engineers with an emphasis on computational problem solving. Students will learn to use the Python programming language and some its many packages to solve problems.

STYLE:

- Lectures teaching coding concepts and principles, with example problems and code
- Weekly lab work, to practice problem solving and develop coding skills, in style, understanding, and efficiency of code

ASSESSMENTS:

- Weekly Labs: 20%
  - 8 labs, marked out of 3 marks
  - Based on Python
  - 1 mark from a one attempt multiple choice question, two for lab work
  - Coding question provided at the beginning of the week, must explain and show working code to tutors
  - 2 self-directed labs (virtual) marked out of 2 marks (MATLAB and Excel)
- Assignments: 40%
  - Two assignments, each 20%
- Final Exam: 40%

PHYS1121/1131

Physics/Higher Physics 1A

Pre/Corequisites	Exclusions
Co: MATH1131 or DPST1013 or MATH1141 or MATH1151 or MATH1011 or MATH1031	DPST1021 DPST1023 PHYS9120

Terms Available: T1, T2, T3

COURSE OVERVIEW AND AIMS:

An introductory course for physics. Covers mechanics (motion, dynamics, work, energy, momentum) thermodynamics (first law, kinetic theory, ideal gas laws) and waves (oscillations, energy, sound waves)

STYLE:

- Pass/fail - does not contribute to WAM
- Two 2-hour in-person lectures weekly (recorded) or asynchronous
- Optional 2-hour weekly workshop with tutors to cover advanced questions and solutions (get help understanding concepts)
- One 3-hour weekly laboratory session with prelab work
- Weekly homework quizzes covering the previous week's lecture material (unmarked, but important for lab tests)

ASSESSMENTS:

- Laboratory Experiments: 20%
  - Mandatory pre-lab work on Moodle - must score at least 50%
  - Written answer questions in lab manual, to be marked during lab
  - Each lab is marked out of 1 - must score 5/6 to pass the course

- Lab Tests: 80%
  - 2 invigilated lab tests, 40% each
  - Must score at least 50%
  - 3 attempts per lab test
  - Questions drawn from weekly online quiz question bank

MATH2089

Numerical Methods & Statistics

Pre/Corequisites	Exclusions
Pre: MATH1231 or MATH1241 or MATH1251 or DPST1014	BEES2041 MATH2301 CVEN2002 MATH2801 ECON3209 MATH2859 MATH2099 MATH2901

Terms Available: T1, T3

COURSE OVERVIEW AND AIMS:

Introduction to Numerical Methods & Statistics.
Numerical methods (NM) - computational methods, numerical differentiation, integration, interpolation and curve fitting (regression analysis). Solution of linear and nonlinear algebraic equations.
Statistics - Exploratory data analysis. Probability and distribution theory, elements of statistical inference, simple linear regression, and analysis of variance.

STYLE:

- Numerical Methods:
  - Weekly lectures (recorded online) and accompanying quiz
  - Weekly Tutorial (MATLAB/Python)
- Statistics:
  - Weekly pre-recorded lecturers on Mobius and accompanying quiz
    - Mandatory - you receive marks for completing the videos
  - Weekly Tutorial (MATLAB/Python)

ASSESSMENTS:

- Weekly Online Quizzes: 20%
  - 10% each for NM & Statistics
- Stats Mid Term Test: 10%
  - Week 7, conducted on Mobius
  - questions derived from question bank, practice test available
- NM Tests: 10%
  - 2 tests conducted on Mobius - Week 5 and Week 9
  - questions derived from question bank, practice test available
- Final Exam: 60%
  - 2 hours to complete separate NM and Statistics sections

MATH2018/19

Engineering Mathematics 2D/2E

Pre/Corequisites	Exclusions
Pre: MATH1231 or MATH1241 or MATH1251 or DPST1014	MATH2011 MATH2111 MATH2121 MATH2221

Terms Available: T1, T2, T3 - MATH2019 is only available in T1

COURSE OVERVIEW AND AIMS:

An extension of calculus and algebraic concepts. A focus on applied mathematics exploring a range of core ideas for Engineering students, including partial differentiation, vector algebra, vector field theory, matrices, Laplace transforms, and more.

STYLE:

- MATH2018 is taught completely online while MATH2019 has live lectures
- Weekly lectures
- Weekly tutorials (MATH2019)

ASSESSMENTS:

- Weekly Online Quizzes: 10%
  - Conducted on Mobius
- Lab Tests: 30%
  - 2 tests, 15% each
  - Week 5 and Week 9
  - Questions will typically be similar in style to the Weekly Online Quiz questions.
- Final Exam: 60%

CEIC2000

Material and Energy Systems

Pre/Corequisites	Exclusions
Pre: (PHYS1121/31 OR DPST1021/23), (MATH1231/41/51 OR DPST1014)	none

Terms Available: T1

COURSE OVERVIEW AND AIMS:

You will learn how to apply thermodynamic concepts with material and energy balances to chemical process problems involving several unit operations and involving chemical reactions.

STYLE:

- Lectures to cover content
- Weekly tutorial and workshop

ASSESSMENTS:

- In-term tests: 30%
  - 2 tests, week 4(10%) and week 8 (20%)
  - hardcopy, on paper test
- Test self-assessment: 5%
  - Assess your own in-term tests against marking criteria and solutions
- Design Assignments: 20%
  - group task
  - complete design exercises involving the selection, application and judgement in the use of models and concepts
- Final Exam: 45%

CEIC2001

Fluid & Particle Mechanics

Pre/Corequisites	Exclusions
Pre: (PHYS1121/31 OR DPST1021/23), (MATH1231/41/51 OR DPST1014)	none

Terms Available: T1

COURSE OVERVIEW AND AIMS:

Students will learn to describe fluid and particle properties, understand fluid statics and dynamics, and apply this knowledge to real-world systems involving pipes, pumps, and other equipment.

STYLE:

- Lectures to cover content
- Weekly tutorial and workshop

ASSESSMENTS:

- Tests and Reflection: 60%
  - 3 tests, peer feedback, and reflection in weeks 2, 5, and 8
- Practical Report: 20%
  - group task spanning the entire term
- Final Exam: 20%

CEIC2002
Heat and Mass Transfer

Pre/Corequisites	Exclusions
Pre: CEIC2001	none

Terms Available: T2

COURSE OVERVIEW AND AIMS:

The aim of this course is to develop your understanding of the various modes of heat transfer and mass transfer phenomena.

STYLE:

- Weekly lectures to cover content
- Weekly workshop

ASSESSMENTS:

- Quiz 1: 10%
  - Split into weeks 1-4, content on Heat Transfer
- Mid-Sem Examination: 40%
  - Content on Heat Transfer
- Quiz 2: 10%
  - Split into weeks 7-10, content on Mass Transfer
- Final Exam: 40%
  - Content on Mass Transfer

CEIC2005
Chemical Reaction Engineering

Pre/Corequisites	Exclusions
Pre: CEIC2000, MATH2089/2301	none

Terms Available: T2

COURSE OVERVIEW AND AIMS:

Students will learn how to use thermodynamics to determine if a given reaction is possible, how to use reaction kinetic models to determine how fast a reaction is, and to develop mathematical models, design equations, to simulate the progress of chemical reactions in a variety of reactor types.

STYLE:

- Lectures to cover content
- Problem solving workshops
- Weekly tutorials

ASSESSMENTS:

- Online Quizzes: 10%
  - Weeks 3, 5, 8, 10 on Moodle
- Assignments: 20%
  - Weeks 5 & 10, divided into two parts both worth 10%
- Team Project: 20%
  - Assessed weeks 4, 7 & 10, with weekly tasks due
- Final Exam: 50%

CEIC2007
Chemical Engineering Lab A

Pre/Corequisites	Exclusions
Pre: CEIC20012, CEIC2005	none

Terms Available: T3

COURSE OVERVIEW AND AIMS:

Working in small groups, you will consolidate your understanding of basic chemical engineering principles and develop your skills in planning and conducting experiments and also in data acquisition, presentation and analysis. Through accompanying cycles of communicating findings and receiving frequent feedback, you will improve your writing, presentation and critical analytical skills.

STYLE:

- Weekly Online Pre-labs
- Weekly in class Labs

ASSESSMENTS:

- Individual Pre-lab & Post-lab Interviews: 42%
  - 7 Interviews, 6% each
  - Short questions to assess understanding of each lab
- Short Reports: 21%
  - 3 Team Technical Reports, 7% each
- Presentation: 7%
- Long Reports: 30%
  - 3 Team Reports, 10% each

DESN2000
Engineering Design & Professional Practice

Pre/Corequisites	Exclusions
Pre: DESN1000, CEIC2000, CHEM1821	none

Terms Available: T3 for Chemical Engineering

COURSE OVERVIEW AND AIMS:

DESN2000 aims to further develop your skills in engineering design and develop your readiness for professional practice by deepening your understanding and skills in effective project management, teamwork and communication.

STYLE:

- Lectures to cover content
- Workshops

ASSESSMENTS: (2023 VERSION)

- Design Journal: 20%
  - Week 5
- Design Presentation Pitch: 20%
  - Week 10
- Lab Exercises: 20%
  - Weeks 3-10
- Code Implementation: 10%
  - Week 10
- Final Exam: 30%
  - During exam block

CEIC3000
Process Modelling & Analysis

Pre/Corequisites	Exclusions
Pre: CEIC2002, CEIC2005, MATH2089/2301/CVEN2002, MATH2018/2019	none

Terms Available: T1

COURSE OVERVIEW AND AIMS:

Numerical modelling and analysis, in dynamic/transient and steady state situations. Use of mathematics in ODE's and computational programming in Python and/or MATLAB.

STYLE:

- Two Halves: Mathematical model development and analytical solving, and Programming models and states
- Lectures
- Tutorial/Workshop

ASSESSMENTS:

- Assignments: 30%
  - Two assignments, each 15%
  - First Assignment on developing models without the use of programming
  - Second Assignment on model analysis, using Python or MATLAB
- Midterm Exam: 25%
- Final Exam: 45%

CEIC3001
Advanced Thermodynamics & Separation

Pre/Corequisites	Exclusions
Pre: CEIC2000, CEIC2001, CEIC2002, CEIC2005	none

Terms Available: T3

COURSE OVERVIEW AND AIMS:

Use of prior thermodynamics knowledge for application to common separation processes used in industrial practice. Development of design research and documentation in a collaborative environment.

STYLE:

- Two Halves: Non-ideal phase thermodynamics and separation processes
- Weekly content and lectures, content to be reviewed before lectures
- Weekly tutorials, for questions and group collaboration
- Group report

ASSESSMENTS:

- Quizzes: 10%
  - Check-in formative quizzes, online on Moodle
- Mid-term: 15%
  - online quiz on Moodle
- Design Report: 50%
  - Week 10
- Final Exam: 25%

CEIC3004
Process Equipment Design

Pre/Corequisites	Exclusions
Pre: CEIC2000, CEIC2001, CEIC2002, (CEIC3001/ ENGG4902)	none

Terms Available: T1

COURSE OVERVIEW AND AIMS:

Selection and design of chemical processing equipment for industrial application. Further development of collaboration and design documentation skills.

STYLE:

- Two Halves: Mathematical model development and analytical solving, and Programming models and states
- Lectures
- Tutorial/Workshop

ASSESSMENTS:

- Online quizzes: 25%
- Group design project: 25%
  - design workshops during first half of term
- Individual Design Portfolio: 50%
  - Design workshops during the second half of term will support the completion of the individual component of the design assignment

CEIC3005
Process Plant Design

Pre/Corequisites	Exclusions
Pre: CEIC2000, CEIC2001, CEIC2002	none

Terms Available: T1

COURSE OVERVIEW AND AIMS:

Develop competencies in design, documentation, and evaluation of chemical processes on a plant level. Covers design documentation, process risk and safety, process simulation, and process economics.

STYLE:

- Lectures for each section
- Design Studios for collaboration, for design portfolio milestones and guidance
- Fortnightly Tut-Labs for process simulation using the ASPEN simulation program

ASSESSMENTS:

- Online Quizzes: 20%
  - Check-in formative quizzes, online on Moodle
- Design Portfolio: 50%
  - 3 report deliverables, each worth between 15-20%
  - in-class peer review
- Final Exam: 30%

CEIC3006
Process Dynamics & Control

Pre/Corequisites	Exclusions
Pre: CEIC2002, CEIC2005, MATH2089/2301/CVEN2002, MATH2018/2019	none

Terms Available: T2

COURSE OVERVIEW AND AIMS:
The objective of this course is to provide students with the fundamental background of process control theory and working knowledge of automatic control systems for chemical processes. This course is focused on (1) analysis of process dynamics; (2) control system design.

STYLE:
- Weekly online lectures
- Weekly tutorials

ASSESSMENTS:
- Online Quizzes: 30%
  - 2 quizzes, 15% each
- Assignments: 30%
  - 2 assignments
- Final Exam: 40%

CEIC3007
Chemical Engineering Lab B

Pre/Corequisites	Exclusions
Pre: CEIC2007, CEIC3001, CEIC3005, MATH2089 Co: CEIC3006	none

Terms Available: T2

COURSE OVERVIEW AND AIMS:
Further develop your skills in analysis, critical thinking, communication, project management and teamwork. Develop and extend your skills in designing and executing experimental investigations of chemical engineering problems using small pilot-scale unit operations and analytical equipment.

STYLE:
- Lectures & Workshops
- Laboratory classes
- 3 experimental rotations themed after different types of process engineering projects (groups)

ASSESSMENTS:
- Introductory Quiz: 5%
  - Check-in formative quizzes, online on Moodle
- Experiment Proposals: 30%
  - 30 min proposal presentation + Q&A
- Technical Reports: 45%
  - 3 reports - at least one report will be written as a team and at least one individually
- Final Seminar: 20%
  - Team presentation + Q&A

CEIC4000
Environment & Sustainability

Pre/Corequisites	Exclusions
Pre: Completion of 96 UoC	none

Terms Available: T2, T3

COURSE OVERVIEW AND AIMS:

Investigations into the sustainability and ethical issues surrounding human activities and the impact engineering can have on them.

STYLE:

- Weekly lectures going through concepts, principles and case studies.
- Weekly tutorials in discussion format about the lecture of the week. Participation in discussion marked.
- Weekly readings of relevant articles and textbook sections. Essential and optional options.

ASSESSMENTS:

- Participation: 15%
- Assignment Draft: 15%
- Peer Evaluations: 20%
- Assignment: 50%

CEIC4001
Process Design Project

Pre/Corequisites	Exclusions
Pre: Completion of any two of the following - CEIC3004, CEIC3005, CEIC3006	none

Terms Available: T1

COURSE OVERVIEW AND AIMS:

Capstone project, culmination of everything learnt so far in the degree, basically a giant group project reminiscent of CEIC3005 and CEIC3004's group assignment's combined.

STYLE:

- Weekly seminars to discuss upcoming assessments, provide guidance, and answer some questions
- Weekly meetings scheduled with your assigned mentor to catch up on your progress and give advice
  - The same person will be marking your reports and presentations
- In groups of 5 that you can pick (regular peer evaluation), work on a design to fit the brief

ASSESSMENTS:

- Group Interview 1: Individual 10%
  - Present different design options + final choice
- Group Report 1: Group 20%
  - Report on the final design option with PFD & MEB & Risk Register
- Individual Report: Individual 20%
  - Report on individual design with mechanical drawing & simulation
- Group Report 2: Group 15%
  - Report on HAZOP & site-layout & Environmental Impact Assessment (EIA) & Economics
- Group Interview 2 (with industry reps): Group + Individual totalling 20%
- Rejoinder for final report: Group 5%
  - Reflect on feedback from industry reps

CEIC4951
Research Thesis A

Pre/Corequisites	Exclusions
Pre: Completion of 120 UoC + CEIC3007 or FOOD3020 or CEIC8104	none

Terms Available: T1, T2, T3, Summer

COURSE OVERVIEW AND AIMS:
In Research Thesis A, you will define the problem to be solved, critically review the relevant literature and industry practice, develop a plan to address your problem, and complete any training or preliminary work required.

STYLE:
- Regular meetings with your supervisor (weekly or fortnightly)
- Minimum 10 hours per week working on your project
- Thesis A: Finalise research topic, review literature, prepare a project plan, complete safety and research skills training

ASSESSMENTS:
- Literature Review: 10%
- Project Plan: 5%

CEIC4952
Research Thesis B

Pre/Corequisites	Exclusions
Pre: CEIC4951	none

Terms Available: T1, T2, T3, Summer

STYLE:
- Thesis B: Start executing your research plan and report on progress

ASSESSMENTS:
- Progress Report: 5%
- Progress Seminar: 5%
- Supervisor's Report: 5%

CEIC4953
Research Thesis C

Pre/Corequisites	Exclusions
Pre: CEIC4952	none

Terms Available: T1, T2, T3, Summer

STYLE:
- Thesis C: Complete your project work and report findings

ASSESSMENTS:
- Presentation + Q&A: 5%
- Thesis and supporting files: 60%
- Supervisor's Report: 5%

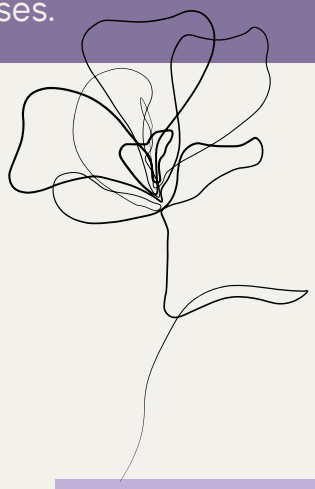
ELECTIVES

GEN ED

- For a single degree, you must take 12 UoC in General Education courses. This amount differs for double degrees.
- ***Gen Ed electives must be outside of your faculty.***
- For CEICAH, this means your Gen Ed cannot be MATS1101, CHEM, MATH, or PHYS courses.

FREE

- You must take 12 UoC of free electives (single degree)
- Free electives can be taken from any faculty, as long as they're not Gen Ed
- For CEICAH, you may not take ENGG courses as free electives



BREADTH

- You must take at least 2 of these to fill out your elective requirements.
- These courses are a great way to experience some of the adjacent fields where many chemical engineers work, so don't be afraid to take 1 or 2 and learn about an area you're interested in!

DEPTH

- Depth electives are your way to find a 'speciality' in the broad, exciting fields of Chemical Engineering!
- You must take at least one of these courses, but you can take 2 if you would like to broaden your horizons!

1. Attend Classes Regularly
   - Being present in class helps you stay on top of the material and avoid playing catch-up later.

2. Build Strong Friendships
   - Having peers to discuss concepts and assignments with can make a huge difference, especially for self-driven courses.

3. Engage with Lecturers and Tutors
   - Discuss content and assessments with your instructors to clarify concepts, identify gaps in your understanding, and learn what they expect in responses.

4. Ask Questions
   - Don't hesitate to ask tutors or lecturers when you don't understand something. Address gaps early to avoid feeling overwhelmed before exams.

5. Stay on Top of Notes
   - Keep your notes organized and up-to-date to support consistent learning throughout the term.

6. Attend Tutorials
   - Tutorials provide valuable opportunities to reinforce your understanding of the material.

7. Practice Questions Regularly
   - Work through practice problems consistently to deepen your understanding and prepare for assessments.

8. Study Consistently
   - Dedicate time when you can to review material and complete tasks. Avoid leaving things to the last minute.

9. Manage Your Time Effectively
   - Balance your workload by doing a little bit each day to stay on top of everything.

VERTICALLY INTEGRATED PROJECTS [VIP]

OTHER WAYS OF RECEIVING UOC....

ChallEng is a collection of projects from student led projects like UNSW Rocketry, to humanitarian projects and 'Vertically Integrated Projects'. These 'VIP's can count towards your elective requirements and run over the course of a whole year.

- No final exams
- Flexible 2 UOC per term timetable.
- Some also count towards your Industrial Training (IT) requirements as non-traditional IT.

Find a project which captures your interest ***here***, and don't be afraid to investigate a non-Chemical engineering aligned project – many have chemical engineering-related components where you'll be able to bring a unique perspective and learn what makes chemical engineering so special!

The following are a couple VIPs that may interest you.

This project aims to design and create millimetre-sized solar energy harvesting devices that can provide continuous power for medical implants and IoT sensors.

As a chemical engineer, you fit best into the Mini-Battery team (designing micro thin batteries) or Photovoltaic group (design and fabricate of the mini silicon solar cells). There is quite a heavy workload for a course with only 2 UOC per term (course is structured like a mini-thesis), but the experience you gain from the project may be invaluable especially in regards to your future job prospects. Overall, its a highly recommended project and a great opportunity to work with engineers from other faculties and research institutes.

PURPLE HOUSE

This project is a collaboration with Indigenous-owned non-profit health organisation Purple House. The objective is to help develop innovative and sustainable solutions for accessible dialysis care in remote and water/energy scarce regions of Australia. You can join a variety of portfolios working on key challenges such as sustainable and efficient water harvesting, low-cost water telemetry systems, and biomedical devices for improving patient care.

It is a great way to apply your studies to tackle real world health challenges and support the life-saving work that Purple House does for Indigenous communities.

You can get a taste of this VIP during DESN1000 in Term 3 where you'll work in a group to design and build a functioning heat exchanger to cool water to the right temperature for dialysis.

SUNSWIFT

Sunswift Racing is Australia's top solar-electric development project, being crowned champions in the 2023 Bridgestone World Solar Challenge – a 3,000km race from Darwin to Adelaide competing against universities from all around the world. They combine innovative research and industry collaboration with hands-on development to create clean energy transport solutions. Since its formation back in 1996, Sunswift has produced seven solar-electric vehicles cars and has established a world-class reputation, winning trophies and breaking Guinness World Records.

Sunswift now looks to the future, developing new vehicle Sunswift 8 with new technologies to produce a car that will be road legal and the worlds first 'TriBrid', the combination of Solar, Battery, and Hydrogen Fuel Cell Technology.

As a chemical engineering student, you might like to join their Alternative Energies team - designing, analysing, and optimising an automotive PEM hydrogen fuel cell system

ASSOCIATE PROFESSOR PIERRE LE CLECH

Pierre Le-Clech is a Chemical Engineer with a PhD from the University of Cranfield, UK. He seeks to further develop the use of membrane technologies, through the development of new operating conditions, the optimisation of the energy need for filtration and the advanced understanding of rejection and fouling mechanisms. Pierre is one of the Associate Editors for Desalination and Water Treatment and on the Editorial Board of Membrane Water Treatment and Process Safety and Environmental Protection.

DR GRAEME BUSHELL

Dr Bushell's main research interest is sustainability. He is primarily interested in sustainable systems and adaptation towards a lower intensity society.

Dr Bushell also conducts research in engineering education, especially in relation to assessment and problem solving.

DR MAY LIM

May specialises in the design and fabrication of magnetic, electromagnetic and photo-responsive nanomaterials. She examines the application of these materials and how they can be incorporated into new engineering processes, such as cancer drug delivery, water treatment, and high-performance electrochemical sensing.

DR SARAH GRUNDY

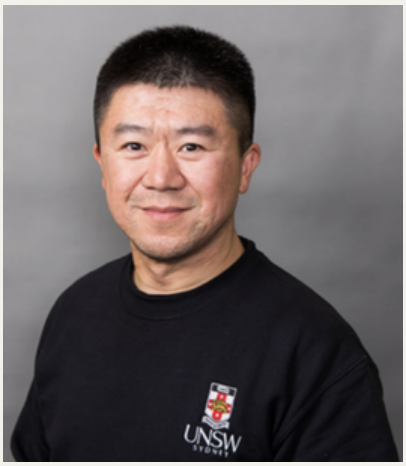
Dr Grundy's research focus in in engineering education and current trends in industry. Her passion includes sustainable manufacturing and design from raw materials to process and product improvement and/or development.

DR FIROOZEH BABAYEKHORASANI

Dr. Babayekhorasani is a postdoctoral research associate in the School of Chemical Engineering at UNSW Sydney. In her PhD dissertation, she studied diffusive and transport mobility of nanoparticles suspended in polymer solution through confined micro porous media. It requires nanoparticles suspended in non-Newtonian fluids to be controllably dispersed through complex porous media. She has used confocal microscopy and multiple particle tracking techniques to visualise and analyse nanoparticle trajectories.

PROFESSOR YANSONG SHEN

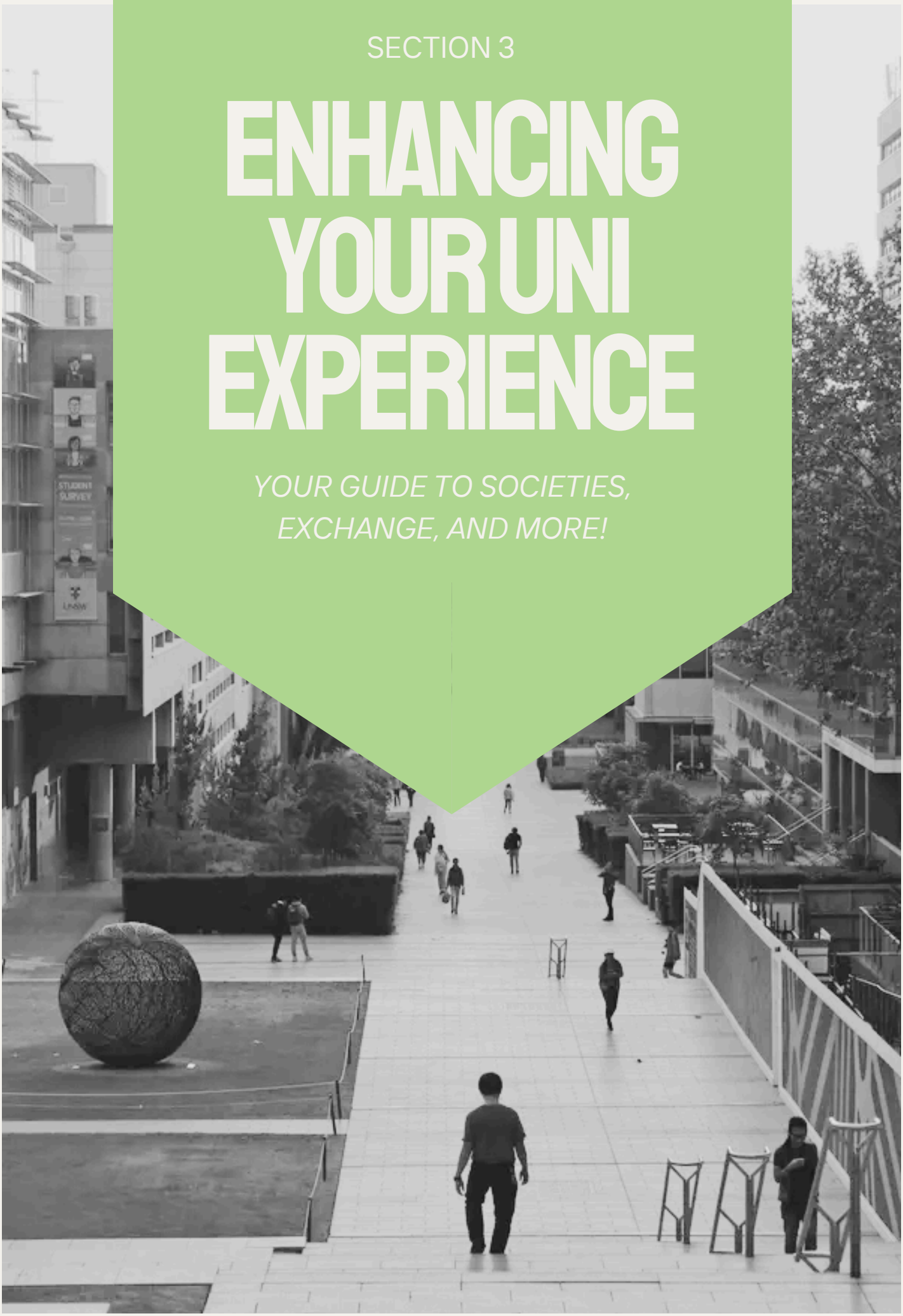
Yansong is the director of ProMO Lab (Process Modelling and Optimisation of Reaction and Separation) which aims to research process metallurgy, solid fuel preparation/utilization, water treatment and recycling processes.



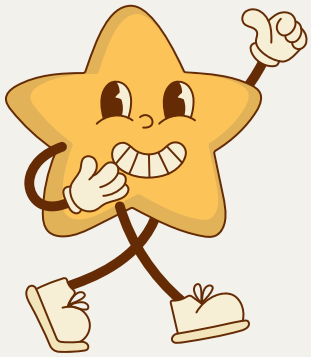
SECTION 3

ENHANCING YOUR UNI EXPERIENCE

YOUR GUIDE TO SOCIETIES, EXCHANGE, AND MORE!



STUDENT SOCIETIES



UNSW is well-known for its vibrant society culture. With over 350 student-led societies ranging from hobby-based to sport-based and faculty-based, there is definitely something for everyone. Joining a society and participating in the events they run is a great way to meet new people, discover new interests, and add variety to your university life. Within engineering, there are already 40 societies, offering multitudinous opportunities to socialise, network, and build skills.

Under ARC (UNSW's student organisation), there are also many opportunities to play sport and volunteer. Some volunteering program examples are Yellow Shirts, Wellness Warriors, Food Hub, Phil', and Producers. Participating in them can also make you eligible for AHEGS recognition (appears on your transcript).

A great way to get more involved in first year is to join subcommittee! This is essentially the internal team that helps run different branches of a society like social events, marketing, HR, industry relations etc. You may even run for an executive position!

PSSST...

When on campus, keep an eye out for ***free events*** and ***free food***. There's usually always something going on whether it be free bbq or painting!

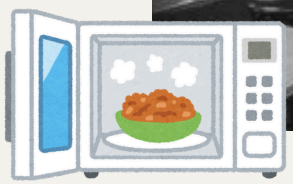
ABOUT CEUS

The Chemical Engineering Undergraduate Society, better known as CEUS, is a student-led organization run by dedicated and enthusiastic members of the chemical engineering community. As a society, CEUS aims to foster connection and engagement amongst students through a range of social and academic initiatives.

Throughout the year, CEUS hosts regular events designed to encourage community building and networking. This includes some of our flagship events such as the annual CEUS Camp, Cruise and Ball, all highly anticipated highlights of the year.

Additionally, CEUS facilitiates team bonding thorugh subcommittee and executive activities, including road trips and dinners, promoting leadership and teamwork amongst all the members. The main goal of CEUS is to provide a welcoming and supportive environment for students, whether you're seeking for study partners, industry connections or just to have an enjoyable university experience.

COMMON ROOM



The CEUS Common Room is the place to go for any Undergraduate Chemical Engineering students seeking a comfortable and well-resourced haven to study or socialise. It is located on the Mezzanine level, straight up the stairs from the Central Wing on the right in the June Griffith Building. If the common room is locked, simply swipe your student ID card on the card reader to open it!

The common room is stocked with useful equipment such as a fridge, microwave, toaster, sandwich press and a hot and cold drinking water tap. It also has many kitchen utensils, cutlery, food storage items and cleaning products.

ALL ABOUT EXCHANGE

The general rule for exchange at UNSW is that undergraduate students are eligible to apply after **completing at least 18 UoC** (ie. one full-time term of uni). The application process however is quite *time consuming* and *lengthy* and requires *a lot of research*. Hence, this section is a summary of everything you need to know about going on exchange as a Chemical Engineering student at UNSW!

For students studying a single chemical engineering degree, the best and most common time students go on exchange is during **Term 3 of Year 3** as there are *no core subjects offered in this term*, and you hence have more flexibility in the courses you can match with overseas universities. This is also a great chance to study a language or any other gen-ed or elective course. However, the best time to go on exchange is entirely up to the country and university you choose!

Make sure to ***apply early***. The application process takes roughly nine months, so we suggest planning a year in advance.

KEY DATES

APRIL: APPLICATIONS CLOSE FOR EXCHANGE IN TERM 1 OF THE FOLLOWING YEAR.
SEPTEMBER: APPLICATIONS CLOSE FOR EXCHANGE IN TERM 3 OF THE FOLLOWING YEAR.

For more information, visit *https://www.unsw.edu.au/student/opportunities/overseas-study*

The following table lists some successful course matches for chemical engineering courses from the last two years. It is definitely possible to course match other universities and countries, but more research and consultation with Chemical Engineering Faculty is required to do so.

Note that gen-ed courses have not been added to this table as there are a plethora of course matches for these.

MATH2089

Core Course

USA

University of Texas at Austin

ME 318M - *Programming and Engineering Computational Methods*
ME 335 - *Engineering Statistics*

University of Florida

EGM 3344 - *Introduction to Numerical Methods of Engineering Analysis*
STAT 2023 - *Introduction to statistics*

Georgia Institute of Technology

MSE 3025 - *Statistics and Numerical Methods*

CANADA

University of British Columbia

MATH 210 - *Introduction to Mathematical Computing*
STAT 203 - *Statistical Methods*

McGill University

MECH 262 - *Statistics and Measurement Laboratory*
MECH 309 - *Numerical Methods in Mechanical Engineering*

KOREA

Hanyang University (Seoul)

MAT2017 - *Probability & Statistics*
MAT3008 - *Numerical Analysis*

UK

University of Birmingham

25669 - *LI Numerical Methods & Programming*

NORWAY

University of Oslo

MAT3110 - *Introduction to Numerical Analysis*

FRANCE

INSA Lyon

GM-4-S1-EC-COANO - *Numerical analysis of differential operators*
GM-4-S1-EC-MEOPS - *Optimisation and Statistics*

SWEDEN

Lund University

FMNF10 - *Numerical Analysis*

CEIC2000

Core Course

DENMARK

Technical University of Denmark

28221 - *Statistical Thermodynamics for Chemical Engineering*

MATH2018/19

Core Course

CANADA

University of British Columbia

MATH 256 - *Differential Equations*

MATH 221 - *Matrix Algebra*

MATH 257 - *Partial Differential Equations*

MATH217 - *Multivariable and Vector Calculus*

USA

Pennsylvania State University

Math251 - *Ordinary and Partial Differential Equations*

UK

University of Southampton

MATH2047 - *Mathematics for Electronics & Electrical Engineering Part II*

CEIC2007

Core Course

DENMARK

Technical University of Denmark

28121 - *Chemical Unit Operations Laboratory*

CANADA

University of British Columbia

CHBE362 - *Process Engineering Laboratory*

CEIC3001

Core Course

JAPAN

Nagoya University

10936 - *Chemical Thermodynamics*

10971 - *Phase Equilibria*

10990 - *Diffusion Systems*

CEIC3006

Core Course

USA

Pennsylvanie State University

CHE 450 - *Process Dynamics and Control*

USA

Pennsylvanie State University

CHE 480W - *Chemical Engineering Laboratory*

CEIC3007

Core Course

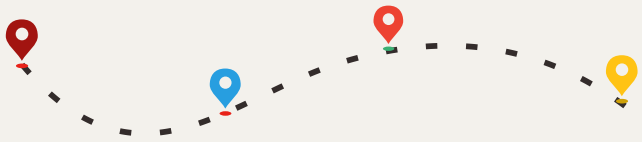
REMEMBER!

- <u>You</u> are responsible for negotiating any course approvals with your UNSW Faculty
- Previous approval <u>does not guarantee</u> your approval
- Please refer to a partner university's handbook or equivalent to find their most up to date course information

For more historical course matches, see ***here***

CEIC4000

Core Course



CANADA

University of British Columbia

CHBE370 - *Fundamentals of Sustainable Engineering*

York University

LE/ESSE 2210 - *Engineering and the Environment*

USA

University of Colorado

GEOG1972 - *Sustainable Futures, Environment and Society*

THAILAND

Chulalongkorn University

2302406 - *Green Chemistry*

DENMARK

Technical University of Denmark

28870 - *Energy and Sustainability*

SWEDEN

Lund University

KLGN60 - Drug Formulation and Production

CEIC6712

Breadth Elective

CEIC6714

Breadth Elective

NORWAY

Norwegian University of Science & Technology

PK8452 - Hydrogen energy technologies

NORWAY

Norwegian University of Science & Technology

TKP4110 - Chemical Reaction Engineering

CANADA

University of British Columbia

CHBE 456 - Heterogenous Catalysis and Advanced Reactor Design

CHEN6701

Depth Elective

ENGG3741

Breadth Elective

SWITZERLAND

Swiss Federal Technology Institute of Lausanne

PHYS-443 - *Physics of nuclear reactors*

PHYS-445 - *Nuclear fusion and plasma physics*

SWEDEN

Lund University

MVKF25 - *Hydrogen, Batteries and Fuel Cells*

ENGG4111

Breadth Elective

NORWAY

Norwegian University of Science & Technology

FENT2314 - *Energy Storage 2*

DENMARK

Technical University of Denmark

28315 - *Applied Colloid and Surface Chemistry*

CHEN6703

Depth Elective

CEIC8104

Breadth Elective

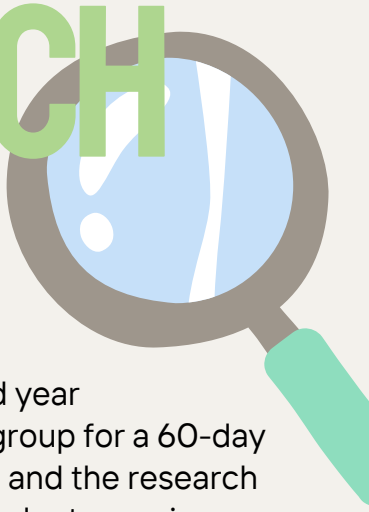
NORWAY

Norwegian University of Science & Technology

TKP4525 - *Colloid and Polymer Chemistry, Specialisation Course*

There are a few scholarships on offer for Exchange, which you can apply for during the application process. Any engineering student who applies for exchange is automatically considered for the **Engineering Exchange Scholarship**, valued at $2,000, as well as the **Student Exchange Achievement Scholarship**, valued at $5,000. These are mainly awarded based on *Academic Merit (WAM)*. Additionally, there is a **Student Exchange Equity Scholarship** valued at $12,000, which has a separate application through the UNSW Scholarship website.

TASTE OF RESEARCH SCHOLARSHIP



The Taste of Research Scholarship is a program that allows second and third year undergraduate engineering students to work with an engineering research group for a 60-day period. It is particularly useful for gaining experience in a non-industrial field, and the research project undertaken can typically lead into the fourth-year thesis courses. Students receive $6,000 AUD for the scholarship, and if their project involves industry engagement, it can count towards up to 30 days of non-traditional industrial training. It is offered annually in two sessions, one over Term 2 & 3, and another over the summer holiday.

You can view the available projects here.

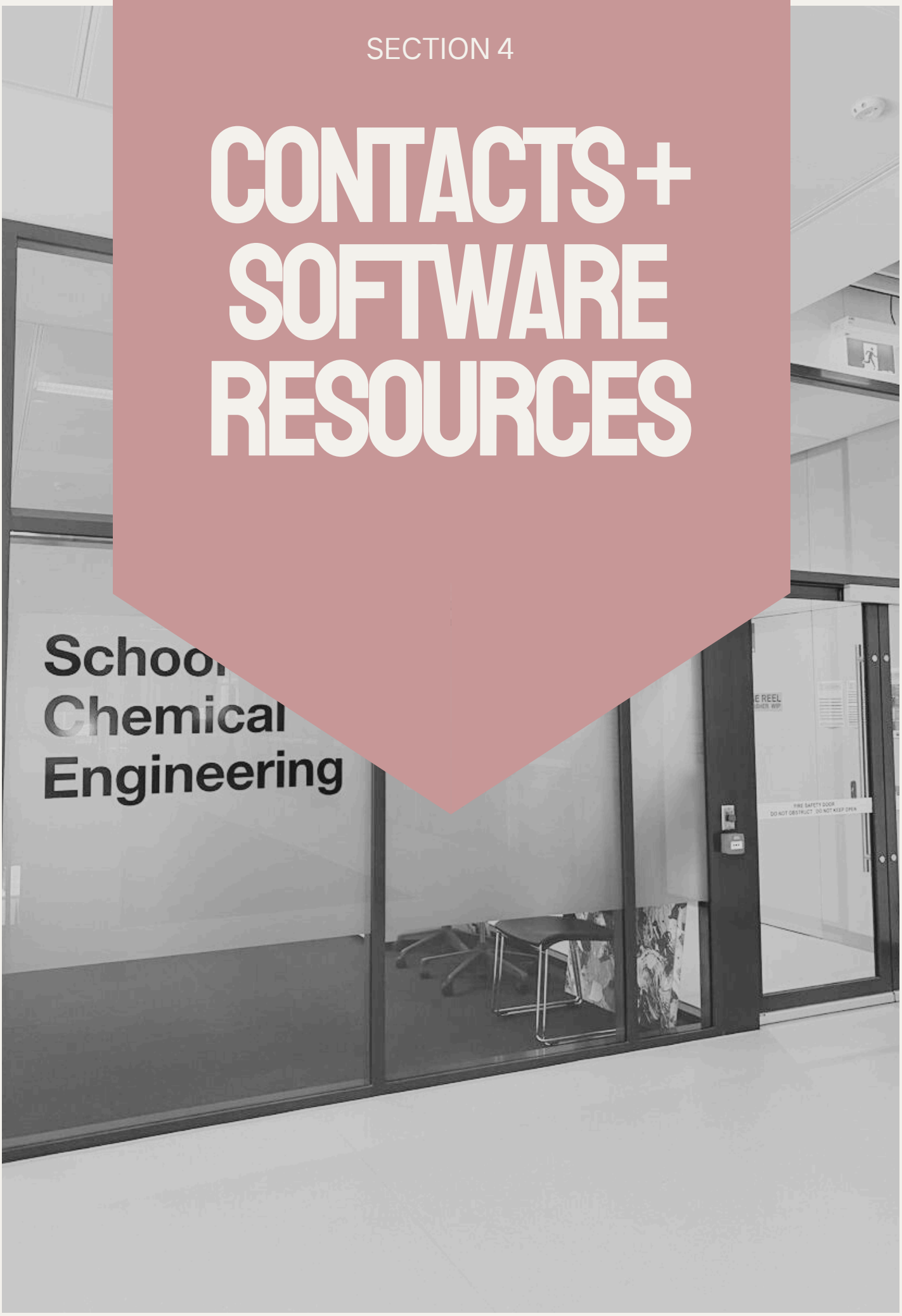
A research project plan must be submitted as part of your application, so it is imperative that you understand the problem your project addresses and why it is an important area of study.
Reach out to the supervisors responsible for the project you are most interested in well in advance. This allows you to introduce yourself to them and express your interest in the project, giving yourself ample time to formulate a research plan with their help. The supervisor will also be required to approve your project plan prior to application submission.

A good time to complete this scholarship is during the summer after second year, so you can avoid coinciding with assessments, and give yourself time to complete industrial training in third year.

However, if this is not an option, the next best option is Term 2 & 3 in third year as the degree structure allows for time taken off in Term 3.

SECTION 4

CONTACTS + SOFTWARE RESOURCES



STUDENT CONTACTS

Following this page are student contacts from the CEUS society with their name, contact details and unique degree listed. If you have any questions at all, feel free to hit up anyone listed, whether it's questions about their degree or anything to do with CEUS!

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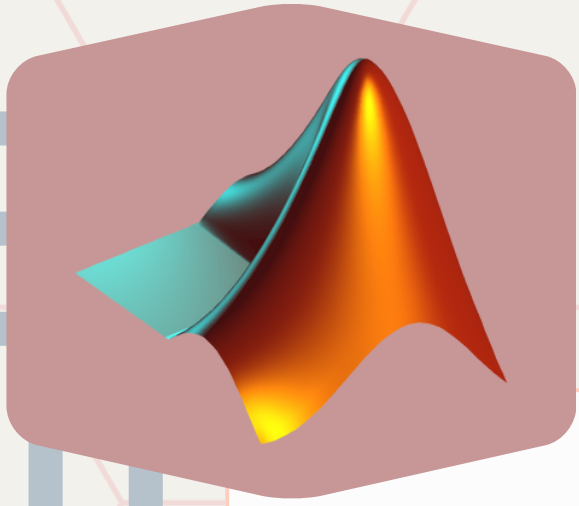
MY ACCESS

To access a variety of software on your own laptop, go to https://www.myaccess.unsw.edu.au/

Install the Citrix Receiver (log in with your uni credentials), and then 'Access your applications'. If you are having issues with stability, you can access some software with the 'Desktop' option (top middle). MyAccess is most useful for Maple (first-year Math courses) and Aspen. For most other software it is better to download(see below) and run it locally.



MATLAB

To download Matlab, simply go to https://www.myit.unsw.edu.au/software-students, log in, click on the Matlab icon, and follow the download instructions. This requires you to create a MathWorks account – make sure you do it on your student email (@student.unsw.edu.au). Matlab will set up automatic updates for you and if you need to install packages, you can do this through the desktop software.

Microsoft Suite (Office 365)

To install the full Office 365 suite for free, go to https://www.myit.unsw.edu.au/software-students as above and click on the Office 365 icon. You can then follow the instructions to download Office. This will also install MS Teams for you (you'll need this for classes!)

Microsoft Suite (Visio, non-Office 365 apps)

To access MS Visio (which you will need for CEIC3004 and beyond!) you should go to https://azureforeducation.microsoft.com/devtools, sign in with your uni Microsoft account and then go to 'Software' on the left sidebar. Visio Professional 2019 (under 'Productivity Tools') is available here. You can also install a variety of other software including Windows 10, Visual Studio (this helps with CEIC3000, to avoid needing to use CoCalc), and a variety of other useful software bits and lessons (under 'Learning').

EndNote X9

EndNote is a useful (if a bit old now) way to manage your references and 'cite as you write'. It is an alternative to other options such as Mendeley which is a 'freemium' service. EndNote can sync between devices and be used to collaborate but is weaker than alternatives in this respect.
It's a good way to introduce yourself to reference managers with some powerful tools to learn. To download it, simply go to https://www.myit.unsw.edu.au/software-students and click on the icon. You can make an account online if you wish to use syncing functionality.

Aspen

Aspen can be accessed through MyAccess (see above). You can use 'Aspen Plus User Interface' (yellow icon) for most general work. It can also be accessed from the MO8 computer lab in the Chemical Sciences building (from main walkway – up the stairs, past the common room and turn right). You will need your uni ID card to enter.

Autodesk Fusion

This can be accessed from https://www.myit.unsw.edu.au/software-students. It's a neat tool especially if you are doing more 'hands on' design projects (e.g. later DESN course) or vertically integrated projects involving design (see https://www.challeng.unsw.edu.au/vertically-integrated-projects-0).