

Unit Outline

PRRE1003 (V.4) Resources, Processes and Materials Engineering Semester 1, 2025

Unit study package number:	PRRE1003
Mode of study:	Internal
Tuition pattern summary:	<p>Note: For any specific variations to this tuition pattern and for precise information refer to the Learning Activities section.</p> <p>Lecture: 1 x 2 Hours Weekly Science Laboratory: 3 x 3 Hours Semester Workshop: 1 x 2 Hours Weekly</p> <p>This unit does not have a fieldwork component.</p>
Credit value:	25
Pre-requisite units:	<p>(B-SCNCE (v.0) Bachelor of Science (Science) or any previous version OR BB-CCEMN (v.0) Bachelor of Engineering (Civil and Construction Engineering) (Honours), Bachelor of Science (Mining) or any previous version OR BB-CENCHM (v.0) Bachelor of Engineering (Chemical Engineering) (Honours), Bachelor of Science (Chemistry) or any previous version OR BB-CENEXM (v.0) Bachelor of Engineering (Chemical Engineering) (Honours), Bachelor of Science (Extractive Metallurgy) or any previous version OR BB-ENGCOM (v.0) Bachelor of Engineering (Honours), Bachelor of Commerce or any previous version OR BH-ENGR (v.0) Bachelor of Engineering (Honours) or any previous version OR BB-ENGSCI (v.0) Bachelor of Engineering (Honours), Bachelor of Science or any previous version OR B-MTDSC (v.0) Bachelor of Multidisciplinary Science or any previous version OR BH-ADVSCI (v.0) Bachelor of Advanced Science (Honours) or any previous version OR UH-ENGR (v.0) Undergraduate Certificate in Engineering or any previous version OR BB-ENINNO (v.0) Bachelor of Engineering (Honours), Bachelor of Innovation or any previous version)</p>
Co-requisite units:	Nil
Anti-requisite units:	Nil
Result type:	Grade/Mark

Approved incidental fees:	Information about approved incidental fees can be obtained from our website. Visit https://www.curtin.edu.au/students/essentials/fees/understanding-your-fees for details.	
Unit coordinator:	Name:	Dr Nina Darmawan
	Phone:	TBA
	Email:	N.Darmawan@curtin.edu.au
	Location	Building: 204 - Room: 217
	Consult:	
Teaching Staff:	Name:	Dr Sam Bakhtiari
	Phone:	TBA
	Email:	Sam.Bakhtiari@curtin.edu.au
	Location	Building: 614 - Room: 112
Administrative contact:	Name:	Curtin Connect
	Phone:	1300222888
	Email or Website:	https://students.connect.curtin.edu.au/app/ask
	Location	Building: 102 - Room: N/A
Learning Management System:	Blackboard	

Acknowledgement of Country

Curtin University acknowledges all First Nations of this place we call Australia and recognises the many nations who have looked after Country for more than 60,000 years. We are honoured and grateful for the privilege to maintain campuses operating in Boorloo (Perth) and Karlkurla (Kalgoorlie) in Australia. We pay our respects to Elders past and present as Custodians and Owners of these lands. We recognise their deep knowledge and their cultural, spiritual and educational practices, and aspire to learn and teach in partnership with them. Curtin also acknowledges First Nations peoples connected with our global campuses. We are committed to working in partnership with all Custodians and Owners to strengthen and embed First Nations' voices and perspectives in our decision-making, now and into the future.

Syllabus

This unit introduces the whole-of-life cycle of resources and the underlying flow of materials, established and emerging, from their origins on to extraction, processing, selecting, applying and disposal. The unit approaches engineering decision making regarding resources as an ethical and technical systems-thinking process. A key ability that students should gain on completing this unit is to select potential materials for a given application, accounting for the suitability of their properties as well as their impact on society and the environment. Material and energy balances are introduced to quantify the resources consumed in the chemical, metallurgical, physical and biological processes associated with transforming resources and energy into end products. The origin and extraction, physical and chemical processing, sustainable use and disposal of resources are illustrated with case studies of different resources encountered across engineering disciplines, for example: metals and alloys, polymers, glasses, ceramics and composites. Foundational experiments spanning chemical processes, material properties and metallurgy support the syllabus. Assessments provide opportunities to demonstrate academic integrity and communication skills.

Introduction

This unit provides engineering students with a systems thinking approach to understand the processes that constitute the entire resources life cycle from a materials and energy perspective. At the end of the semester, students should have learnt about resources and why a circular economy is essential to conserve them. Students will be able to classify materials into Raw, Bulk and Engineering Materials, and identify the processes that are used to transform them. Finally, students will learn about Nanomaterials and Emerging Processes such as 3D Printing and Hydrogen Technologies and compare them within the framework of the lifecycle that has been introduced in each lecture.

Labs are Discovery Labs A, B and C (3 per student, per semester), with key themes related to the unit content. Students will learn about material properties, measurement, uncertainty and the relationships between various properties. The observations will be used to write concise technical reports.

All students in this unit will have access to a 2 hour weekly lecture and a 2 hour weekly workshop. Workshops begin in week 1 with Technical Report Writing, and an introduction to Excel skills you will need for the rest of your course and graduate skillset.

This unit incorporates an English diagnostic test (PELA - Post Entry Language Assessment), a mandatory requirement of the university, in Workshop 1 (Technical Report-Writing), Task 1. The results of the diagnostic test will be used to determine if students would benefit from the STEM AWE (Academic Writing Essentials) Program. More information can be found here: <https://www.curtin.edu.au/students/study-support/skills/science-engineering/>.
















Note: *You will only need to complete the PELA and STEM AWE (formerly the SELL Program) once, in one unit of study, throughout your course of study. Failure to complete the PELA and/or the STEM AWE Program will result in an*

incomplete mark (F-IN) for the unit. If you have completed the diagnostic and/or the program, you will receive a confirmation email from the SELL team. You can use this email to evidence your completed status, if required. If you have any questions please contact stem.awe@curtin.edu.au




Unit Learning Outcomes

Curtin University's six Graduate Capabilities indicate to employers that graduates possess discipline knowledge and valuable skills. Each course unit addresses these capabilities through specific learning outcomes, which outline what students need to know and do to succeed. Assessments are designed to test these outcomes, ensuring that upon completion, students have met all learning objectives.

Your course has been designed so that on graduating you will have achieved all of Curtin's Graduate Capabilities through the assurance of the learning process in each unit.

	On successful completion of this unit student can:	Graduate Capabilities addressed
1	Describe a product's life cycle, from resource extraction to disposal, by explaining material properties, energy balances, sustainability, and environmental impact, and communicate findings effectively	  
2	Classify materials based on their physical, chemical, and functional properties, including mechanical, thermal, electrical, optical, and rheological characteristics, and justify the classification based on their attributes	  
3	Select appropriate materials for various applications by evaluating their properties and predict their response to environmental changes	 
4	Analyse and communicate the impact of engineering decisions on materials production, extraction, processing, selection, sustainable use, and disposal, considering environmental and societal implications	  
5	Conduct experiments safely in a laboratory setting, collect and analyse data while adhering to lab protocols, both independently and collaboratively	 
6	Demonstrate academic integrity and proficiency in professional documents and report writing	 

Curtin's Graduate Capabilities

	Apply discipline knowledge, principles and concepts		Innovative, creative and entrepreneurial		Effective communicators with digital competency
	Globally engaged and responsive		Culturally competent to engage respectfully with local first people and other diverse cultures		Industry connected and career capable

Find out more about [Curtin's Graduate Capabilities](#).

Learning Activities

All students enrolled in this unit are required to actively participate in every weekly learning activity. It is essential to attend classes prepared with any previously assigned work completed.

- **Lectures (2 hours):** Weekly lectures will deliver the core concepts required for the unit, with an array of lecturers who are experts in their fields.
 - **Teaching week 1 - 12 Lectures:** will be delivered in **interactive online lecture format** and accessible throughout the semester. It is recommended to access the interactive lecture before the workshop in the following week, where key concepts will be assessed.
- **Workshops (2 hours):** The workshops corresponds to the previous week's lectures and aim to engage students and reinforce learning. During workshops, students will work on worksheets, focusing on problem-solving and analysis skills with guidance from the workshops' facilitators. Each worksheet needs to be completed individually and submitted within 24 hours after each workshop and it will be assessed. Feedback on the worksheets will be provided by Friday on the following week.
- **Discovery Labs (face to face) A, B and C:** Each student will complete 3 discovery labs. These labs are designed to provide hands-on experience and help students gain a deeper understanding of key concepts from the unit, including the importance of occupational health and safety in the workplace. The labs also aim to enhance students' collaboration skills as they work together towards common goals to produce lab reports. Each student must contribute to 2 lab reports. The Lab A report, worth 5%, provides feedback for the group to improve their Lab B report, which is worth 15%

To help you achieve the learning outcomes of this unit the following learning activities and support are provided:

Learning Support

Monitoring your progress and providing relevant and timely feedback to support your learning is our aspiration. Your first point of contact for feedback and academic support is the teaching staff facilitating the learning activities, and secondly, your UC.

Other academic support details can be found at [Science and Engineering skills development programs | Current Students \(curtin.edu.au\)](#) and [Study support | Current Students \(curtin.edu.au\)](#)

If you feel your study load may be too high, or need helping finding or accessing additional support, reach out to the Course Lead n.lloyd@curtin.edu.au or Director Student Experience M.Stoitis@curtin.edu.au

Learning Resources

Library Reading List

The Reading List for this unit can be accessed through Blackboard.

The text(s) for this unit are:



Chemical Technology: An Integral Textbook, by Jess and Wasserscheid, 2013

Electronic: No

Essential: No

Resource Type: Book

ISBN: 3-527-67062-9; 1-299-31361-2



Materials engineering: Bonding, Structure, and Structure-Property Relationships,
by Trolier-McKinstry and Newnham, 2018

Electronic:No Essential:No Resource Type: Book ISBN: 1107103789;
9781107103788



Materials Science and Engineering: An Introduction, by Callister and Rethwisch,
2014.

Electronic:No Essential:No Resource Type: Book ISBN: 9781118477700;
9781118324578



Introduction to Chemical Engineering: Tools for Today and Tomorrow, by Solen
and Harb, 2011.

Electronic:No Essential:No Resource Type: Book ISBN: 9780470885727



Materials: Engineering, Science, Processing and Design, by Ashby, Shercliff and
Cebon, 2007, 3rd edition

Electronic:No Essential:No Resource Type: Book ISBN: 0-08-047149-8;
9786610962518; 1-280-96251-8



Materials Science and Engineering, by Carter and Paul, 1991.

Electronic:No Essential:No Resource Type: Book ISBN: 1-61503-984-8; 1-62198-
301-3

Other Resources



The Library runs free Excel workshops for students who are new to Excel.

Assessment

Assessment policy exemptions

There are no exemptions to the assessment policy

Assessment Schedule

	Task	Value %	Date Due	Unit Learning Outcome(s) Assessed	Late Assessments Accepted?	Assessment Extensions Considered? *
1	Worksheets - Individual worksheets based on activities performed in the weekly workshops	36 %	Week: Teaching weeks 2,3,4,5,6,7,8,9,10,11,12 Day: 24 hours after your scheduled workshop Time: 24 hours after your scheduled workshop	1,2,3,4,6	No	No
2	Technical report writing and professional attributes - based on observations and measurements	29 %	Week: As per your Lab schedule Day: One week after your Lab Time: 23.59 PM	2,5,6	Yes	Yes
3	Final Exam	35 %	Week: Exam week Day: TBA (Curtin centrally scheduled) Time: TBA (Curtin centrally scheduled)	1,2,3,4	No	Yes

*Please refer to the Late Assessment and the Assessment Extension sections below for specific details and conditions.

Detailed Information on assessment tasks

Worksheets - Individual worksheets based on activities performed in the weekly workshops

Weekly Worksheet (36%) - Individual

You will have a face to face scheduled workshop session each week, in which you will complete worksheets individually. You will need to complete and submit each worksheet on Blackboard within 24 hours of your workshop. Key activities will be marked, and you will receive weekly feedback through your Turnitin rubric and comments.

Workshop 1 is Technical Report Writing and sets the expectations for your lab reports in this unit, and beyond. It also forms part of the Faculty's SELL program, but does not form part of the unit assessment.

Workshops in Teaching Weeks 2-12 are designed to be completed within your weekly 2-hour workshop slot. Although workshop attendance is not compulsory, attendance will be taken. If you cannot attend your scheduled

workshop session, you can still attempt your workshop questions and submit within 24 hours. **Your best 9 out of 11 workshops will count towards your final mark, as no late submissions or extensions are possible for worksheets, regardless of reason.**

Technical report writing and professional attributes - based on observations and measurements

Discovery Labs (29%) - Individual and Group work (peer assessed)

The labs are designed to help you understand key concepts taught during lectures, but also discover, problem-solve, analyze results and learn professional skills such as the importance of occupational health and safety, teamwork, measurement and observation, and technical report writing.

Each student will do 3 labs (A, B and C), in a same group. To meet the unit hurdle, you must participate in at least 2 out of the 3 lab sessions. If you miss a lab, an online lab is available to help you understand lab content, however, it will not count towards lab participation. If you cannot attend due to illness or other unforeseen reason, please email prre1003@curtin.edu.au, and we will assist you with an alternative arrangement.

Lab assessments (total : 29%) are divided as follows:

- Lab A result quiz: 2%
- Lab B result quiz: 2%
- Lab C result quiz: 2%
- 2 Labs Participation OHS* : 3% (1.5% each)
- Lab A group report: 5%
- Lab B group report: 15%

*OHS counts for timely completion of Pre-lab quiz, wearing correct PPE for the lab, arriving on time for your lab and safe behaviour during the lab.

Pre-labs MUST be completed to 100% via Blackboard before lab entry and accessing Lab Results quiz.

Lab Results quiz (A, B, C) can be entered during the lab for instant feedback on your experiments, each student will have 3 attempts for each quiz and the highest mark will be taken.

Lab A report is worth 5%. You will receive feedback on your technical report for Lab A before you submit the Lab B report, which is worth 15%. Both Lab reports are due 1 week after your respective lab sessions.

Week 1 workshop will give you guide on the key aspects of technical Lab report-writing.

Extensions for Lab A and B report must be formally applied; otherwise, late submission will receive late penalties as specified in the unit outline.

Final Exam

Final Exam (35%) - Individual

The final exam will cover all content in lectures, and will take place in exam week (centrally scheduled).

It will be invigilated, under restricted conditions, allowing one A4 page of notes (both sides hand-written or typed).

It will contain both theoretical and numerical questions. Example questions will be provided closer to the exam date, for practice.

Pass requirements

To pass this unit, the following must be achieved:

A final mark of 50% or greater, AND

The unit hurdles are:

1. Pass the PELA test, or complete and pass the STEM AWE modules. Recently passing PELA or STEM AWE (Formerly SELL Program) in another unit will count towards satisfying this requirement, AND
2. Participate in at least 2 out of the 3 lab sessions and make reasonable contribution to the lab reports as deemed by team members AND
3. The student must make reasonable attempt with workshop submission. ***A "reasonable attempt" is interpreted as at least 5 out of 11 worksheets submitted.***

If you do not satisfy these hurdles, you will be given the grade F-IN, even if you obtained more than 50% of the marks available by completing other assessment tasks.

Assessment Moderation

Fair assessment through moderation

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that student work is evaluated consistently by assessors. Minimum standards for the moderation of assessments are described in the [Assessment and Student Progression Manual](#).

Pre-marking moderation

- For lab technical reports and weekly worksheets, assessors will be provided with a marking rubric prior to marking.
- Students will be provided with marking criteria with their assessment tasks.

Intra-marking / Post-marking moderation

- An analysis of the variances between markers between Bentley and other campuses
- An analysis of variance between markers, if more than one
- Second marking or check second marking of a sample of outliers (high or low scoring assessments)

Late Assessment

Where the submission of a late assessment is permitted, late penalties will be consistently applied in this unit.

Where a late assessment **is** permitted for an assessment item or the entirety of the unit (refer to the Assessment Schedule table in this Unit Outline) and the student does not have an approved assessment extension:

1. For assessment items submitted within the first 24 hours after the due date/time, students will be penalised by a deduction of 5% of the total marks allocated for the assessment task;
2. For each additional 24 hour period commenced an additional penalty of 10% of the total marks allocated for the assessment item will be deducted; and
3. Assessment items submitted more than 168 hours late (7 calendar days) will receive a mark of zero.

Where late assessment **is NOT** permitted for an assessment item or the entirety of the unit (refer to the Assessment Schedule table in this Unit Outline) and the student does not have an approved assessment extension:

1. All assessment items submitted after the due date/time will receive a mark of zero.

Assessment Extension

Where an application for an assessment extension **is** permitted for an assessment item(s) within this unit (refer to the Assessment Schedule table in this Unit Outline):

1. A student who is unable to complete an assessment item by/on the due date/time as a result of exceptional circumstances beyond the student's control, may apply for an assessment extension on the [Assessment Extension Form](#) and within the student OASIS (My Studies tab – Quick Forms) account.
2. Submit the application for an Assessment Extension with supporting documentation [via the online form](#).
3. An application may be accepted up to five working days after the due date/time of the assessment item where the student is able to provide a verifiable explanation as to why they were not able to submit the application prior to the assessment due date/time.

Where an application for an assessment extension **is NOT** permitted for an assessment item(s) within this unit (refer to the Assessment Schedule table in this Unit Outline):

1. All assessment items submitted after the due date/time will be subject to late penalties or receive a mark of zero depending on the unit permitting late assessment submissions.

Deferred Assessments

If your results show that you have been granted a deferred assessment you should immediately check OASIS for details.

Deferred examinations/tests will be held from 14/07/2025 to 19/07/2025. Notification to students will be made after the Board of Examiners' meeting via the Official Communications Channel (OCC) in OASIS.

Further Assessments

Further assessments, if granted by the Board of Examiners, will be held between 14/07/2025 to 19/07/2025. Notification to eligible students granted a further assessment will be made after the Board of Examiners meeting via the Official Communications Channel in OASIS.

It is the responsibility of the student to be available to complete the requirements of a further assessment. If your results show that you have been granted a further assessment you should immediately check OASIS for details.

Reasonable adjustments for students with disabilities/health circumstances likely to impact on studies

A [Curtin Access Plan](#) (CAP) is a document that outlines the type and level of support required by a student with a disability or health condition to have equitable access to their studies at Curtin. Carers for people with disability may also be eligible for support. This support can include alternative exam or test arrangements, study materials in accessible formats, access to Curtin's facilities and services or other support as discussed with an advisor from [AccessAbility Services](#).

Documentation is required from your treating Health Professional to confirm your health circumstances or carer responsibilities.

If you think you may be eligible for a CAP, please contact [AccessAbility Services](#). If you already have a CAP, please provide it to the Unit Coordinator in week 1 of each study period.

Referencing style

The referencing style of this unit is Vancouver.

More information can be found on this style from the library web site
<https://uniskills.library.curtin.edu.au/referencing/vancouver/introduction/>

Privacy

Curtin's [privacy statement](#) describes how personal information is handled. Curtin may record or transmit your image or voice during learning activities or class participation, both on campus and internationally. Students may also record for study purposes but must not share these recordings publicly and must seek permission from those recorded. Recordings cannot be used for commercial purposes or shared beyond personal study. Breaching the [privacy policy or procedures](#) may lead to disciplinary action under [Statute No 10](#). For privacy concerns, please contact your Unit Coordinator.

Copyright

The course material for this unit is provided solely for your personal research and study. It is protected by [copyright](#) and sharing it on third-party websites without Curtin University's written consent is a copyright infringement.

Academic Integrity

Curtin's [Student Charter](#), [Academic Integrity Program \(AIP\)](#), and core [Values](#) guide expectations regarding student behaviour and responsibilities. Information on these topics can be found on the [Academic Integrity Website](#).

Appropriate Use of Generative Artificial Intelligence (Gen-AI) technologies

Curtin supports the philosophy of teaching students to appropriately use Gen-AI technologies in an ethical and responsible way. Gen-AI technology is rapidly evolving and being incorporated into software programs, so it is important to understand how it can and cannot be used within your studies.

Check your assessment instructions carefully before using any Gen-AI software (e.g. Chat GPT, Midjourney, GitHub Copilot, etc.). You are not permitted to use Gen-AI software in any assessment task unless written permission is explicitly granted by the Unit Coordinator (e.g. within Blackboard or the assignment specifications). Where use of Gen-AI is approved, you must use it in accordance with those instructions. Unapproved, inappropriate, or undisclosed use may be dishonest or unfair behaviour, and thus considered misconduct.

Visit the [appropriate use of Gen-AI technologies website](#) and [library website on Gen-AI](#) for more information.

Academic Integrity Warnings

An [Academic Integrity Warning](#) may be issued to a student in limited circumstances and only where misconduct is not involved.

Academic Misconduct

Staff members are required to report suspected misconduct. [Academic misconduct](#) means conduct by a student that is dishonest or unfair in connection with any academic work. This includes all types of plagiarism, cheating, collusion, falsification or fabrication of content, and behaviours like falsifying medical certificates for extension. [Contract cheating](#), the use of file sharing, translation services/apps, paraphrasing tools (text-spinners), article generators, unapproved and inappropriate use of Gen-AI tools, and assignment help websites also may be considered academic misconduct. The longer term personal, social, and financial consequences of misconduct can be severe, so please ask your tutors or unit coordinator if you need clarification or are unsure what to do.

Information and Communications Technology (ICT) Expectations

Curtin students should ensure they have reliable internet access to connect to OASIS email, Blackboard or other Learning Management Systems, and Library Services. A computer or mobile device may be necessary for preparing and submitting assignments.

You may be required to use remote invigilation software like [IRIS](#) or [Respondus Monitor with Lockdown Browser](#) to verify your identity and monitor your behavior during online assessments. This requires a computer, webcam, microphone, and reliable internet access. If you don't have access to the necessary equipment, you can use the resources available at the Curtin University Library.

For general ICT assistance, please visit the [IT tools and guides website](#). For study resources and assistance, check out the [UniSkills website](#).

IT hardware expectations

Curtin students should ensure they have reliable internet access to connect to OASIS email, Blackboard or other Learning Management Systems, and Library Services. A computer or mobile device may be necessary for preparing and submitting assignments.

You may be required to use remote invigilation software like [IRIS](#) or [Respondus Monitor with Lockdown Browser](#) to verify your identity and monitor your behavior during online assessments. This requires a computer, webcam, microphone, and reliable internet access. If you don't have access to the necessary equipment, you can use the resources available at the Curtin University Library.

For general ICT assistance, please visit the [IT tools and guides website](#). For study resources and assistance, check out the [UniSkills website](#).

IT assistance

- Find information here about [campus computer labs and study facilities](#).
- You can search here for [which computer labs have particular software](#).
- Curtin Connect IT Support is available by phone on 1300 222 888.
- For on-campus Abacus lab assistance, call the IT Service Desk on 08 9266 9000 option 2, or email service.desk@curtin.edu.au.

Free and discounted software

As a Curtin student, you have access to a range of [free and discounted software](#). Follow these steps to download your free copy of Microsoft Office 365: (1) within the [OASIS](#) 'Welcome' tab, click on 'Open your OASIS email' ; (2) click 'Office 365' in the top left corner of the page; and (3) select 'Install Office' and follow the prompts.

Additional information

Assessment Item	Unit learning outcomes assessed	EA Professional competencies assessed ¹	Level of learning ²
Worksheets	1,2,3,4,6	1.1 Science/Engineering fundamentals 1.2 Conceptual understanding 1.3 Specialist knowledge 2.1 Problem Solving 2.3 Systematic Use 3.4 Information Use 3.5 Self Conduct	Comprehension
Practical Lab and Reports	2,3,5,6	1.1 Science/Engineering fundamentals 1.2 Conceptual understanding 1.3 Specialist knowledge 1.5 Context 1.6 Engineering Practice 2.2 Use of Techniques 3.1 Professionalism 3.2 Communication 3.4 Information Use 3.5 Self Conduct 3.6 Team work	Comprehension, Application and Analysis
Final Exam	1,2,3,4	1.1 Science/Engineering fundamentals 1.2 Conceptual understanding 1.3 Specialist knowledge 2.1 Problem Solving 3.5 Self Conduct	Knowledge, Comprehension, Analysis

[ENGINEERS AUSTRALIA Stage 1 competencies](#) and elements of competency assessed in this unit¹

1. KNOWLEDGE AND SKILL BASE

1.1. Science/Engineering fundamentals: Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.

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

1.3. Specialist knowledge: In-depth understanding of specialist bodies of knowledge within the engineering discipline.

1.4. Development & Research: Discernment of knowledge development and research directions within the engineering discipline.

1.5. Context: Knowledge of contextual factors impacting the engineering discipline.

1.6. Engg. Practice: Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline.

2. ENGINEERING APPLICATION ABILITY

2.1. Problem solving: Application of established engineering methods to complex engineering problem solving.

2.2. Use of techniques: Fluent application of engineering techniques, tools and resources.

2.3. Systematic use: Application of systematic engineering synthesis and design processes.

2.4. Project management: Application of systematic approaches to the conduct and management of engineering projects.

3. PROFESSIONAL AND PERSONAL ATTRIBUTES

- 3.1. **Professionalism:** Ethical conduct and professional accountability
- 3.2. **Communication:** Effective oral and written communication in professional and lay domains.
- 3.3. **Creativity:** Creative, innovative and pro-active demeanour.
- 3.4. **Information use:** Professional use and management of information.
- 3.5. **Self Conduct:** Orderly management of self, and professional conduct.
- 3.6. **Team work:** Effective team membership and team leadership.

Levels of Learning²

Knowledge: Recall of something encountered before but without having to change it, use it or understand it; facts.

Comprehension: Understanding the knowledge that has been acquired without needing to relate it to other information.

Application: Use of a learned concept to resolve some situation or solve a new problem in an appropriate way.

Analysis: Taking something learned apart into separate components for purposes of thinking about the parts and how they fit together.

Synthesis: Generating or creating something different by assembling or connecting ideas in a way that makes a whole.

Evaluation: Looking at the particular value of materials, information or methods in characterizing the whole.

Enrolment

It is your responsibility to ensure that your enrolment is correct - you can check your enrolment through the eStudent option on OASIS, where you can also print an Enrolment Advice.

Student Rights and Responsibilities

Students must be aware of all relevant legislation, policies, and procedures concerning their rights and responsibilities. This information is available on the [student rights and responsibilities](#) website.

Student Equity

Several factors might hinder students from performing their best in studies or assessments, such as disabilities, medical conditions, significant caring responsibilities, pregnancy, religious practices, remote living, or other reasons. If you believe you are unfairly disadvantaged, contact the appropriate service. University staff can only assist if they are aware of your circumstances, so please reach out for help.

To discuss your needs in relation to:

1. Disability or medical conditions, contact [AccessAbility Services](#)
2. Elite athletes, contact [Elite Athlete Coordinator](#)
3. All other grounds, contact the [Student Wellbeing Advisory Service](#)

Recent Unit Changes & Response to Student Feedback

Students are encouraged to provide feedback through student surveys (such as [Insight](#) and the annual [Student Experience Survey](#)) and interactions with teaching staff.

Listed below are some recent changes to the unit as a result of student feedback.

Workshops - Students value the weekly worksheets, but often forgot to submit their assessments. Students also misread the due dates on Elsie, or forgot to confirm submissions on Turnitin. This will be addressed explicitly so students are made aware of due dates in their workshops and shown how to submit properly. Lecture slides will be annotated to indicate material related specifically to worksheets.

Labs - Better and more timely feedback will be provided for Lab A reports. A guide to navigate group work relating to writing the lab report will be provided.

Improvement to Weekly Digest - Students enjoy getting a weekly update to what they need to do. A more comprehensive table related to class #s and due dates will be provided each week.

Program Calendar

Program Calendar – Semester 1 2025

Teaching Week	Begin date	Online Lecture	Lecturer	Labs	Workshop	Assessment Due
	17-Feb	Orientation Week				
1	24-Feb	Resources R1	Nina Darmawan	No Labs	Task 1 (Only for Academic Writing Diagnostic)	
2	3-Mar	Resources R2	Dimple Quyn	No Labs	Worksheet R1	
3	10-Mar	Materials M1	Garry Leadbeater	Lab A	Worksheet R2	
4	17-Mar	Materials M2	Garry Leadbeater	Lab A	Worksheet M1	Lab A report
5	24-Mar	Processes P1	Sinem Yavuz	Lab A	Worksheet M2	Lab A report
6	31-Mar	Processes P2	Masood Mostofi	Lab B	Worksheet P1	Lab A report
7	7-Apr	Processes P3	Laurence Dyer	Lab B	Worksheet P2	Lab B report

8	14-Apr	Processes P4	Dimple Quyn	Lab B	Worksheet P3	Lab B report
	21-Apr	Tuition Free Week				Lab B report
9	28-Apr	Processes P5	Garry Leadbeater	Lab C	Worksheet P4	
10	5-May	Processes P6	Dimple Quyn	Lab C	Worksheet P5	
11	12-May	Emerging materials E1	Nadim Darwish	Lab C	Worksheet P6	
12	19-May	Emerging Processes E2	Tejas Bhatelia Craig Buckley	No Labs	Worksheet E1	
	26-May	Study Week				
	2-Jun	Examinations				
	9-Jun	Examinations				