

# Unit Outline (Higher Education)

**Institute / School:** Institute of Innovation, Science & Sustainability

**Unit Title:** Mining Geology and Mineral Processing

**Unit ID:** ENGRG2402

**Credit Points:** 15.00

**Prerequisite(s):** Nil

**Co-requisite(s):** Nil

**Exclusion(s):** Nil

**ASCED:** 030303

**Description of the Unit:**

This unit enables participants to apply a body of knowledge in the area of geology and mineral processing and equips them with highly developed skills for research and enquiry. Students enrolled in this unit will be able to apply the body of knowledge to a range of contexts within the mining industry enabling them to undertake professional or highly skilled work as a mining engineer and allow them to undertake further study.

**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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Learning Outcomes:

#### Knowledge:

- K1.** Describe ore-forming processes and classification of minerals/rocks.
- K2.** Identify various geological discontinuities.
- K3.** Explain the processes involved in size reduction of minerals/rocks.
- K4.** Differentiate the basic methods of extracting metals from concentrated ores.

#### Skills:

- S1.** Compare the composition and properties of common minerals and rocks.
- S2.** Interpret simple flow sheets for mineral processing.
- S3.** Sketch an appropriate mine processing flow.

#### Application of knowledge and skills:

- A1.** Use basic geological knowledge to solve engineering geology problems.
- A2.** Demonstrate the concept of comminution in beneficiation/liberation of minerals.

#### Unit Content:

Topics may include:

- Rock weathering and soil formation
- Mineralogy and petrology
- Geological map interpretation
- Ore and mineral
- Basic principles of crushing and grinding
- Screening and sieve analysis
- Concentration methods and equipment
- Basic flow-sheet design

#### Learning Task and Assessment:

Students cannot submit for assessment content generated by AI except when expressly permitted by Unit Coordinators, communicated through the unit description. Use of AI in assessment tasks without express permission is considered Academic Misconduct and may result in a student failing the unit.

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1- K4, S1-S2 and A2	Field/Laboratory based experiment	Lab. reports	10-20%
K1- K4, S1-S3 and A1-A2	Numerical and conceptual tasks	Assignments	10-20%
K1- K4, S1-S3 and A1-A2	Examination of some or all of the unit materials	Examination/Test	30-50%

**Adopted Reference Style:**

IEEE

Refer to the [library website](#) for more information

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