



Faculty of Engineering

School of Minerals and Energy Resources Engineering

Postgraduate Course Outline

MINE8101 – 6UOC

Fundamentals of Mining Engineering

Associate Professor David Laurence

T1 2021

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1. INFORMATION ABOUT THE COURSE

Course Code:	MINE8101	Term:	T1, 2021	Level:	PG	Units/Credits	6 UOC
Course Name:	Fundamentals of Mining Engineering						

Course Convenor:	Associate Professor David Laurence						
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		Phone:					
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		Phone:					
Contact times	This is a distance-based course. Contact meeting times with the course convenor will be announced in Moodle						

1.1. Course Description

This course provides an introduction to the discipline of mining engineering and mine management, the importance of sustainable mining practices from exploration to mine closure; and a practical understanding of the key elements of each of the major mining methods in use both in Australia and internationally.

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.

2. AIMS, LEARNING OUTCOMES AND GRADUATE ATTRIBUTES

2.1. Course Aims

This course aims to equip the student with the skills necessary to understand the discipline of mining engineering and relevant enabling sub-disciplines.

2.2. Learning Outcomes

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

1. Understand the role of the mining engineer within the mining industry
2. Have a greater awareness of the key sub-disciplines (including geology and risk management) that support mining engineering
3. Demonstrate an awareness of the importance of sustainable mining practices from exploration to mine closure
4. Demonstrate a working knowledge of all major generic mining methods
5. Identify appropriate mining methods according to characteristics of the ore body/ mineral deposit; geological environment and market needs.
6. Apply the learnings in a critical, analytical manner

2.3. Graduate Attributes

This course will contribute to the development of the following Graduate Attributes:

1. appropriate technical knowledge
2. having advanced problem solving, analysis and synthesis skills with the ability to tolerate ambiguity
3. being able to think and work individually and in teams
4. listening, influencing, motivation and communication skills
5. awareness of sustainability, multi-cultural and global issues

3. REFERENCE RESOURCES

3.1. Reference Materials

There is no need to purchase any textbooks for this course. However, the wider and more you seek out mining-related articles in the media or other sources such as the following, the greater your understanding of the discipline and the industry will be.

- SME Mining Engineering Handbook (3rd edition) www.smenet.org
- AusIMM Monograph (12), 3rd edition (2009): Australasian Coal Mining Practice
- Atlas Copco Mining Methods Manual
- Various industry journals and conference proceedings
- online mining newsletters
- mining company websites

3.2. Online Resources

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

3.3. Report Writing Guide

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/minerals-energy-resources/sites/mine/files/publications/MEA_ReportWritingGuide_eBook_2018ed.pdf

4. COURSE CONTENT AND LEARNING ACTIVITIES

4.1. Learning Activities Summary

Week	Week Starting	Hrs	Topic	Content/Activities
1	15 Feb		Mining engineering as a profession	1.1 Course Introduction - DL
				1.2 An introduction to mine management – DL
				1.3 Managing mines – how is it different? - DL
				1.4 A Day in the life of a mining engineer
2	22 Feb		Fundamentals of geology	2.1 Introduction to Rocks and minerals
				2.2 Fundamentals of Ore genesis and mineral exploration
				2.3 Mine geomechanics – an introduction
3	1 Mar		Fundamentals of Coal Mining	3.1 Open cut coal mining methods
				3.2 Underground coal mining methods
				3.3 Mine ventilation
4	8 Mar		Fundamentals of Hard Rock Mining	4.1 Large scale open pit mining (hard rock)
				4.2 Underground hard rock mining methods
5	15 Mar		An introduction to industrial minerals and mineral processing	5.1 Quarries and Industrial minerals
				5.2 An introduction to mineral processing
6	22 Mar		Mining engineering in society	6.1 An introduction to environmental management
				6.2 Sustainable mining practices
				6.3 Communities and mining – MH

Total student effort hours:

Approx. 100-150 hours

(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

All assessments are due 23:59 hrs Sydney time on Sunday of the week, unless otherwise indicated in the table below.

Assessment task	Due date	Release date	Weight (%)	Assessment	Learning outcomes assessed
1	7 Mar	15 Feb	15	Individual report (max. 500 words) An interview with a mining engineer	1
2	28 Feb	15 Feb	15	Online quiz	1, 2
3	14 Mar	1 Mar	15	Online quiz	1, 2
4	28 Mar	15 Mar	15	Online quiz	1, 2
5	4 Apr	1 Mar	40	Individual report (max. 3000 words) Major assignment	1, 3, 4, 5

6. ASSESSMENT CRITERIA

The assessment criteria provide a framework for students when preparing major assignments in the course as well as a guideline for assessors when marking an assignment. The student is advised to review the relevant framework before undertaking their assignment.

The criteria listed for each item of assessment and the descriptions contained therein are not intended to be prescriptive nor is it an exhaustive list. Rather it should be viewed as a framework to guide the student as to the type of information and depth of coverage that is expected to be evident in a submission for assessment; the framework illustrates for example what would distinguish an excellent achievement from a poor achievement.

The student should be cognisant that a range of factors is often being assessed in any one assignment; not just whether the final results are numerically correct. Consideration is given to other relevant elements that contribute to the Learning Outcomes of the course as well as the Graduate Attributes of the overall degree program.

The student is cautioned against merely using the assessment criteria as a checklist. When assessing an assignment, elements in the framework will be examined in terms of quality and creativity. Hence ensuring all the listed elements are merely covered in an assignment is often not sufficient in itself and will not automatically lead to full marks being awarded. Other factors such as how the student went about presenting information, how an argument was structured and/or the elements supporting a particular recommendation or outcome are also important.

Finally the framework can also be used to provide feedback to a student on their performance in an assignment. Periodically the criteria are reviewed and updated; consequently changes may be made from time to time to the framework to improve its effectiveness in achieving both these objectives.

Note: Reference to *RWG* in the assessment criteria refers to the *MEA Report Writing Guide*, and *GTA* to the *AusIMM Guide to Authors*.

The assessment criteria for the assignments will be attached to the assignment when they are released.

7. STUDYING A PG COURSE IN UNSW MINERALS AND ENERGY RESOURCES ENGINEERING

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 through 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: www.it.unsw.edu.au/students/zmail/redirect_external.html

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:

<https://unswinsight.microsoftcrmportals.com/web-forms/>

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)
- Chrome browser or FireFox
- ability to view streaming video (high or low definition UNSW The Box options)

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

For distance courses it is also considered essential that you

- Upload a profile picture in Moodle LMS that can be used to verify your identity with your student ID photograph.
- Use a webcam and microphone to actively participate in webinar discussion. Voice participation is essential in webinars, so if you are restricted to text participation only it will not be possible to score full participation grading.

If you have concerns about your web access for a course presented in distance mode, we would encourage you to contact the course convenor before the course commences, to discuss whether it will be possible for you to complete a distance course.

7.4. Accessing Course Materials Through Moodle

Course outlines and support materials are uploaded on a Learning Management System (LMS) - Moodle. All enrolled students are automatically included on the Moodle for each course. To access these documents, 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.

All your assignments will need to have a completed PG coversheet. To access a copy, please visit: http://www.engineering.unsw.edu.au/mining-engineering/sites/mine/files/uploads/Assignmentcoversheetindividual_PG.pdf

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: <http://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 as soon as possible: <https://student.unsw.edu.au/special-consideration>

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. 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.

7.9. 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/

7.10. 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://www.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: <http://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.

7.11. 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

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perspective is valuable.

Feedback is given via <https://student.unsw.edu.au/myexperience> and you will be notified when this is available for you to complete.

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.



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.

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