Faculty of Engineering

School of Minerals and Energy Resources Engineering

Undergraduate Course Outline

MINE2810

Minerals & Processing

Part B

A/Prof Seher Ata

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1. INFORMATION ABOUT THE COURSE

Course Code:	MINE2810	Semester:	T3, 2019	Level:	UG	Units/Credits	6 UOC
Course Name:	Minerals & Processing						

Course Convenor:	***Dr Seher Ata***		
Contact Details	School of Minerals and Energy Resources Engineering Old Main Building - Rm 159C	EMAIL:	***s.ata@unsw.edu.au*,**
		Phone:	+61 2 9385 7659

1.1. Course Description

MINE2810 consists of two parts. Geology and Mineral Processing. This course outline provides information for the second part (Part B).

Part B is an introductory course in metallurgical processing, designed for students with no prior training in this area. Students are not expected to become expert practitioners in the field, but to learn enough about the concepts and processes to work effectively with metallurgists/mineral processing engineers in the field.

Topics covered include comminution, physical separation, classification, coal preparation, flotation, dewatering, leaching, CIP and solvent extraction. Some basic analytical tools and a wide range of metallurgical terms and concepts are covered.

Key sustainability issues are also examined briefly, including the drive to reduce energy use in crushing and grinding, reduce water usage across all areas of processing, and minimise environmental damage.

1.2. Course Completion

Course completion requires submission of all assessment items; failure to submit all assessment items will result in the award of an Unsatisfactory Failure (UF) grade for the Course.

1.3. Assumed Knowledge

This course assumes that a student:

- is currently enrolled in the Mining Engineering single degree program or a Mining Engineering double degree program at UNSW;
- has basic knowledge of mineral processing terms and descriptions; and
- has some basic understanding of mineral processing operations to follow the course effectively

2. AIMS, LEARNING OUTCOMES AND GRADUATE ATTRIBUTES

2.1. Course Aims

This course aims to equip the student with knowledge of mineral processing unit operations normally associated with the production of metal ores and coal preparation. Knowledge of hydrometallurgy unit operations normally associated with the production of major metals (i.e. copper and gold) is also provided.

2.2. Learning Outcomes

At the conclusion of this course, students should be able to:

1. Describe the work that metallurgists and mineral process engineers do.
2. Describe the major issues in mineral and metallurgical processing.
3. Explain the implications of mineralogical characteristics for mineral processing requirements
4. Define common mineral processing and metallurgical terms.
5. Interpret technical reports.
6. Conduct basic mass balance calculations involved in several unit operations from mineral processing to hydrometallurgy.
7. Describe commonly used mineral and metallurgical processes used in Australia in the following industries:
    - Base metals processing (copper)
    - Precious metals processing (CIP process for gold recovery)
    - Coal Processing

2.3. Graduate Attributes

1. This course will contribute to the development of the following Graduate Attributes:
2. appropriate technical knowledge
3. having advanced problem solving, analysis and synthesis skills with the ability to tolerate ambiguity
4. ability for engineering design and creativity
5. awareness of opportunities to add value through engineering and the need for continuous improvement
6. being able to work and communicate effectively across discipline boundaries
7. having HSEC consciousness
8. being active life-long learners.

3. REFERENCE RESOURCES

3.1. Reference Materials

- Wills BA &Napier-Munn T J, 2006. Mineral Processing Technology, Butterworth-Heinemann, Oxford.
- Morrell S, Morrison R D & Kojovic T, 1996. Mineral Comminution Circuits: Their Operation and Optimisation. (Series: JKMRC Monograph Series in Mining and Mineral Processing No. 2). Series Editor, T J Napier-Munn, published by Julius Kruttschnitt Mineral Research Centre, University of Queensland.
- Hayes P C, 2003. Process Principles In Minerals & Materials Production, Hayes Publishing Co.
- Noakes M & Lanz T (Ed). Cost estimation handbook for the Australian mining industry Published Parkville, Vic.: Australasian Institute of Mining and Metallurgy, 1993 Monograph 20.
- Robert W Bartlett,1998. Solution Mining: Leaching and Recovery of Materials.
- Sutherland K L & Wark I W, 1955. Principles of Flotation, Australasian Institute of Mining and Metallurgy, 489 pages.
- Publications from Suppliers and Original Equipment Manufacturers.
- Gupta A &Yan DS, 2006. Mineral Processing Design and Operations, An Introduction, Amsterdam: Elsevier.
- Rhodes M,1998. Introduction to Particle Technology, Wiley, West Sussex.
- Ritcey GM, 2006. Solvent Extraction – Principles and Applications to Process Metallurgy, (2nd ed.). Ottawa, Canada: Gordon M.
- Habashi F, 1969. Principles of Extractive Metallurgy, Volume 1. General Principles, Gordon & Breach, New York – London – Paris 1969 (reprinted 1980), 413 pages.
- Weiss N L, 1985. SME Mineral Processing Handbook, SME American Institute of Mining, metallurgy, and Petroleum Engineers, New York.

3.2. Other Resources

- Laboratory Experiments Learning Guidelines (available on the course Moodle).
- Report Writing Guide for Mining Engineers. P Hagan and P Mort (Mining Education Australia (MEA)). (Latest edition available for download from the School website or a hardcopy version is available from the UNSW Bookshop).
- The Complete Idiot's Guide to Project Management. G Campbell and S Baker (Alpha: New York) or its equivalent.
- Guide to Authors. (Australasian Institute of Mining and Metallurgy: Melbourne) (Available for download from the AusIMM website).
- Style Manual for Authors, Editors and Printers, 2002. 6th edition (John Wiley & Sons)
- EndNote, software package available to UNSW students.

3.3. Online Resources

Selected readings as well as other supporting material (e.g. course outline and lecture notes will be made available on Moodle.

Videos are often provided to students as a web stream within the Moodle learning management system. Videos are not available for download by students, unless approved by the Course Convenor and either the Undergraduate or Postgraduate Coursework Director. Special consideration can be provided for students to access videos off-line (eg. working remotely). Please contact the Course Convenor for more information. Note that UNSW reserves the right to deliver videos as a web stream rather than off-line, and cannot provide videos that are copyright from other providers.

4. COURSE CONTENT AND LEARNING ACTIVITIES

4.1. Learning Activities Summary

UNSW WEEK	Week Starting	Topic	Content/Activities
6	21 Oct	Introduction Liberation & Comminution Classification	1.1 Course Introduction – Structure, assessment, lab experiments, Moodle, etc.
			1.2 Metallurgical domains, test work
			1.3 Mineral liberation, Energy and size reduction theories
			1.4 Size reduction equipment & comminution circuits
			1.5 Classification & equipment, representing sizing data
7	28 Oct	Physical separation Practical sessions	2.1 Physical separation (gravity, magnetic, electrostatic separation)
			2.2 Physical separation equipment, performance curves
			2.3 Flotation and grinding / sieving labs
8	4 Nov	Chemical processing Flotation	3.1 Leaching in heaps & tanks; SXEW circuits
			3.2 CIP circuits
			3.3 Froth flotation: fundamentals; reagents, flotation kinetics, Froth equipment & circuits
9	11 Nov	Coal preparation Dewatering	4.1 Coal formation and ranking, and coal preparation: Crushing; screening; dense media separation; flotation; washability curves
			4.2 Dewatering methods, equipment and flocculation use
10	18 Nov	Mass balance AVIE	5.1 Metallurgical mass balances, grade & recovery calculation
			5.2 Virtual tour of a copper processing plant

Total student effort hours: Approx. 150
(Note: The above indication of "student effort hours" is indicative only – It reflects the anticipated level of total student involvement with the course – either through accessing or participating in online materials and activities; private research; preparation of assignments. Individual students may find their level of involvement differs from this schedule.

5. COURSE ASSESSMENT

5.1. Assessment Summary

The assessment will be based on the three components and final exam outlines in the below table.

All assessments are due 10.00am Sydney time on Monday of the week, unless otherwise indicated.

Assessment task	Due date	Release date	Weight	Assessment	Learning outcomes assessed
A1.0 & A2.0	15 Nov	29 Oct	25% each	**Lab Report 1**: Grinding and Sieving **Lab Report 2**. Flotation A write-up of laboratory-based activities addressing key issues and data analysis Individual report	1,3,4,5,6
A3.0			50%	**Final exam**	1,2,3,4,5,6,7

All the course materials and assignments will be available online through Moodle. Access to the Moodle site is via the Moodle icon on the MyUNSW homepage, or at https://moodle.telt.unsw.edu.au

Please bring smartphone, tablet or notebook computer with Wi-Fi connection to all classes for random on-line quizzes.

5.2. Assessment Requirements

Who

- All assessment items must be submitted to the Course Coordinator***.***

When

- If not otherwise stated, **the default deadline for submission of an assignment is 10:00am on Monday in the nominated week**. If the Monday coincides with a Public Holiday then the due date is the next business day in the nominated week.
- Early submission is required in cases where the student will otherwise be absent on the due date of submission, for example to attend the Student Mining Games, a graduate employment interview etc. – no extensions will be granted.
- Prior to submission, students should read the School Policy on *Assignment Submissions* which can be viewed at: < www.mining.unsw.edu.au/information-about/our-school/policies-procedures-guidelines >.
- In particular, the student should make sure they have read and understood the:
  - Declaration of Academic Integrity;
  - Assignment Submission requirements detailed in the *University Policies* section of the Course Outline; and

- School Policy on *Assignment Submission* available on the School's website (the web address is given in the Course Outline). In particular note the requirement that only PDF documents should be uploaded and the required file naming convention.

Where

- *Submissions must be made electronically through Turnitin in the LTMS unless otherwise stated. Students are strongly encouraged to submit their report through the Turnitin (plagiarism detection software) before due date to see how their assignment is composed with regards to cited works and original content. This will allow students to self-assess and ensure their assignment meets the School standards before final submission. An originality report with a score higher than 20% may be cause for concern about the originality of content and will be reviewed by the Student's Project Supervisor for potential plagiarism.* For more guidance on Turnitin: https://student.unsw.edu.au/turnitin

What

- The submission must be:
  - a single document in PDF format; and
  - prepared in the form of a formal report that includes a list of reference sources cited in the report, prepared in accordance with ***Lab Learning Guidelines***. A copy is available in the course Moodle.
- Each submission must have appended:
  - to the front, a signed copy of the Student Declaration Form and Coversheet; and
  - to the end, a completed self-assessed copy of the Assessment Criteria.

  Copies of both documents are available for download from LTMS.
- It is **strongly recommended** when preparing the major assignment; students use the ***Report Template*** available from LTMS. Note: as this template already incorporates the required the Student Declaration Form, a student does not need to separately append a signed copy of coversheet to their assignment.

How

- The submitted document must be consistent with the following file naming convention: < FamilyNameInitials_CourseCode_AssignmentNumber.pdf >.
- A typical complaint filename would take the following form < SmithPD_MINE4440_A01.pdf > which elements correspond to:
  - Family name of student: Smith
  - Initial(s) of student: PD
  - Course Code: MINE2810
  - Assignment number: A01...as defined in the Course Outline for the assessment task
  - File format: PDF document

6. ASSESSMENT CRITERIA

6.1 Laboratory Practical Sessions

The laboratory schedule is deliberately designed to provide practical, hands-on exposure to the concepts conveyed in lectures. You are required to maintain two lab sessions: Grinding & Sieving and Flotation. For both experiments, students will be required to work in a group, but submit the lab report individually. All students are expected to familiarise themselves with the practical session activities before they come to the lab. Laboratory manuals and a booklet containing Laboratory Practice are available in Moodle.

The assessment criteria and relative weighting that will be used in assessing the laboratory reports is summarised in the following tables.

Assessment Criteria – *Flotation Laboratory Report*

Title page

☐ Course title and course number
☐ Title of the experiment
☐ Student name & student number
☐ Email address
☐ Group number
☐ Date of submission
☐ Signed declaration of academic integrity

Abstract

☐ Summarise the aim of the work
☐ Summarise the procedure including key materials
☐ Summarise the results
☐ Summarise the key findings
☐ Concise (maximum of ½ page)
☐ Single paragraph
☐ Past tense
☐ No figure/table

Total: /5

Introduction

☐ Description of the flotation process
- What is it used for?
- How does it work?
- What are the roles of the different reagents

☐ Present the aims of the study

Total: /10

Theory

☐ Present the different (3) adsorption mechanisms of DDA onto quartz and how they are affected by DDA concentration and pH
☐ Discuss the effect of particle size on flotation
☐ Discuss the effect of froth depth on flotation
☐ Discuss the effect of frother concentration on flotation
☐ Explain the concept of recovery and maximum recovery (include equations)
☐ Explain flotation kinetics (include equation [not the derivation]). (What are the main assumptions?)
☐ Present the flotation recovery model

Total: /10

Experimental procedure

☐ Describe the materials used (include characteristics, concentrations, etc.)
☐ Describe the procedure as performed (include fixed variables as well as the tested variable(s))
☐ Passive voice
☐ Past tense
☐ Paragraph form

Total: /10

Results and discussion

Experimental data and maximum recovery

☐ Table the results (must contain raw data, recovery values, kinetics calculation, modelled values)
- Include a caption
- Include all units

☐ Data is well organised
☐ Describe the table in the text (what it contains)
☐ Plot the recovery curves (one figure with four series)
- Include proper figure caption (no 'graph title')
- Label the axes (including units)
- Use markers (not plain lines)

☐ Describe the figure in the text
☐ State the method use to obtain the maximum recovery values
☐ Present the maximum recovery values
☐ State any trend
☐ State possible source of error
☐ Discuss the results in relation to the Theory section (How can you explain the results? Were the results as expected?)

Total: /20

Flotation kinetics

☐ Kinetics calculations are presented in the table of results (see above)
☐ Graph the disappearance plot (one figure with four series)
- Include proper figure caption (no 'graph title')
- Label the axes (including the units)
- Use markers (not plain lines)

☐ Show the linear regressions with the equations
☐ Describe the figure and what is being done
☐ Present the flotation rate constants
☐ State any trend
☐ State possible source of error
☐ Discuss results in relation to the Theory section (How can you explain the results? Were the results as expected?)

Total: /20

Modelling recovery data

☐ Present modelled recovery values in the table of results (see above)
- Include a caption
- Include all units

☐ Plot the recovery curves along with the modelled data (one figure)
- Include proper figure caption (no 'graph title')
- Label axes (include units)
- Use markers (not plain lines) for experimental data
- Use lines for modelled data (matching colours)

☐ Describe the figure in the text
☐ Discuss the validity of the model (were the assumptions valid?)

Total: /10

Conclusions

☐ Summarise your findings with respect to the objectives
☐ State how your findings may affect flotation practices

Total: /5

Recommendations

☐ Give suggestions for future experiments

Total: /2.5

References

☐ Cite all sources in the text wherever required
☐ Provide full bibliographic information
☐ Use the ACS style referencing (name, date)
- http://www.lib.unimelb.edu.au/cite/acs/print.pdf

Total: /5

Appendix

☐ Include the experimental data
☐ Insure data is neatly presented

Total: /2.5

Writing and formatting

☐ Present original work (use your own words - do not copy from the lab manual or other sources)
☐ Insure the report is comprehensible
☐ Label all sections clearly and place them in the proper order
☐ Present all items in the appropriate section of the report (otherwise no point will be given)
☐ Use appropriate terminology
☐ Insure the report is free from spelling, grammatical or typographical mistakes
☐ Do not use the first or second person pronouns
☐ Number all equations, figures, and tables sequentially
☐ Describe/Refer to each figure and table in the text
☐ Use meaningful symbols (e.g. equation)
☐ Use superscript and subscript
☐ No scientific 'E' notation
☐ Submit your report as a pdf

Up to 5% may be deducted for not complying with the Writing and Formatting Requirements

During the laboratory session

☐ Follow instructions
☐ Submit experimental data as instructed
☐ Clean all spills
☐ Discard non-reusable personal protective equipment (PPE)
☐ Place unused PPE and their proper boxes

Up to 5% may be deducted for not complying with the Laboratory Session Requirements

Assessment Criteria – *Grinding and Sieving Laboratory Report*

Title page
☐ Course title and course number
☐ Title of the experiment
☐ Student name & student number
☐ Email address
☐ Group number
☐ Date of submission
☐ Signed declaration of academic integrity

Abstract
☐ Summarise the aim of the work
☐ Summarise the procedure including key materials
☐ Summarise the results
☐ Summarise the key findings
☐ Concise (maximum of ½ page)
☐ Single paragraph
☐ Past tense
☐ No figure/table
Total: /5

Introduction
☐ Give a broad outline of the processes. For example, but not limited to:
- Purpose grinding/size classification
- How are they carried out?
- Where are they used in a mineral processing circuit?
- Uses of different mills in the industry
- Etc.

☐ Explain important mill operating factors:
- Charge volume
- Critical speed
- Bond equation

☐ Explain important sieving concepts:
- Cumulative percent passing
- P_{50}
- P_{80}

☐ Present the aims of the study
Total: /15

Experimental procedure
Grinding
☐ Describe the mills, grinding media; materials used (include characteristics, amount, etc.)
☐ Clearly present the charge calculations (stating the assumptions) for both mills
☐ Present your calculations for the critical speeds
☐ Use equation editor to show your calculations (do not produce a table of numbers or copy a table of numbers from a spreadsheet)
☐ Describe the procedure as performed (include fixed variables as well as the tested variable(s))
☐ State how the mill speeds differ from the calculated critical speeds (percentage of the critical speed)
☐ Passive voice
☐ Past tense
☐ Paragraph form
Total: /10

Sieving
☒ Describe the equipment and materials used for size classification
☐ Describe the procedure as performed (include fixed variables as well as the tested variable(s))
☐ Passive voice
☐ Past tense
☐ Paragraph form
Total: /5

Results and discussion
Tabulation of results and calculations
☐ Table the results (experimental data & calculated data)
- Include a caption
- Include all units
- Sieve size
- Retained mass
- Corrected retained mass
- Percent retained mass
- Cumulative percent retained
- Cumulative percent passing

☐ Data is well organised
☐ State your assumptions for correcting the data
☐ Describe the table in the text (what it contains)
Total: /15

Cumulative size distributions
☐ Plot the cumulative percent passing curves (one figure with two series)
- Include proper figure caption (no 'graph title')
- Label the axes (including units)
- Use markers with connecting lines (not plain lines)

☐ Describe the figure in the text
☐ State the method used to determine the P_{50} and P_{80} values
☐ Present the P_{50} and P_{80} values
Total: /25

Energy consumption
☐ Calculate the energy requirement for each mill
☐ Compare and discuss the results in relation to the Introduction (What do you results mean? How can you explain the results? Were the results as expected?)
Total: /10

Conclusions
☐ Summarise your findings with respect to the objectives
☐ State how your findings may affect grinding practices
Total: /5

Recommendations

☐ Give suggestions for future experiments

Total: /5

References

☐ Cite all sources in the text wherever required

☐ Provide full bibliographic information

☐ Use the ACS style referencing (name, date)

- http://www.lib.unimelb.edu.au/cite/acs/print.pdf

Total: /5

Writing and formatting

☐ Present original work (use your own words - do not copy from the lab manual or other sources)

☐ Insure the report is comprehensible

☐ Label all sections clearly and place them in the proper order

☐ Present all items in the appropriate section of the report (otherwise no point will be given)

☐ Use appropriate terminology

☐ Insure the report is free from spelling, grammatical or typographical mistakes

☐ Do not use the first or second person pronouns

☐ Number all equations, figures, and tables sequentially

☐ Describe/Refer to each figure and table in the text

☐ Use meaningful symbols (e.g. equation)

☐ Use superscript and subscript

☐ No scientific 'E' notation

☐ Submit your report as a pdf

Up to 5% may be deducted for not complying with the Writing and Formatting Requirements

During the laboratory session

☐ Follow instructions

☐ Submit experimental data as instructed

☐ Clean all spills

☐ Discard non-reusable personal protective equipment (PPE)

☐ Place unused PPE and their proper boxes

Up to 5% may be deducted for not complying with the Laboratory Session Requirements

7. STUDYING A UG COURSE IN MINING ENGINEERING AT UNSW

7.1 How We Contact You

At times, the School or your lecturers may need to contact you about your course or your enrolment. Your lecturers will use the email function within Moodle or we will contact you on your @student.unsw.edu.au email address.

We understand that you may have an existing email account and would prefer for your UNSW emails to be redirected to your preferred account. Please see these instructions on how to redirect your UNSW emails: https://student.unsw.edu.au/email-rules

7.2 How You Can Contact Us

We are always ready to assist you with your inquiries. To ensure your question is directed to the correct person, please use the email address below for:

Enrolment or other admin questions regarding your program: mining@unsw.edu.au

Course inquiries: these should be directed to the Course Convenor.

7.3 Computing Resources and Internet Access Requirements

UNSW Mining Engineering provides blended learning using the on-line Moodle LMS (Learning Management System).

It is essential that you have access to a PC or notebook computer. Mobile devices such as smart phones and tablets may compliment learning, but access to a PC or notebook computer is also required. Note that some specialist engineering software is not available for Mac computers.

You can access the School's computer laboratory in-line with the School laboratory access guidelines and Class bookings.

It is recommended that you have regular internet access to participate in forum discussion and group work. To run Moodle most effectively, you should have:

- broadband connection (256 kbit/sec or faster)
- Firefox browser
- ability to view streaming video (high or low definition UNSW TV options)

More information about system requirements is available at www.student.unsw.edu.au/moodle-system-requirements

7.4 Accessing Course Materials Through Moodle

Course outlines, support materials are uploaded to Moodle, the university standard Learning Management System (**LMS**). In addition, on-line assignment submissions are made using the assignment dropbox facility provided in Moodle. All enrolled students are automatically included in Moodle for each course. To access these documents and other course resources, please visit: www.moodle.telt.unsw.edu.au

7.5 Assignment Submissions

The School has developed a guideline to help you when submitting a course assignment. Please take a closer look at all these details on our website: www.engineering.unsw.edu.au/mining-engineering/assignment-submission-policy

We encourage you to retain a copy of every assignment submitted for assessment for your own record either in hardcopy or electronic form. On a rare occasion, assignments may be mislaid and we may contact you to re-submit your assignment.

7.6 Late Submission of an Assignment

Full marks for an assignment are only possible when an assignment is received by the due date. In fairness to those students who do meet the assignment due date and time, deductions will apply to submissions made after this time. Details on deductions that are automatically applied to late submissions are available on our webpage: www.engineering.unsw.edu.au/mining-engineering/late-submissions

We understand that at times you may not be able to submit an assignment on time, and the School will accommodate any fair and reasonable extension. We would recommend you review the UNSW Special Consideration guidelines – see following section.

In the case of the Project Progress Report, penalty marks will be applied at the following rate if submitted after the due date: five (5) percentile points of the maximum possible mark for each day or part thereof that the assessment is overdue.

For example if a student submitted the Project Progress Report five days after the due date and the unadjusted mark was 68% then the final adjustment mark for the assignment would be 43%; that is the raw mark of 68% less 25 percentile points (5 days @ 5 percentile points per day).

7.7 Special Consideration

You can apply for special consideration through UNSW Student Central when illness or other circumstances interfere with your assessment performance. Sickness, misadventure or other circumstances beyond your control may:

- Prevent you from completing a course requirement,
- Keep you from attending an assessable activity,
- Stop you submitting assessable work for a course,
- Significantly affect your performance in assessable work, be it a formal end-of-semester examination, a class test, a laboratory test, a seminar presentation or any other form of assessment.

We ask that you please contact the Course Convenor immediately once you have completed the special consideration application, no later than one week from submission.

More details on special consideration can be found at: www.student.unsw.edu.au/special-consideration

7.8 Unsatisfactory and/ or Non-completion of course

A student who has not satisfactorily completed all the requirements of MINE4440 *Mining Research Project* I will not have met the prerequisite requirements and therefore will not be eligible to undertake MINE 4450 *Mining Research Project II*.

7.9 Course Results

For details on UNSW assessment policy, please visit: www.student.unsw.edu.au/assessment

In some instances your final course result may be withheld and not released on the UNSW planned date. This is indicated by a course grade result of either:

- WD – which usually indicates you have not completed one or more items of assessment or there is an issue with one or more assignment; or
- WC – which indicates you have applied for Special Consideration due to illness or misadventure and the course results have not been finalised.

In either event it would be your responsibility to contact the Course Convener as soon as practicable but no later than five (5) days after release of the course result. If you don't contact the convener on time, you

may be required to re-submit an assignment or re-sit the final exam and may result in you failing the course. You would also have a NC (course not completed) mark on your transcript and would need to re-enroll in the course.

7.10 Students Needing Additional Support

The Student Equity and Disabilities Unit (SEADU) aims to provide all students with support and professional advice when circumstances may prevent students from achieving a successful university education. Take a look at their webpage: www.studentequity.unsw.edu.au/

7.11 Academic Honesty and Plagiarism

Your lecturer and the University will expect your submitted assignments are truly your own work. UNSW has very clear guidelines on what plagiarism is and how to avoid it. Plagiarism is using the words or ideas of others and presenting them as your own. Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. The University has adopted an educative approach to plagiarism and has developed a range of resources to support students. All the details on plagiarism, including some useful resources, can be found at https://student.unsw.edu.au/plagiarism

All Mining Engineering students are required to complete a student declaration for academic integrity which is outlined in the assignment cover sheets. By signing this declaration, you agree that your work is your own original work.

If you need some additional support with your writing skills, please contact the Learning Centre or view some of the resources on their website: www.lc.unsw.edu.au/. The Learning Centre is designed to help you improve your academic writing and communication skills. Some students use the Centre services because they are finding their assignments a challenge, others because they want to improve an already successful academic performance.

7.12 Report Writing Guide for Mining Engineers

The School has a report writing guide (RWG) available for all mining engineering students.
View this website to download a copy of this guide: https://www.engineering.unsw.edu.au/mining-engineering/sites/mine/files/publications/MEA_ReportWritingGuide_eBook_2018ed.pdf

7.13 Continual Course Improvement

At the end of each course, all students will have the opportunity to complete a course evaluation form. These anonymous surveys help us understand your views of the course, your lecturers and the course materials. We are continuously improving our courses based on student feedback, and your perspective is valuable.

We also encourage all students to share any feedback they have any time during the course – if you have a concern, please contact us immediately.

8. SCHOOL ASSESSMENT COVER SHEET

School of Minerals and Energy Resources Engineering

Assessment Cover Sheet

Course Convenor: _____

Course Code: _____ Course Title: _____

Assignment: _____

Due Date: _____

Student Name: _____ Student ID: _____

ACADEMIC REQUIREMENTS

Before submitting this assignment, the student is advised to review:

- the assessment requirements contained in the briefing document for the assignment;
- the various matters related to assessment in the relevant Course Outline; and
- the *Plagiarism and Academic Integrity* website at < http:/www.lc.unsw.edu.au/plagiarism/pintro.html > to ensure they are familiar with the requirements to provide appropriate acknowledgement of source materials.

If after reviewing this material there is any doubt about assessment requirements, then in the first instance the student should consult with the Course Convenor and then if necessary with the Director – Undergraduate Studies.

While students are generally encouraged to work with other students to enhance learning, all assignments submitted for assessment must be their entire own work and duly acknowledge the use of other person's work or material. The student may be required to explain any or all parts of the assignment to the Course Convenor or other authorised persons. *Plagiarism* is using the work of others in whole or part without appropriate acknowledgement within the assignment in the required form. *Collusion* is where another person(s) assists in the preparation of a student's assignment without the consent or knowledge of the Course Convenor.

Plagiarism and *Collusion* are considered as Academic Misconduct and will be dealt with according to University Policy.

STUDENT DECLARATION OF ACADEMIC INTEGRITY

I declare that:

- This assessment item is entirely my own original work, except where I have acknowledged use of source material [such as books, journal articles, other published material, the Internet, and the work of other student/s or any other person/s].
- This assessment item has not been submitted for assessment for academic credit in this, or any other course, at UNSW or elsewhere.

I understand that:

- The assessor of this assessment item may, for the purpose of assessing this item, reproduce this assessment item and provide a copy to another member of the University.
- The assessor may communicate a copy of this assessment item to a plagiarism checking service (which may then retain a copy of the assessment item on its database for the purpose of future plagiarism checking).

Student Signature: Date:

Students are advised to retain a copy of this assessment for their records and submission should be made in accordance to the assessment details available on the course Moodle site.