

Unit Outline (Higher Education)

Institute / School:	Institute of Innovation, Science & Sustainability
Unit Title:	Introduction to Mining Engineering and Technologies
Unit ID:	ENGRG2401
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	030303

Description of the Unit:

This unit offers a foundational exploration into the multifaceted world of mining. It provides students with a comprehensive overview of the principles, methods, and technologies utilized in the mining industry, encompassing both surface and underground operations. This unit provides a solid foundation in mining engineering principles and technologies, enabling them to have a comprehensive understanding of its processes, challenges and opportunities.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	✓	■	■	■
Advanced	■	■	■	■	■	■

Learning Outcomes:

On successful completion of the unit the students are expected to be able to:

Knowledge:

- K1.** Describe the fundamental concepts and principles of mining engineering.
- K2.** Analyze the factors influencing the selection of mining methods, including geological characteristics, ore grade, economics, and environmental considerations.
- K3.** Explain how mining is carried out and why.

Skills:

- S1.** Identifying mining systems (both underground and surface mines).
- S2.** Appraise sustainable mining practices from exploration to mine closure
- S3.** Select and evaluate drainage and power systems for a mine

Application of knowledge and skills:

- A1.** Develop a detailed design in relation to mine power and drainage systems
- A2.** Develop the ability to choose suitable mining methods while factoring in economic viability and environmental sustainability.

Unit Content:

Topics may include:

Topics may include:

- What is mine
- What is mining engineering
- Cycle of operations in mining
- Introduction to different mining systems
- Mine Dewatering
- Various types of power supply in mining systems
- Mining and sustainability

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K3, S1, S3, A1	A comprehensive theoretical and design exercise(s) will be undertaken that has a range of conceptual questions posed within it.	Assignments	10-30%
K1-K3, S2, A2	A comprehensive theoretical and design exercise(s) will be undertaken that has a range of conceptual questions posed within it.	Assignments	10-30%

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K3, A1-A2	Design mine power and drainage systems in various geo-mining conditions	Design project	10-30%
K1-K3, S1-S3, A1-A2	A test/exam of any or all of the material covered in the unit.	Test/Exam	40-60%

Adopted Reference Style:

IEEE

Refer to the [library website](#) for more informationFed Cite - [referencing tool](#)