UNSW Course Outline

MINE8130 Technology Management and Innovation in Mining - 2024

Published on the 24 May 2024

General Course Information

Course Code : MINE8130
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 : Non-Award, Undergraduate, Postgraduate
Units of Credit : 6

Useful Links

Class Timetable

Course Details & Outcomes

Course Description

Through this course experience, you will obtain an overview of different mining operations and

core technologies involved, historical and recent trends in mining technology developments, the dynamic management needs of changing technologies, especially in different resource and economic environments, and will have the opportunity to identify innovative and potentially technologies and mining systems. The course is designed to extend traditional thinking and provide for some entrepreneurial ideas and “outside the box” thinking.

You will work both individually and in small groups to explore how your chosen innovations and/or new technologies fit within a mining industry application and then evaluate your ideas through structured technology audits, risk assessments, implementation plans, capital justification and possible commercialisation opportunities for the technology – for both the Australian and/or international mining industries.

Course Aims

This course builds on the students' understanding of current needs, systems and practices in mining industry. It seeks to extend their thinking to consider new, innovative, alternative systems and technologies that might find application in the industry for the future, to either replace or extend current industry capabilities and efficiencies. The course will involve identification of such systems and technologies, followed by a comprehensive evaluation of them in terms of their role in the industry, integration with current and other systems and technologies, and development of potential adoption strategies and preliminary entrepreneurial thinking with regard to commercialisation opportunities.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Ability to analyse the technology needs of mining systems, within the overall mine performance measures – be they economic, safety, social.
CLO2 : Ability to think ‘outside the box’ and create potential innovative solutions to significant challenges facing the mining industry and socially
CLO3 : Recognition and evaluation of the management requirements associated with the implementation and ongoing operation of innovative technologies in a mining context.
CLO4 : Appraisal and development of commercialisation strategies for the identified innovative solutions, taking account of IP and entrepreneurial opportunities.

Course Learning Outcomes	Assessment Item
CLO1 : Ability to analyse the technology needs of mining systems, within the overall mine performance measures – be they economic, safety, social.	• Case Study 1 • Case Study 2 • Syndicated Group Project Work • Major Assignment Report
CLO2 : Ability to think ‘outside the box’ and create potential innovative solutions to significant challenges facing the mining industry and socially	• Case Study 1 • Syndicated Group Project Work • Major Assignment Report
CLO3 : Recognition and evaluation of the management requirements associated with the implementation and ongoing operation of innovative technologies in a mining context.	• Case Study 2 • Case Study 1 • Syndicated Group Project Work • Major Assignment Report
CLO4 : Appraisal and development of commercialisation strategies for the identified innovative solutions, taking account of IP and entrepreneurial opportunities.	• Syndicated Group Project Work • Major Assignment Report

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Case Study 1 Assessment Format: Individual	10%	Start Date: 03/06/2024 12:00 PM Due Date: 05/06/2024 10:00 AM
Case Study 2 Assessment Format: Individual	15%	Start Date: 05/06/2024 12:00 PM Due Date: 06/06/2024 11:00 AM
Syndicated Group Project Work Assessment Format: Individual	25%	Start Date: 03/06/2024 12:00 PM Due Date: 07/06/2024 01:00 PM
Major Assignment Report Assessment Format: Individual	50%	Start Date: 03/06/2024 12:00 PM Due Date: 08/07/2024 11:59 PM

Assessment Details

Case Study 1

Assessment Overview

This is a group work on a preselected case study on technology evaluation from a mining operation.

A rubric, assessment criteria and feedback mechanism will be provided by the course coordinator during the student presentations session.

Course Learning Outcomes

- CLO1 : Ability to analyse the technology needs of mining systems, within the overall mine performance measures – be they economic, safety, social.
- CLO2 : Ability to think ‘outside the box’ and create potential innovative solutions to significant challenges facing the mining industry and socially
- CLO3 : Recognition and evaluation of the management requirements associated with the implementation and ongoing operation of innovative technologies in a mining context.

Submission notes

presentation only

Assignment submission Turnitin type

Not Applicable

Case Study 2

Assessment Overview

This is a group work on a preselected case study on technology evaluation from a mining

operation.

A rubric, assessment criteria and feedback mechanism will be provided by the course coordinator during the student presentations session.

Course Learning Outcomes

- CLO1 : Ability to analyse the technology needs of mining systems, within the overall mine performance measures – be they economic, safety, social.
- CLO3 : Recognition and evaluation of the management requirements associated with the implementation and ongoing operation of innovative technologies in a mining context.

Submission notes

Presentation only

Assignment submission Turnitin type

Not Applicable

Syndicated Group Project Work

Assessment Overview

Groups will select a technology idea presented in Assessment 2 and implement this technology to a particular mining system/process

A rubric, assessment criteria and feedback mechanism will be provided by the course coordinator during the student presentations session.

Course Learning Outcomes

- CLO1 : Ability to analyse the technology needs of mining systems, within the overall mine performance measures – be they economic, safety, social.
- CLO2 : Ability to think ‘outside the box’ and create potential innovative solutions to significant challenges facing the mining industry and socially
- CLO3 : Recognition and evaluation of the management requirements associated with the implementation and ongoing operation of innovative technologies in a mining context.
- CLO4 : Appraisal and development of commercialisation strategies for the identified innovative solutions, taking account of IP and entrepreneurial opportunities.

Submission notes

presentation only

Assignment submission Turnitin type

Not Applicable

Major Assignment Report

Assessment Overview

The major report will be completed by individuals on a technology idea/s for a mining operation addressing all the aspects of the course.

A rubric, assessment criteria and feedback mechanism will be provided by the course coordinator .

Course Learning Outcomes

- CLO1 : Ability to analyse the technology needs of mining systems, within the overall mine performance measures – be they economic, safety, social.
- CLO2 : Ability to think 'outside the box' and create potential innovative solutions to significant challenges facing the mining industry and socially
- CLO3 : Recognition and evaluation of the management requirements associated with the implementation and ongoing operation of innovative technologies in a mining context.
- CLO4 : Appraisal and development of commercialisation strategies for the identified innovative solutions, taking account of IP and entrepreneurial opportunities.

Submission notes

you should provide both document (pdf or Word) and financial excel model

Assignment submission Turnitin type

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

General Assessment Information

Grading Basis

Standard

Course Schedule

Attendance Requirements

Students must attend all lectures, tutorials and activities in real-time either online through Teams or in-person. In-person attendance is encouraged.

General Schedule Information

The course is scheduled from 8.30 am to 5 pm every day. The detailed program will be provided in Moodle and Teams

Course Resources

Prescribed Resources

Lecture Presentations and additional readings in Moodle

Recommended Resources

all relevant information is provided in Moodle or Teams

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Serkan Saydam		159	406876629	During the class session times	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 (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