



UNSW

UNSW Course Outline

MINE9100 Mining Design Practice - 2024

Published on the 24 May 2024

General Course Information

Course Code : MINE9100

Year : 2024

Term : Term 2

Teaching Period : T2

Is a multi-term course? : No

Faculty : Faculty of Engineering

Academic Unit : School of Minerals & Energy Resources Engineering

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Postgraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

Design practice is a final year course intended to enable students to integrate material learnt in several sub-disciplines of mining engineering. The objective is to develop the students' self-directed learning, design, teamwork and managerial skills. The course involves undertaking and

completing a series of design tasks in mining engineering stream. Each design task in the series may be independent of each other, or may be a sequence of related sub-tasks as part of a larger goal.

Course Aims

The aim of this course is to:

- Test students' design proficiency, through a sequence of design challenges. There is scope for students to demonstrate superior skills,
- Ensure students have attained sufficient fundamental design knowledge, and thus that all graduating students have high level of proficiency in mining engineering. Students should expect that this course will reinforce their existing knowledge and increase their confidence in design,
- Expose students to individual responsibility and self-directed learning. Students are individually responsible for their level of proficiency.

Relationship to Other Courses

This course is taught together with the Petroleum Engineering cohort (PTRL9100).

Course Learning Outcomes

| Course Learning Outcomes |
|---|
| CLO1 : Gain in-depth knowledge of relevant discipline and its interdisciplinary content. |
| CLO2 : Apply technical knowledge to produce discipline-specific designs in mining engineering. |
| CLO3 : Demonstrate an ability to work in teams and learn from peers and mentors. |
| CLO4 : Effectively explain design decisions, displaying communication, negotiation, and advocacy skills. |
| CLO5 : Develop the capacity for analytical and critical thinking and its application in discipline-specific creative problem solving. |
| CLO6 : Identify, document, and improve issues related to mining engineering knowledge base. |

| Course Learning Outcomes | Assessment Item |
|---|--|
| CLO1 : Gain in-depth knowledge of relevant discipline and its interdisciplinary content. | <ul style="list-style-type: none">• Annotated Bibliography |
| CLO2 : Apply technical knowledge to produce discipline-specific designs in mining engineering. | <ul style="list-style-type: none">• Design Proposal• Final Design Report |
| CLO3 : Demonstrate an ability to work in teams and learn from peers and mentors. | <ul style="list-style-type: none">• Design Proposal• Final Design Report |
| CLO4 : Effectively explain design decisions, displaying communication, negotiation, and advocacy skills. | <ul style="list-style-type: none">• Design Presentation• Design Proposal• Final Design Report |
| CLO5 : Develop the capacity for analytical and critical thinking and its application in discipline-specific creative problem solving. | <ul style="list-style-type: none">• Design Presentation• Design Proposal• Final Design Report |
| CLO6 : Identify, document, and improve issues related to mining engineering knowledge base. | <ul style="list-style-type: none">• Annotated Bibliography• Design Proposal• Final Design Report |

Learning and Teaching Technologies

Moodle - Learning Management System

Other Professional Outcomes

The expected learning outcomes for this course are to gain practical knowledge on how to manage projects, work independently and within a team, the development of communication skills and to apply contemporary sustainable planning theory in a practical situation. This course is designed to address the learning outcomes below and the corresponding Engineers Australia

(EA) Stage 1 Competency Standards for Professional Engineers as shown above.

Assessments

Assessment Structure

| Assessment Item | Weight | Relevant Dates |
|--|--------|--|
| Annotated Bibliography Assessment Format: Individual Short Extension: Yes (7 days) | 15% | Start Date: 10/06/2024 12:00 AM Due Date: 21/06/2024 12:00 AM |
| Design Proposal Assessment Format: Group Short Extension: Yes (7 days) | 15% | Start Date: 10/06/2024 12:00 AM Due Date: 02/07/2024 12:00 AM |
| Design Presentation Assessment Format: Group Short Extension: Yes (7 days) | 25% | Start Date: 24/06/2024 12:00 AM Due Date: 23/07/2024 12:00 AM |
| Final Design Report Assessment Format: Group Short Extension: Yes (7 days) | 45% | Start Date: 01/07/2024 12:00 AM Due Date: 18/08/2024 12:00 AM |

Assessment Details

Annotated Bibliography

Assessment Overview

Students are required to produce a bibliography review up to 10 pages long, demonstrating in-depth understanding of the selected topic and ability to research and synthesize information.

Course Learning Outcomes

- CLO1 : Gain in-depth knowledge of relevant discipline and its interdisciplinary content.
- CLO6 : Identify, document, and improve issues related to mining engineering knowledge base.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Design Proposal

Assessment Overview

At this stage members of formed groups are expected to engage with group collaborative work, formulate the design project in general terms, distribute individual roles and tasks. The formal proposal, a single up to 20 page document per team, containing a brief description of elements and individual tasks, will be assessed as a whole and also based on individual contribution of

each student.

Course Learning Outcomes

- CLO2 : Apply technical knowledge to produce discipline-specific designs in mining engineering.
- CLO3 : Demonstrate an ability to work in teams and learn from peers and mentors.
- CLO4 : Effectively explain design decisions, displaying communication, negotiation, and advocacy skills.
- CLO5 : Develop the capacity for analytical and critical thinking and its application in discipline-specific creative problem solving.
- CLO6 : Identify, document, and improve issues related to mining engineering knowledge base.

Assessment Length

maximum 10 pages

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Design Presentation

Assessment Overview

Upon completion of the design, each group prepares a presentation slides made of individual contributions. Each student will be given up to 15 minutes to present an individual part of the design. Students are expected to display knowledge of their topic, demonstrate appropriate decision-making and communicate details of the design and findings clearly. Feedback on presentations will be given at the end of the presentation by an invited guest experts and academic staff.

Course Learning Outcomes

- CLO4 : Effectively explain design decisions, displaying communication, negotiation, and advocacy skills.
- CLO5 : Develop the capacity for analytical and critical thinking and its application in discipline-specific creative problem solving.

Detailed Assessment Description

This is a group assessment; peer evaluation will be used to determine an individual mark. Each student will be marked on both content and presentation technique. Students are expected to display a knowledge of their topic and communicate their findings clearly.

Assessment Length

maximum 5 pages

Final Design Report

Assessment Overview

Based on the project presentation and received feedback, a single document (design report) up to 100 pages long made of individual contributions from group members has to be produced. Students will be expected to display and communicate in-depth knowledge and solutions of their individual sub-topics, collectively constituting a major project design. Evidence of analytical thinking and problem solving as well as organization and presentation of materials in the report will be assessed. Each student will receive an individual mark based on the quality of their work and peer evaluation.

Course Learning Outcomes

- CLO2 : Apply technical knowledge to produce discipline-specific designs in mining engineering.
- CLO3 : Demonstrate an ability to work in teams and learn from peers and mentors.
- CLO4 : Effectively explain design decisions, displaying communication, negotiation, and advocacy skills.
- CLO5 : Develop the capacity for analytical and critical thinking and its application in discipline-specific creative problem solving.
- CLO6 : Identify, document, and improve issues related to mining engineering knowledge base.

Assessment Length

up to 100 pages long

Submission notes

submit a pdf document on Moodle prior to the deadline

Assessment information

Document Formatting Tips & Requirements

For this type of professional document, ensure that the final product is cohesive and consistent in its visual design.

Design a Cover Page that makes a good first impression on the reader - it should be professional, consistent with the design of the rest of the document (in terms of typeface, for example), but can also represent the team's personality or "brand."

Adhere to the standard formatting guidelines as you finalize the Design Report document:

- Standard, professional font (e.g., Times New Roman, Arial, Calibri, Cambria)

- 11-12 pt. for body text
- Headings are used to clearly label the components and required sections of the documentation and their format should be consistent throughout the document
 - 14 pt **bolded** font for main headings (i.e., Heading 1): **Executive Summary, Problem Definition Review, Conceptual Design Review, Final Design Review**
 - 12 pt. ALL CAPS for subheadings (i.e. Heading 2): **DESIGN 1 REVIEW**
- Table titles and figure captions are 1 pt. smaller than the body text
- Single or 1.15 line spacing, without indenting the first line of the paragraph
- Additional line break (space) between paragraphs
- Left-justified body text; centered tables, figures, and corresponding titles and captions
- Page numbers at bottom right corner (starting the first page of the main text, i.e. not the cover page or Table of Contents)
- 1in. margins on all sides
- Use IEEE format or citing secondary sources in text

General Assessment Information

To the extent appropriate at university, assessments will reflect the kinds of deliverables expected at the professional level in such industries as environmental engineering consulting and government public works. The final mark for each student will be determined by a combination of individual and group contributions. Groups will be responsible for assigning roles and individual tasks within the team.

Each group member will be assessed individually on the above roles and will also be required to submit his/her own assessment of the other individual contributions within the group. On the basis of these peer evaluations the mark for each group member will be adjusted into an individual contribution to determine the final mark. There will be no written examination or quiz in this subject. An outline of the course assessment is set out below. Detail of each assessment including the submission date, marks assigned and the general criteria by which marks are assigned will be found in Moodle and in the table in the assessment overview section of this

document. The course coordinator reserves the right to adjust the final scores by scaling if agreed with the Head of School.

There will be NO formal examination. The final marks for the course will be determined based on the scores from each of the 4 assessment tasks. Each group task will include a peer evaluation component that transforms the group mark into a final individual mark.

Grading Basis

Standard

Course Schedule

| Teaching Week/Module | Activity Type | Content |
|---------------------------------|---------------|--|
| Week 1 : 27 May - 2 June | Seminar | The course overview and introduction. |
| Week 2 : 3 June - 9 June | Seminar | Discussion of the project context (may be accompanied by the guest lecture). Students will be provided with the general contextual description of the project (e.g. open cut mine, location, deposit information, state and stage of the development etc) and given an opportunity to chose their individual topics. |
| Week 3 : 10 June - 16 June | Seminar | This meeting will be utilized for consultation on Assignment 1, overall progress on individual design topics and provides an alternative/additional slot for the guest lecture. |
| Week 4 : 17 June - 23 June | Assessment | This is an individual assessment. Students are required to produce a bibliography review up to 20 pages long, demonstrating in-depth understanding of the topic and ability to research and synthesise information. Students will be marked on presentation, clarity, organisation and depth of research and demonstration of critical analysis of source content. |
| Week 5 : 24 June - 30 June | Assessment | Project proposal is the major submission per group, containing individual work per task or major project element performed individually. Students will explain the details of the design demonstrating their decision making, roles distribution and work schedule. |
| Week 6 : 1 July - 7 July | Other | A flexible week during the mid-term break. Online or face-to-face meeting can be arranged with students upon request. |
| Week 7 : 8 July - 14 July | Seminar | Consultation meeting on design report progress. |
| Week 8 : 15 July - 21 July | Seminar | Consultation meeting on design report progress. |
| Week 9 : 22 July - 28 July | Presentation | Upon the completion of the design, each group prepares a presentation slides made of individual contributions. Each student will be given up to 15 minutes to present an individual part of the design. Students are expected to display a knowledge of their topic and communicate their findings clearly. Feedback on presentations will be given at the end of the presentation by an invited guest expert / academic staff. |
| Week 10 : 29 July - 4 August | Seminar | Consultation meeting on design report progress. |
| Week 11 : 5 August - 11 August | Seminar | Consultation meeting on design report progress. |
| Week 12 : 12 August - 18 August | Assessment | Assessment 4 - Design Report Students will submit one design report per group. Each group member will have responsibility for the specific part(s) of the report and will receive individual mark for that contribution; peer evaluation will be used to determine contribution to the overall group effort. Students will be expected to display and communicate in-depth knowledge of their project issues and solutions. Evidence of analytical thinking and problem solving as well as organisation and presentation of the report will be assessed. Face to face or online consultation will be available prior to assignment submission on request. Once grades will be released a debrief meeting will be arranged. |

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

The general schedule is provided below. Please refer to Moodle for more information.

Course Resources

Recommended Resources

- SME mining engineering handbook / edited by Peter Darling, 2011. Society for Mining, Metallurgy, and Exploration (U.S.) ISBN 978-0-87335-264-2.
- 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).
- Hustrulid, W and Kuchta, M., 2006. Open Pit Mine Planning & Design, Balkema, Rotterdam.
- Hargraves, A and Martin, C., 1993. Australasian Coal Mining Practice Monograph 12, 2nd Edition, The AusIMM: Melbourne.
- Hartman, H.L. 2002. Introductory Mining Engineering, 2nd edition. Wiley, New York.
- Woehler, R, H (ed), 1986. Bulk Handling in Open Pit Mines and Quarries, Trans Tech Publications, Berlin.
- Rudenno, V. 2004. The Mining Valuation Handbook, 2nd edition, Wrightbooks, Milton, QLD. ISBN: 0731400755.
- Noakes, M and Lanz, T, 1993. Cost Estimation Handbook for the Australian Mining Industry, Monograph No: 20/ Australasian Institute of Mining and Metallurgy.
- AusIMM Large Open pit Conference Series.
- International Journal of Surface Mining and Reclamation, Balkema-Rotterdam.

Course Evaluation and Development

At the end of the 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.

Staff Details

| Position | Name | Email | Location | Phone | Availability | Equitable Learning Services Contact | Primary Contact |
|----------|-----------------|-------|----------|-------------|--------------|-------------------------------------|-----------------|
| Convenor | Christoph Arn s | | TETB 220 | 61434797239 | | No | Yes |
| Lecturer | Igor Shikhov | | TETB 226 | | | No | No |

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's [Special Consideration page](#).

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- [Attendance](#)
- [UNSW Email Address](#)
- [Special Consideration](#)
- [Exams](#)

- [Approved Calculators](#)
- [Academic Honesty and Plagiarism](#)
- [Equitable Learning Services](#)

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: <https://www.unsw.edu.au/engineering/student-life/student-resources/program-design>.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off 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. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash

requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School-specific Information

Course completion

Course completion requires submission of all assessment items. Failure to submit all assessment items may result in the award of an Unsatisfactory Failure (UF) grade for the Course unless special consideration has been submitted and approved.

Submission of Assessment Tasks

We encourage you to retain a copy of every assignment submitted for your own record, either in hardcopy or electronic form. All assessments must have an assessment cover sheet attached (if required).

Student Resources

The School has [student resources](#) section, containing useful advice and information to ensure you're able to focus on your studies.

Computing Resources and Internet Access Requirements

UNSW Minerals and Energy Resources Engineering provides blended learning using the online Moodle LMS (Learning Management System). Also see - Transitioning to Online Learning: www.covid19studyonline.unsw.edu.au

Note that some specialist engineering software is not available for Mac computers.

- Mining Engineering Students: OMB G48
- Petroleum Engineering Students: TETB LG34 & LG35

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

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

School Contact Information

School of Minerals and Energy Resources Engineering
Old Main Building, Level 1, 159 (K15)
UNSW SYDNEY NSW 2052 AUSTRALIA

For current students, all enquiries and assistance relating to enrolment, class registration, progression checks and other administrative matters, please see [The Nucleus: Student Hub](#).

Web & Important Links:

[School of Minerals and Energy Resources](#)

[The Nucleus Student Hub](#)

[Moodle](#)

[UNSW Handbook](#)

[UNSW Timetable](#)

[Student Wellbeing](#)

[Urgent Mental Health & Support](#)

[Equitable Learning Services](#)