UNSW Course Outline

MINE8850 Mine Design and Feasibility - 2024

Published on the 28 Jan 2024

General Course Information

Course Code : MINE8850
Year : 2024
Term : Term 1
Teaching Period : T1
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

This course provides the non-mining engineer with the tools to plan, design and carry out a feasibility study at a mine site. It includes the feasibility study process, mine planning methodologies and scheduling techniques, mine cost structures and cost estimation.

Underground mine design principles and practice. Development and production scheduling. Financial analysis. Review of mine planning and design packages. Review of open pit mine design principles and practice. Pit slope design. Cost estimation in practice. Pit shell optimisation and practice. Pit and haul ramp design. In-pit grade and tonnage calculations. Waste dump location and design.

The active based learning approach provides the opportunity to get involved in the planning process for real mining projects.

Course Aims

The active based learning approach provides the opportunity to get involved in the planning process for real mining projects.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Develop a well rounded understanding of the theoretical principles and practical methodologies associated with mine design in a real feasibility project.
CLO2 : Demonstrate knowledge of project evaluation and financial analysis techniques.
CLO3 : Develop project management capability within a self-managed team environment and provide quality communication (written and oral) of progress and final outcomes.

Course Learning Outcomes	Assessment Item
CLO1 : Develop a well rounded understanding of the theoretical principles and practical methodologies associated with mine design in a real feasibility project.	• Block Value Calculation • Group Project • Major Assignment
CLO2 : Demonstrate knowledge of project evaluation and financial analysis techniques.	• Project Evaluation Assignment • Group Project • Major Assignment
CLO3 : Develop project management capability within a self-managed team environment and provide quality communication (written and oral) of progress and final outcomes.	• Block Value Calculation • Group Project • Major Assignment

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Project Evaluation Assignment Assessment Format: Individual	10%	
Block Value Calculation Assessment Format: Individual	10%	
Group Project Assessment Format: Individual	30%	
Major Assignment Assessment Format: Individual	50%	

Assessment Details

Project Evaluation Assignment

Assessment Overview

In-session Assessment. Information of the assessment will be available and provided in the LMS to the students.

Course Learning Outcomes

- CLO2 : Demonstrate knowledge of project evaluation and financial analysis techniques.

Submission notes

Submit through Moodle

Block Value Calculation

Assessment Overview

Individual Submission paper based: this is a block value calculation and scheduling exercise. Students will work individually to complete the work.

Information of the assessment will be available and provided in Moodle to the students.

Course Learning Outcomes

- CLO1 : Develop a well rounded understanding of the theoretical principles and practical methodologies associated with mine design in a real feasibility project.
- CLO3 : Develop project management capability within a self-managed team environment and provide quality communication (written and oral) of progress and final outcomes.

Assessment Length

2 hours

Submission notes

Individual Submission paper based

Assignment submission Turnitin type

This is not a Turnitin assignment

Group Project

Assessment Overview

In-session Assessment. Information of the assessment will be available and provided in the LMS to the students.

Course Learning Outcomes

- CLO1 : Develop a well rounded understanding of the theoretical principles and practical methodologies associated with mine design in a real feasibility project.
- CLO2 : Demonstrate knowledge of project evaluation and financial analysis techniques.
- CLO3 : Develop project management capability within a self-managed team environment and provide quality communication (written and oral) of progress and final outcomes.

Major Assignment

Assessment Overview

The Major Assignment technical report should be presented as per the MEA Report Writing Guide which can be downloaded from the school web page: http://www.mining.unsw.edu.au/sites/default/files/reportwritingguide.pdfThe assignment submission facility will be linked to Turnitin, a similarity checking system. When submitting an assignment via Turnitin, students are advised the file should contain the final edited and proof copy.

Information of the assessment will be available and provided in Moodle to the students.

Course Learning Outcomes

- CLO1 : Develop a well rounded understanding of the theoretical principles and practical methodologies associated with mine design in a real feasibility project.
- CLO2 : Demonstrate knowledge of project evaluation and financial analysis techniques.
- CLO3 : Develop project management capability within a self-managed team environment and provide quality communication (written and oral) of progress and final outcomes.

Assessment information

•The Major Assignment to be handed 4 weeks after the course week 1 completion.

•The Major Assignment should be submitted in softcopy only.

•A supporting FTM must be submitted. Remember only report will be marked.

•A summary of the FTM must be included in the report.

•A full FTM must be submitted in the appendix.

•The softcopy will be uploaded through Moodle and the students will be responsible uploading correctly.

•The submission date is the date that you submit your softcopy into Moodle.

•The Penalties

–Review the School Late Submission Policy from the School web site.

•Any work-related delay will not be accepted.

•If you have a major health or family problem, please get in touch with me.

•Resources for Students

–Support material for this course including, when available, copies of lecture notes, recommended readings, assignments and results for assignments etc can be found on Moodle

•Remember your communication email address is your UNSW student email address. Make sure you check often your UNSW emails and Moodle news/forums.

General Assessment Information

Grading Basis

Standard

Course Schedule

Attendance Requirements

Students must attend all the lectures and participate to the class activities and assessments.

General Schedule Information

This course will be run in a short course from Monday to Friday.

Daily course schedule will be provided in Moodle.

Course Resources

Prescribed Resources

MS Excel

Recommended Resources

- Hartman, HL, 2002. Introductory Mining Engineering, 2nd edition. Wiley, New York.
- Hustrulid, W and Kuchta, M, 2006. Open Pit Mine Planning & Design, Balkema, Rotterdam.
- Kennedy, BA (ed.), 1990. Surface Mining, 2nd edition, SME, Littleton, Colorado, USA. ISBN 0–87335–102–9.
- Noakes, M and Lanz, T. 1993. Cost Estimation Handbook for the Australian Mining Industry, Monograph No: 20/ Australasian Institute of Mining and Metallurgy.
- Hustrulid, WA, and Bullock, R. (eds.), 2001. Underground Mining Methods: Engineering Fundamentals and International Case Studies, SME, Littleton, USA.
- Gertsch, RE and Bullock, RL (eds.), 1998. Techniques in Underground Mining, SME, Littleton, USA.
- Malone, E. 2011 The Cadia Valley Mines – A Mining Success Story. The AusIMM Spectrum Series 19.
- Kennedy, BA., Editor, 1990. Surface Mining, 2nd edition, Society for Mining, Metallurgy, and Exploration, Littleton, Colorado. ISBN 0–87335–102–9
- Rankin, WJ. (ed) 2013. The Sir Maurice Mawby Memorial Volume Third Edition, Vol1 & 2. The AusIMM.

Course Evaluation and Development

Students will be meeting within groups and/or individually with the course convenor during the class week. If the students require additional information after the course week, the course convenor will be meeting with them when it is required.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Serkan Saydam		Kensington	93854525	During the course sessions	No	Yes

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 Plagarism

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.

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
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