



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

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:



| Lovel 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:

- 1. What is mine
- 2. What is mining engineering
- 3. Cycle of operations in mining
- 4. Introduction to different mining systems
- 5. Mine Dewatering
- 6. Various types of power supply in mining systems
- 7. 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 information

Fed Cite - referencing tool