

Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Production Drilling and Blasting

Unit ID: ENGG9402

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 039999

Description of the Unit:

This unit qualifies participants to apply an advanced body of knowledge in the area of drilling and blasting in mining and equips them with highly developed skills for research and enquiry. Students enrolled in this course 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 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

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 checked="" type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<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.** Understand and outline drilling and blasting in mines
- K2.** Select appropriate explosives, initiation systems, and fragmentation optimisation techniques
- K3.** Analyse the environmental effect of blasting

Skills:

- S1.** Appraise, consolidate and synthesise knowledge and identify and provide solutions to complex drilling and blasting problems
- S2.** Evaluate the environmental impact of drilling and blasting
- S3.** Design drilling and blasting for both underground and surface mines
- S4.** Assess and optimise rock fragmentation in both surface and underground blasting settings

Application of knowledge and skills:

- A1.** Plan, implement and evaluate short, medium and long term plans and schedules for drilling and blasting in surface and underground mines
- A2.** Evaluate and optimise production drilling and blasting in a mining operation

Unit Content:

Topics may include:

- Production drilling and blasting for surface and underground operations.
- Optimising fragmentation.
- Analysis and optimisation of drilling and blasting in mining what is optimal in terms of energy partitioning from explosives.
- New explosive and initiation systems.
- Environmental effects of blasting, minimising the impacts of blasting.
- Case studies and costs.

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, S3, A1	Numerical and conceptual tasks	Written assignments	10-30%
K2, K3, S2, S3, S4, A2	Design Project	Reports/Presentations/Oral Assessment	30-50%
K1, K2, K3, S1, S2, S3, S4, A1, A2	Final Exam/Test	Final Exam/Test/Presentations/Oral Assessment	30-50%

Adopted Reference Style:

IEEE ()

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