

## Unit Outline

PRRE1003 Resources, Processes and Materials Engineering  
Semester 2, 2022

<b>Unit study package code:</b>	PRRE1003																																
<b>Mode of study:</b>	Internal																																
<b>Tuition pattern summary:</b>	<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>																																
<b>Credit Value:</b>	25.0																																
<b>Pre-requisite units:</b>	Nil																																
<b>Co-requisite units:</b>	Nil																																
<b>Anti-requisite units:</b>	Nil																																
<b>Result type:</b>	Grade/Mark																																
<b>Approved incidental fees:</b>	<p>Information about approved incidental fees can be obtained from our website. Visit <a href="https://fees.curtin.edu.au/incidental_fees.cfm">fees.curtin.edu.au/incidental_fees.cfm</a> for details.</p>																																
<b>Unit coordinator:</b>	<table><tr><td><b>Title:</b></td><td>Dr</td></tr><tr><td><b>Name:</b></td><td>Dimple Quyn</td></tr><tr><td><b>Phone:</b></td><td>+61 8 9266 7825</td></tr><tr><td><b>Email:</b></td><td>Dimple.Quyn@curtin.edu.au</td></tr><tr><td><b>Location:</b></td><td>Building: 204 - Room: 106A</td></tr></table>	<b>Title:</b>	Dr	<b>Name:</b>	Dimple Quyn	<b>Phone:</b>	+61 8 9266 7825	<b>Email:</b>	Dimple.Quyn@curtin.edu.au	<b>Location:</b>	Building: 204 - Room: 106A																						
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<b>Teaching Staff:</b>	<table><tr><td><b>Name:</b></td><td>Dr Irene Suarez-Martinez</td></tr><tr><td><b>Phone:</b></td><td>+61 8 9266 3824</td></tr><tr><td><b>Email:</b></td><td>I.Suarez-Martinez@curtin.edu.au</td></tr><tr><td><b>Location:</b></td><td>Building: 301 - Room: 210A</td></tr><tr><td><b>Name:</b></td><td>A/Prof Laurence Dyer</td></tr><tr><td><b>Phone:</b></td><td>+61 8 9088 6122</td></tr><tr><td><b>Email:</b></td><td>Laurence.Dyer@curtin.edu.au</td></tr><tr><td><b>Location:</b></td><td>Building: 703 (WASM, Kalgoorlie) - Room: 112</td></tr><tr><td><b>Name:</b></td><td>Dr Masood Mostofi</td></tr><tr><td><b>Phone:</b></td><td>+61 8 9266 4989</td></tr><tr><td><b>Email:</b></td><td>Masood.Mostofi@curtin.edu.au</td></tr><tr><td><b>Location:</b></td><td>Building: 619 (Tech Park) - Room: 109</td></tr><tr><td><b>Name:</b></td><td>Dr Tejas Bhatelia</td></tr><tr><td><b>Phone:</b></td><td>+61 8 9266 1215</td></tr><tr><td><b>Email:</b></td><td>T.Bhatelia@curtin.edu.au</td></tr><tr><td><b>Location:</b></td><td>Building: 204 - Room: N/A</td></tr></table>	<b>Name:</b>	Dr Irene Suarez-Martinez	<b>Phone:</b>	+61 8 9266 3824	<b>Email:</b>	I.Suarez-Martinez@curtin.edu.au	<b>Location:</b>	Building: 301 - Room: 210A	<b>Name:</b>	A/Prof Laurence Dyer	<b>Phone:</b>	+61 8 9088 6122	<b>Email:</b>	Laurence.Dyer@curtin.edu.au	<b>Location:</b>	Building: 703 (WASM, Kalgoorlie) - Room: 112	<b>Name:</b>	Dr Masood Mostofi	<b>Phone:</b>	+61 8 9266 4989	<b>Email:</b>	Masood.Mostofi@curtin.edu.au	<b>Location:</b>	Building: 619 (Tech Park) - Room: 109	<b>Name:</b>	Dr Tejas Bhatelia	<b>Phone:</b>	+61 8 9266 1215	<b>Email:</b>	T.Bhatelia@curtin.edu.au	<b>Location:</b>	Building: 204 - Room: N/A
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**Name:** Professor Craig Buckley  
**Phone:** +61 8 9266 3532  
**Email:** C.Buckley@curtin.edu.au  
**Location:** Building: 301 - Room: 101

**Name:** A/Prof Dimple Quyn  
**Phone:** +61 8 9266 7825  
**Email:** Dimple.Quyn@curtin.edu.au  
**Location:** Building: 204 - Room: 106A

**Name:** Dr Garry Leadbeater  
**Phone:** +61 8 9266 4726  
**Email:** G.Leadbeater@curtin.edu.au  
**Location:** Building: 204 - Room: 206

**Name:** Dr Sinem Yavuz  
**Phone:** +61 8 9266 4972  
**Email:** Sinem.Yavuz@curtin.edu.au  
**Location:** Building: 613 (ARRC, Tech Park) - Room: 4H20

**Administrative contact:** **Name:** Ruby Lo  
**Phone:** N/A  
**Email:** PRRE1003@curtin.edu.au  
**Location:** Building: NA - Room: NA

**Learning Management System:** [Blackboard](https://lms.curtin.edu.au) (lms.curtin.edu.au)

## Acknowledgement of Country

We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present. The [Centre for Aboriginal Studies](#) aspires to contribute to positive social change for Indigenous Australians through higher education and research.

## Coronavirus (COVID-19) Update

Curtin University is committed to supporting all our students and staff whether they are on campus, working remotely or overseas. Your health, safety and wellbeing are our priority and the continuing COVID-19 pandemic may require changes to the unit schedule, learning activities, delivery modes and assessment to provide flexible and safe options to our community. Curtin will endeavour to keep changes and disruptions to a minimum at all times. For current advice and further information visit <https://www.curtin.edu.au/novel-coronavirus/>.

## 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 understanding 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. The Material classification into Raw, Bulk and Engineering Materials and the Processes that are used to transform them from one into the other will be learnt. 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 the **SELL Diagnostic**, a mandatory requirement of the university, in **Workshop 1 (Technical Report-Writing), Task 1**. The results of the diagnostic will be used to determine if students would benefit from the SELL Program (Science English Language and Literacy Program). More information can be found here:*

*<https://www.curtin.edu.au/students/study-support/skills/science-engineering/>.*

*Please note you will only have to complete the SELL Diagnostic and the SELL Program (if required) **once, in one unit of study, throughout your course of study**. Failure to complete the SELL diagnostic and/or the SELL Program will result in an incomplete mark F-1N 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. Please contact [SELL@curtin.edu.au](mailto:SELL@curtin.edu.au), if you have any questions.*

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## Unit Learning Outcomes

All graduates of Curtin University achieve a set of six Graduate Capabilities during their course of study. These inform an employer that, through your studies, you have acquired discipline knowledge and a range of other skills and capabilities which employers would value in a professional setting. Each unit in your course addresses the Graduate Capabilities through a clearly identified set of learning outcomes. They form a vital part in the process referred to as assurance of learning. The learning outcomes notify you of what you are expected to know, understand or be able to do in order to be successful in this unit. Each assessment for this unit is carefully designed to test your knowledge of one or more of the unit learning outcomes. On successfully completing all of the assessments you will have achieved all of these learning outcomes.

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

On successful completion of this unit students can:		Graduate Capabilities addressed
1	Use effective communication techniques to describe the entire life cycle of resources, processing and end products, with consideration to the transformation of materials, energy and to sustainability	 
2	Classify established and emerging materials according to their physical form, chemical composition and properties, including mechanical, thermal, electrical, optical and rheological properties	 
3	Use effective communication techniques to report how materials' properties are altered, and the material and energy balances that apply, through processes undergone over their life cycle, namely: sourcing, producing, treating, recycling, disposing, corrosion and/or others	  
4	Select potential materials for a variety of applications by considering their properties and predicting their response to changes in their operating environment	 
5	Demonstrate academic integrity and good communication skills to explain the impact of engineering decisions relating to materials production, extraction, processing, selection, sustainable use and disposal, on the environment and society	 

### 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 Peoples and other diverse cultures		Industry connected and career capable
Find out more about Curtin's Graduate Capabilities at the Learning Innovation and Teaching Excellence Centre (LITEC) website: <a href="https://litemc.curtin.edu.au">litemc.curtin.edu.au</a>					

### Learning Activities

All students in this unit are expected to participate in every weekly learning activity. Each week there is an expectation that you will arrive in your class having completed any previous assigned work.

**Lectures (2 hours) and Workshops (2 hours):** Weekly lectures will deliver the core concepts required for the unit, with an array of lecturers who are experts in their fields. The workshops are related to each of the lectures in the week prior, and are designed to engage and enhance the learning of the key concepts. Each group will work together on fun and interactive problems.

**Discovery Labs (face to face) A, B and C:** There are 3 discovery labs scheduled for each student. The labs are designed to provide and an overall hands-on understanding of key unit concepts, but also inspire enthusiasm and inspire curiosity. Lab Report A will be a formative assessment, for feedback only. Lab report B is the summative group assessment.

### Learning Resources

#### Library Reading List

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

#### Recommended texts

You do not have to purchase the following textbooks but you may like to refer to them.

- *Materials engineering: Bonding, Structure, and Structure-Property Relationships*. by Troler-McKinstry and

Newnham, 2018.

(ISBN/ISSN: 1107103789; 9781107103788)

- *Materials: Engineering, Science, Processing and Design*, by Ashby, Shercliff and Cebon, 2007, 3rd edition.  
(ISBN/ISSN: 0-08-047149-8; 9786610962518; 1-280-96251-8)
- *Materials Science and Engineering*, by Carter and Paul, 1991.  
(ISBN/ISSN: 1-61503-984-8; 1-62198-301-3)
- *Materials Science and Engineering: An Introduction*, by Callister and Rethwisch, 2014.  
(ISBN/ISSN: 9781118477700; 9781118324578)
- *Introduction to Chemical Engineering: Tools for Today and Tomorrow*, by Solen and Harb, 2011.  
(ISBN/ISSN: 9780470885727)
- *Chemical Technology: An Integral Textbook*, by Jess and Wasserscheid, 2013.  
(ISBN/ISSN: 3-527-67062-9; 1-299-31361-2)

## 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%	<b>Week:</b> Teaching weeks 2-12 <b>Day:</b> 24 hours after each workshop <b>Time:</b> as per your scheduled workshop session	1,4,5	No	No
2	Technical report writing and professional attributes - based on observations and measurements	29%	<b>Week:</b> Teaching Week 7 or 9 or 10 <b>Day:</b> 2 weeks after scheduled lab <b>Time:</b> End of day	2,3	No	Yes
3	Final Exam	35%	<b>Week:</b> Exam week <b>Day:</b> TBA <b>Time:</b> TBA	1,2,3,4,5	No	Yes

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

### Detailed information on assessment tasks

#### 1. Weekly Worksheets (36%) - Individual

You will have a face to face scheduled workshop session each week, in which you will work in groups to perform activities, with staff to assist you. 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, and are highly interactive. 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**.

Please note that if University Covid restrictions are revised, then workshops will be held online and you will be notified.

## 2. **Discovery Labs (29%) - Individual and Group work (peer assessed)**

You will each do 3 labs (A, B and C), in the same group, that will be chosen on your first lab day. The labs are designed to help you understand key concepts taught during lectures, but also discover, problem-solve, analyse results and learn professional skills such as the importance of health and safety, teamwork, measurement and observation, and technical report writing.

**Pre-labs** MUST be completed via Blackboard before entry into labs is granted. **Lab Results** can be input during the lab, for instant feedback on your experiments during the lab sessions.

Lab A report is a formative assessment, and will be marked if submitted 2 weeks after your lab session. You will receive feedback on your technical report for Lab A before you submit the Lab B report. Week 1 workshops will teach you the key aspects of technical report-writing.

Lab B report will be marked as follows: 22% report (group), 5% Lab B Results (individual), 2% OHS (timely completion of Pre-Lab Quiz and wearing of correct PPE).

Lab attendance is compulsory. The pre-lab preparation must be completed the day before your scheduled lab session to access your Lab Results. *If you cannot attend due to illness or other unforeseen reason, please email **PRRE1003@curtin.edu.au** who will assist you with an alternative arrangement.*

## 3. **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- or type-written). 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:

1. A final mark of 50% or greater, AND
2. The student must participate in or make reasonable attempt with all assessment tasks.

*A "reasonable attempt" is interpreted as at least 6 out of 11 worksheets submitted, participation in at least 2 out of the 3 lab sessions, **and** reasonable contribution to the lab reports (as deemed by team members).*

## Assessment Moderation

### Fair assessment through moderation

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that students work is evaluated consistently by assessors. Minimum standards for the moderation of assessments are described in the Assessment and Student Progression Manual, available from [policies.curtin.edu.au/findapolicy/](https://policies.curtin.edu.au/findapolicy/)

### 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

Post-marking moderation will include:

- 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)

This unit complies with moderation of assessments as described in the Assessment and Student Progression Manual, available from [policies.curtin.edu.au/findapolicy/](https://policies.curtin.edu.au/findapolicy/)

### 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 Application Form as prescribed by the Academic Registrar. The form is available on the Forms page at <https://students.curtin.edu.au/essentials/forms-documents/forms/> and also within the student's OASIS (My Studies tab – Quick Forms) account.
2. The student will be expected to submit their application for an Assessment Extension with supporting documentation [via the online form](#).
3. Timely submission of this information supports the assessment process. For applications that are declined, delayed submission may have significant ramifications on the possible marks awarded.
4. 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 07/12/2022 to 16/12/2022 . Notification to students will be made after the Board of Examiners meeting via the Official Communications Channel (OCC) in OASIS.

### Further assessment

Further assessments, if granted by the Board of Examiners, will be held between 07/12/2022 and 16/12/2022 . Notification to students 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 for this unit is Vancouver.

More information can be found on this style from the Library web site:

<https://libguides.library.curtin.edu.au/uniskills/referencing/vancouver>.

## Privacy

As part of a learning or assessment activity, or class participation, your image or voice may be recorded or transmitted by equipment and systems operated by Curtin University. Transmission may be to other venues on campus or to others both in Australia and overseas.

Your image or voice may also be recorded by students on personal equipment for individual or group study or assessment purposes. Such recordings may not be reproduced or uploaded to a publicly accessible web environment. If you wish to make such recordings for study purposes as a courtesy you should always seek the permission of those who are impacted by the recording.

Recording of classes or course materials may not be exchanged or distributed for commercial purposes, for compensation, or for any other purpose other than personal study for the enrolled students in the unit. Breach of this may subject a student to disciplinary action under Statute No 10 – Student Disciplinary Statute.

If you wish to discuss this please talk to your Unit Coordinator.

## Copyright

The course material for this unit is provided to you for your own research and study only. It is subject to copyright. It is a copyright infringement to make this material available on third party websites without the express written consent of Curtin University.

## Academic Integrity (including plagiarism and cheating)

### 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](#).

### 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 [poor academic practice](#) and 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, 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 for help if you are unsure.

If your work is the subject of an inquiry, you will be given an opportunity to respond and appropriate support will be provided. Academic work under inquiry will not be graded until the process has concluded. Penalties for misconduct may include a warning, a reduced or nil grade, a requirement to repeat the assessment, an annulled grade (ANN) or termination from the course. For more information refer to [Statute No.10 Student Discipline and Academic Misconduct Rules](#).

## Information and Communications Technology (ICT) Expectations

Curtin students are expected to have reliable internet access in order to connect to OASIS email and learning systems such as Blackboard and Library Services.

You may also require a computer or mobile device for preparing and submitting your work.

Curtin Connect IT Support is available by phone (Phone: 1300 222 888)

For on campus Abacus lab assistance please call the IT Service Desk on 08 9266 9000 option 2, or email [service.desk@curtin.edu.au](mailto:service.desk@curtin.edu.au)

- ***Students are expected to have all the necessary equipment to study this unit – a computer, webcam, microphone, and reliable internet access. If access to any necessary equipment is not available students should use the resources available in the Curtin University Library. If accessing the Curtin Library is not possible, please contact your Unit Coordinator who will be able to refer you to support service. If you need support or to access IT equipment on campus find out more [here](http://www.students.curtin.edu.au/study-support/facilities-equipment/): [www.students.curtin.edu.au/study-support/facilities-equipment/](http://www.students.curtin.edu.au/study-support/facilities-equipment/)***
- As a Curtin student, you have access to a range of [free and discounted software](#). Follow the steps below to download your free copy of Microsoft Office 365.
- Within the [OASIS](#) 'Welcome' tab, click on 'Open your OASIS email'. Click 'Office 365' in the top left corner of the page. Select 'Install Office' and follow the prompts.

For general ICT assistance, in the first instance please contact OASIS Student Support:

[oasisapps.curtin.edu.au/help/general-support.cfm](http://oasisapps.curtin.edu.au/help/general-support.cfm)

For specific assistance with any of the items listed below, please contact The Learning Centre:

[life.curtin.edu.au/learning-support/learning-centre.htm](http://life.curtin.edu.au/learning-support/learning-centre.htm)

- Using Blackboard, the i-Drive and Back-Up files
- Introduction to PowerPoint, Word and Excel

## Additional information

### Unit Assessment Outcomes and Competencies

Assessment Item	Unit learning outcomes assessed	EA Professional competencies assessed <sub>1</sub>	Level of learning <sub>2</sub>
Worksheets	1,3,4,5	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, Application and Analysis
Lab Reports	2,3	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 Teamwork	Comprehension
Final Exam	1,2,3,4,5	1.1 Science/Engineering fundamentals 1.2 Conceptual understanding 1.3 Specialist knowledge 2.1 Problem Solving 3.5 Self Conduct	Comprehension, Application and Analysis

Assignment Project Exam Help

<https://powcoder.com>

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### ENGINEERS AUSTRALIA Stage 1 competencies and elements of competency assessed in this unit <sub>1</sub>

#### 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 Learning

#### **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**

It is the responsibility of every student to be aware of all relevant legislation, policies and procedures relating to their rights and responsibilities as a student. These include:

- the Student Charter
- Values and Signature Behaviours
- the University's policy and statements on plagiarism and academic integrity
- copyright principles and responsibilities
- the University's policies on appropriate use of software and computer facilities

Information on all of the above is available through the University's "Student Rights and Responsibilities" website at: [students.curtin.edu.au/rights](https://students.curtin.edu.au/rights).

Note: In Australia and other jurisdictions, students are required to complete a screening check prior to undertaking any activities that include children (e.g. surveying children at a school as part of a project). If this applies to you, start by contacting your unit coordinator for advice.

## Student Equity

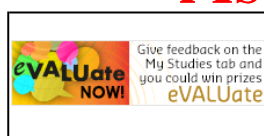
There are a number of factors that might disadvantage some students from participating in their studies or assessments to the best of their ability, under standard conditions. These factors may include a disability or medical condition (e.g. mental illness, chronic illness, physical or sensory disability, learning disability), significant caring responsibilities, pregnancy, religious practices, living in a remote location, or another reason. If you believe you may be unfairly disadvantaged on these or other grounds please contact the appropriate service below. It is important to note that the staff of the University may not be able to meet your needs if they are not informed of your individual circumstances, so please get in touch with the appropriate service if you require assistance.

To discuss your needs in relation to:

- Disability or medical conditions, contact AccessAbility Services: <https://students.curtin.edu.au/personal-support/disability/>
- Elite athletes, contact Elite Athlete Coordinator: <https://stadium.curtin.edu.au/sport/academy/elite-athlete-program/>
- All other grounds, contact the Student Wellbeing Advisory Service: <https://students.curtin.edu.au/personal-support/counselling-guidance/wellbeing/>

## Recent unit changes

Students are encouraged to provide unit feedback through **eVALUate**, Curtin's online student feedback system. For more information about **eVALUate** please refer to <https://evaluate.curtin.edu.au/info/>



To view previous student feedback about this unit, search for the Unit Summary Report at [https://evaluate.curtin.edu.au/student/unit\\_search.cfm](https://evaluate.curtin.edu.au/student/unit_search.cfm). See <https://evaluate.curtin.edu.au/info/dates.cfm> to find out when you can **eVALUate** this unit.

Recent changes to this unit include:

Based on student comments, the following key changes have been made for S2:

**Workshops** - Students value the weekly worksheets, but often forgot to submit their assessment. 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.

**Labs** - Labs will be re-named Labs A,B,C. Only Lab B will require a group report for submission, and it will be **2 weeks** after the Lab session to allow for more time. Lab A group report will be marked for feedback purposes only. Lab C will NOT require a lab report to be submitted but will have outcomes assessed in the final exam.

All Labs will require a Pre-Lab to be completed by the Sunday before your lab week, to ensure that staff have time to collate completions. Lab B assessment will take into account Pre-Lab, Lab B Results and the technical report.

**Final Exam** - this will replace the group project, as students disliked group work and found it very difficult to manage their time effectively over a long project period. The final exam will be structured better than in past years, to enable both conceptual and numerical problems to be assessed better, and to align with lectures and workshops.

## Program calendar

Teaching Week	Begin Date	Lecture	Lecturer	Labs	Tutorial/Other	Assessment Due	
	18-Jul	Orientation Week					
1.	25-Jul	RESOURCES R1	Dimple Quyn	No Labs	Task 1 (only for SELL Diagnostic)		
2.	1-Aug	RESOURCES R2	Dimple Quyn	No Labs	Worksheet R1		
3.	8-Aug	MATERIALS M1	Sofia Hazarabedian	Lab A	Worksheet R2		
4.	15-Aug	MATERIALS M2	Garry Leadbeater	Lab A	Worksheet M1		
5.	22-Aug	PROCESSES P1 Exploration Geophysics	Sinem Yavuz	Lab A	Worksheet M2	Lab A Report (feedback only)	
6.	29-Aug	PROCESSES P2 Drilling	Masood Mostofi	Lab B	Worksheet P1	Lab A Report (feedback only)	
	5-Sep	Tuition Free Week					Lab A Report (feedback only)
7.	12-Sep	PROCESSES P3 Mining & Metallurgy	Laurence Dyer	Lab B	Worksheet P2	Lab B Report	
8.	19-Sep	PROCESSES P4 Hydrocarbon Processing	Dimple Quyn	Lab B	Worksheet P3		
9.	26-Sep	PROCESSES P5 Manufacturing	Garry Leadbeater	Lab C	Worksheet P4	Lab B Report	
10.	3-Oct	PROCESSES P6 Corrosion & Sustainability	Dimple Quyn	Lab C	Worksheet P5	Lab B Report	
11.	10-Oct	Emerging Materials: Nanomaterials	Irene Suarez-Martinez	Lab C	Worksheet P6		
12.	17-Oct	Emerging Processes: 3D Printing & Hydrogen Technologies	Tejas Bhatelia / Craig Buckley	No Labs	Worksheet E1		
	24-Oct	Study Week					
	31-Oct	Examinations					
	07-Nov	Examinations					