Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Subsurface Environment and Ventilation

Unit ID: ENGPG9404

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (ENGRG3402)

ASCED: 030303

Description of the Unit:

This unit enables participants to apply a 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

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				✔		
Advanced						

Learning Outcomes:

Knowledge:

K1. Describe the theoretical concepts to solve mine ventilation problems.
K2. Identify the ventilation systems used in underground mining operations.
K3. Compare the common impurities and hazards in mine atmosphere.

Skills:

S1. Evaluate complex ideas in mine ventilation.
S2. Analyse the nature of a mine environment.
S3. Select appropriate tools to solve problems in mine ventilation.

Application of knowledge and skills:

A1. Justify, develop and apply control measures that can detect, monitor, and control mine hazards.
A2. Create an appropriate ventilation system for a mine.

Unit Content:

Topics may include:
1. Theory of Mine ventilation
2. Mine Ventilation pollutants and their control by ventilation and alternative techniques
3. The principles of mine ventilation planning, Computer aided mine ventilation planning
4. Exposure and maximum permissible dose, Principles of protection
5. Emergency procedure and disaster management
6. Optimisation of mine ventilation systems

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**ttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor	Development and acquisition of FEDTASKS in the Unit	
	Learning Outcomes (KSA)	Assessment task (AT#)

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate high-level skills to effectively communicate, interact and work with others both individually and in groups Students will be required to display (in person and/or online) high-level skills in-person and/or online in: • Effective verbal and non-verbal communication via a range of synchronous and asynchronous methods • Active listening for meaning and influencing • High-level empathy for others • Negotiating and demonstrating extended conflict resolution skills • Working respectfully in cross-cultural and diverse teams	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply leadership skills and behaviours Students will be required to display skills in: • Creating, contributing to, and enabling collegial environments • Showing self-awareness and the ability to self-reflect for personal growth • Inspiring and enabling others • Making informed and evidence-based decisions through consultation with others • Displaying initiative and ability to solve problems	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complex and ambiguous environments, using their imagination to create new ideas Students will be required to display skills in: • Reflecting critically on complex problems • Synthesising, evaluating ideas, concepts and information • Proposing alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts through deep inquiry • Proposing creative solutions in problem solving	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work proficiently across a range of tools, platforms and applications to achieve a range of tasks Students will be required to display high-level skills in: • Finding, accessing, collating, evaluating, managing, curating, organising and appropriately and securely sharing complex digital information at a high-level • Receiving and responding to messages in a range of digital media • Using digital tools appropriately to conduct research • Contributing proficiently to digital teams and working groups • Participating in and utilising digital learning opportunities	Not applicable	Not applicable
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to think ethically and sustainably. Students will be required to display skills in: • The responsible conduct of research • Making informed judgments that consider the impact of devising solutions in multiple global economic environmental and societal contexts • Demonstrating commitment to social responsibility as a professional and a citizen • Generating research solutions which are sustainable,ethical, socially responsible and/or sustainable • Extending lifelong, life-wide and life-deep learning to be open to diverse others • Demonstrate extended actions to foster sustainability in their professional and personal life.	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, S3, A1, A2	Numerical and conceptual tasks	Assignment/s	10-30%
K2, K3, S2, S3, A2	Mine ventilation planning project and/or laboratory-based practical excerice	Report and Ventsim files and/or lab report/Presentation	20-40%
K1, K2, K3, S1, S2, S3, A1, A2	Examination of some or all of the unit materials	Test/Exam	30-50%

Adopted Reference Style:

IEEE ()

Refer to the library website for more information

Fed Cite - referencing tool