



Course Outline (Higher Education)

Institute:	Institute of Innovation, Science & Sustainability
Course Title:	TUNNELLING AND MINE DEVELOPMENT
Course ID:	ENGIN5515
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	(ENMIN5120)
ASCED:	030303

Description of the Course:

This course qualifies participants to apply an advanced body of knowledge in the area of underground mine development 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: 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 course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	■	■	■	■
Advanced	■	■	■	✓	■	■

Learning Outcomes:
Knowledge:

- K1.** Recognize the principles and practice of mine development.
- K2.** Interpret drilling and blasting method for shaft sinking, tunnelling, raising and winzings operations.
- K3.** Interpret mechanised tunnelling systems.
- K4.** Appreciate mine development through difficult ground.

Skills:

- S1.** Synthesize knowledge and investigate underground mine development problems.
- S2.** Select mine development techniques for a mine development.
- S3.** Analyze development requirements for differing mining systems.
- S4.** Undertake case studies, including costing.

Application of knowledge and skills:

- A1.** Plan and design underground mine developments.
- A2.** Investigate an adequate mine development technique for mine developments

Course Content:

Topics may include:

1. Mine planning and optimising the infrastructure requirements for mines.
2. Drill and blast or machine mining selecting appropriate methods for diverse scenarios.
3. Development requirements for differing mining systems.
4. Case studies and costs.

Values:

- V1.** Recognise the planning and design development requirements for a mine.

Graduate Attributes

The Federation University Federation graduate attributes (GA) are entrenched in the [Higher Education Graduate Attributes Policy](#) (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor	Development and acquisition of GAs in the course	
	Learning Outcomes (KSA)	Assessment task (AT#)

Graduate attribute and descriptor		Development and acquisition of GAs in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1-4, S1-4, A1-2	AT1-3
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	S1-4, A1-2	AT1-3
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	K1-4, S1-4, A1-2	AT2
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	K1-4, S1-4, A1-2	AT1-3
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	K1-4, S1-4, A1-2	AT2

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1-4, S1-4	Numerical and conceptual tasks	Submitted assignments	40-50%
K1-4, S1-4, A1-2	Mine development design project	Report	20-30%
K1-4, S1-4	Numerical tasks	Invigilated test	20-40%

Adopted Reference Style:

Other (IEEE-Refer to the library website for more information)

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

Fed Cite - [referencing tool](#)