



Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: ADVANCED MINE VENTILATION

Unit ID: ENGIN5503

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (ENMIN4050)

ASCED: 030303

Description of the Unit:

This unit qualifies participants to apply an advanced body of knowledge in the area of mine ventilation 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 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						

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
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 checked="" type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

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

Knowledge:

- K1.** Recognize the engineering science involved in environmental engineering in underground structures.
- K2.** Appreciate mine ventilation and ventilation pollutant control.
- K3.** Identify alternative ventilation systems to achieve control over ventilation contaminants.
- K4.** Interpret alternative ventilation methods in mining.
- K5.** Demonstrate detailed engineering calculations related to subsurface environmental engineering.

Skills:

- S1.** Synthesize knowledge to identify and appraise complex mine ventilation problems.
- S2.** Evaluate complex ideas in mine ventilation.
- S3.** Select appropriate tools to creatively solve problems in mine ventilation.

Application of knowledge and skills:

- A1.** Design short, medium and long term ventilation plans and schedules for a underground mine.

Unit Content:

Topics may include:

- Review of elementary mine ventilation.
- Review and extension of mine ventilation network analysis.
- Optimisation of mine ventilation systems.
- Design and planning of chilled water reticulation systems.
- Design and planning of mine refrigeration systems.
- Ice as a mine coolant.
- Methane drainage systems.
- Radon and radon daughter control in mines.

- The effects of mine fires on ventilation and the prediction of these events.
- Stench analysis.

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-5, S1-3, A1	Numerical and conceptual research tasks.	Submitted assignments	30-40%
K1-5, S1-3, A1	Design projects.	Report	30-40%
K1-5, S1-3, A1	Examination or test of some or all of the unit content	Examination or test	30-40%

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](#)