Unit Outline (Higher Education)

Institute / School:	Institute of Innovation, Science & Sustainability
Unit Title:	Mine Planning and Scheduling
Unit ID:	ENGRG4401
Credit Points:	15.00
Prerequisite(s):	(ENGRG3401)
Co-requisite(s):	Nil
Exclusion(s):	(ENGIN5505)
ASCED:	030303

Description of the Unit:

This unit qualifies participants to apply an advanced body of knowledge in surface and underground mine planning 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 of mining projects within the mining industry enabling them to undertake professional or highly skilled work within the mining industry 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						
Intermediate						
Advanced				✔		

Learning Outcomes:

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

Knowledge:

K1. Recognize the time value of money and different approaches to value mining projects.

K2. Identity risks in feasibility study and key parameters that influence the value of mining projects.

K3. Interpret strategic, medium, and short term mine planning, as well as mine rehabilitation and mine closure planning.

K4. Recognize mine planning and optimization techniques in surface and underground mines.

K5. Describe the social, political, and environmental issues associated with mining project design, planning and optimization.

Skills:

S1. Estimate mineral resources and ore reserves, and costs to develop a mining project.

S2. Determine the optimal mining system for a mineral project.

S3. Apply adequate valuation methods, planning and optimization techniques adequate to the stage of the project.

Application of knowledge and skills:

A1. Evaluate, plan, and optimize mining projects considering geological, operational, and ESG factors.

A2. Use NPV-ROR method for mining project optimization.

Unit Content:

Topics may include:

- Mineral Resources and Ore Reserves Estimation
- Feasibility Studies of Mining Projects
- Valuation of Mineral Projects
- Mine Planning and Open Pit Optimization
- Life of Mine Optimization of Surface Mining
- Production Schedule Optimization of Surface Mining
- Optimization of Underground Mine Planning and Scheduling

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-5, S1-3	Assignments 1 Questions	Assignment	10-20%
K1-5, S1-3	Assignment 2 Questions	Assignment	20-40%
K1-5, S1-3, A1-2	Design Project	Design Project Report	40-60%

Adopted Reference Style:

IEEE

Refer to the library website for more information

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