



Faculty of Engineering

School of Minerals and Energy Resources Engineering

Postgraduate Course Outline

MINE8115 (distance)

Mining Processes, Systems & Analysis

Dr Chengguo Zhang

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1. INFORMATION ABOUT THE COURSE

Course Code:	MINE8115	Term:	T3, 2021	Level:	PG	Units/Credits	6 UOC
Course Name:	Mining Processes, Systems & Analysis (<i>distance delivery course</i>)						

Course Convenor:	Dr Chengguo Zhang		
Contact Details	School of Minerals and Energy Resources Engineering	EMAIL:	chengguo.zhang@unsw.edu.au
		Phone:	+61 2 9385 4035
Contact times	This is a fully online course. There are no face-to-face classes at the campus.		

1.1. Course Description

The course provides an introduction to the generic concepts of process management and systems engineering and develops models for how these techniques can be applied to different mining systems. Through case studies using a selection of mining methods, the elements of typical mining operations are examined as a system of complex and inter-related processes and systems. These are analysed to identify system dependencies, quantitative sensitivities, key drivers and management needs. On completion of this course students should be able to apply a systems approach in both the planning and ongoing management of a mining operation.

1.2. Course Completion

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

2. AIMS, LEARNING OUTCOMES AND GRADUATE ATTRIBUTES

2.1. Course Aims

The course provides an introduction to the generic concepts of process management and systems engineering and develops models for how these techniques can be applied to different mining systems for evaluation of their performance.

2.2. Learning Outcomes

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

1. Demonstrate a working knowledge of all major generic mining methods.
2. Be conversant with the key principles of process and systems engineering, and be able to describe, apply and analyse a mining method/operation in the form of an array of inter-related processes and systems.
3. Identify dependencies and carry out quantitative sensitivity analyses within an overall mining system, and hence determine and quantify key drivers influencing performance of the overall mining system.
4. Determine appropriate management strategies for each major component of a generic mining system.

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

- SME Mining Engineering Handbook (3rd edition) www.smenet.org
- AusIMM Monograph (12), 3rd edition (2009): Australasian Coal Mining Practice
- Atlas Copco Mining Methods Manual
- NASA Systems Engineering Handbook (NASA/SP-2016-6105 Rev 2)
- Various industry journals and conference proceedings

3.2. Online Resources

The lecture notes may be viewed and downloaded from the UNSW-Moodle site for this course.

<http://moodle.telt.unsw.edu.au/>.

There are many articles / information sources on this topic on the web. Many of them are sound, but many are either very lightweight or contain errors. Be very careful in your choice of web sources. Remember, UNSW librarians are usually happy to help you locate articles or make suggestions regarding possible material to help you in your academic work. You can also access basic online help at <http://www.library.unsw.edu.au/>

3.3. Report Writing Guide

- *MEA 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)
- *Guide to Authors*. (Australasian Institute of Mining and Metallurgy: Melbourne) (Available for download from the AusIMM website)

4. COURSE CONTENT AND LEARNING ACTIVITIES

4.1. Learning Activities Summary

The course is offered as a distance course over 7 weeks of learning modules plus assessments - the major assignment is due in 3 weeks after the completion of learning modules. There are no face-to-face classes at the campus.

Presentations and reading material are provided to provide students with technical information and examples of mining processes and systems.

Online discussions will be used to encourage students to articulate and defend positions, consider different points of view and evaluate evidence. Case studies will be used to provide practice in identifying potential problems and evaluating alternative course of actions.

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

All assessment submissions are due no later than 10:00am Sydney time on Monday of the week, unless otherwise indicated in the table below.

5.1. Assessment Summary

Assessment task	Due date	Release date	Weight	Assessment	Learning outcomes assessed
A1	20 Sept 27 Sept	13 Sept	15%	Individual Presentation; plus online forum discussion	1, 2
A2	20 Sept	13 Sept	0%	Process Mapping (<i>formative only</i>)	2
A3	4 Oct 11 Oct	13 Sept	15%	Group Project Presentation – Longwall Coal or Hard Rock; plus online forum discussion	1, 2, 3
A4	25 Oct 1 Nov	13 Sept	20%	Syndicated Group Presentation plus online forum discussion	1, 2, 3
A5	22 Nov	13Sept	50%	Major Assignment (max. 30 pages)	1, 2, 3, 4

Assignments related details/submission-box will be available online through Moodle. Access to the Moodle site is via the Moodle icon on the MyUNSW homepage.

6. ASSESSMENT CRITERIA

Assessment criteria are as outlined in the assignment documentation. Students should ensure they understand what is expected of them at the time that the assignment is released, in order to be able to adequately meet the assessment criteria.

We encourage you to retain a copy of every assignment submitted for assessment for your own record either in hardcopy or electronic form.

All assignments must have an assessment cover sheet attached.

The following submission process is to be followed:

Who

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

When

- If not otherwise stated, **the default deadline for submission of an assignment is 10:00am (Sydney time) on the nominated date.**
- Prior to submission, students should read the School Policy on *Assignment Submissions* which can be viewed on the School website.
- In particular, the student should make sure they have read and understood the:
 - Declaration of Academic Integrity;
 - Assignment Submission requirements detailed in 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

- *Submission of the assignments must be made electronically through Assignment Dropbox in Moodle.*

What

- All submissions must be:
 - a single document in PDF format; and
 - (in the case of the major assignment), prepared in the form of a formal report that includes a list of reference sources cited in the report, prepared in accordance with the report writing standards of the School as contained in the **MEA Report Writing Guide for Mining Engineers**. A copy can be obtained from the UNSW Bookshop or downloaded from the School webpage.
- Each submission must have appended:
 - to the front, a signed copy of the Student Declaration Form and Coversheet.

How

- The submitted document must be consistent with the following file naming convention:
< FamilyNameInitials_CourseCode_AssignmentNumber.pdf >.

- A typical compliant filename would take the following form < SmithPD_MINE8115_A4.pdf > which elements correspond to:
 - Family name of student: Smith
 - Initial(s) of student: PD
 - Course Code: MINE8115
 - Assignment number: A4...as defined in the Course Outline for the assessment task
 - File format: PDF document

6.1 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 the School webpage.

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>

In the case of the four assessment tasks, 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 assignment 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 68% (raw mark) less 25% (5 days @ 5% per day).

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

7.1. How We Contact You

At times, the School or your course conveners may need to contact you about your course or your enrolment. Your course conveners 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://www.it.unsw.edu.au/students/email/index.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 Minerals and Energy Resources 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 complement learning, but access to a PC or notebook computer is also required. Note that some specialist engineering software is not available for Mac computers.

Mining Engineering Students: OMB G48/49
Petroleum Engineering Students: TETB

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)
- 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. 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 Convener 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

7.6. 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.

7.7. 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/

7.8. 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 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.

7.9. 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.

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.