



# Course Outline (Higher Education)

<b>School:</b>	School of Engineering, Information Technology and Physical Sciences
<b>Course Title:</b>	UNDERGROUND PRODUCTION SYSTEMS
<b>Course ID:</b>	ENGIN5512
<b>Credit Points:</b>	15.00
<b>Prerequisite(s):</b>	Nil
<b>Co-requisite(s):</b>	Nil
<b>Exclusion(s):</b>	(ENMIN5130)
<b>ASCED:</b>	030303

## Description of the Course :

This course qualifies participants to apply an advanced body of knowledge in the area of underground 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, etc.)

## 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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Learning Outcomes:****Knowledge:**

- K1.** Outline the conditions to set up a new mine.
- K2.** Recall commonly used underground mining methods.
- K3.** Discuss key parameters/factors used in determining which production system should be used.
- K4.** Analyse the effect of dilution on profitability and the relationship between dilution and recovery.
- K5.** Account for the major equipment and major development requirements for each underground mining method.

**Skills:**

- S1.** Appraise, consolidate and synthesise knowledge and identify and provide solutions to complex underground mining problems.
- S2.** Compare technically feasible mining methods for a mineral deposit.
- S3.** Select appropriate tools, which may include computer software, to solve problems in underground mining.
- S4.** Select major equipment and major mine developments required for the commonly used mining methods.

**Application of knowledge and skills:**

- A1.** Assess a mineral deposit and recommend technical feasible mining methods.
- A2.** Plan the mine developments required for an underground mining system, and recommend the major equipment required.

**Course Content:**

Topics may include:

- Setting up a new mine.
- Optimal selection of an underground production system.
- Mining methods, infrastructure requirements and impact on mine service requirements.
- Mining methods resource requirements.

**Values:**

- V1.** Recognise the need for good engineering practice in underground mining operations.
- V2.** Distinguish that although there will always be a need for minerals, they must be recovered within a framework of environmental protection.

**Graduate Attributes**

The Federation University FedUni 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)	Code A. Direct B. Indirect N/A Not addressed	Assessment task (AT#)	Code A. Certain B. Likely C. Possible N/A Not likely
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.	K4, S1-4, A1	A	AT1-3	A
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.	K5, S1-4, A1-2	A	AT3-4	A
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.	K3, S1-2, A1-2	A	AT3	A
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, S1-4, A1-2	A	AT1-4	A
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.	K5, S1-4, A1-2	A	AT3	A

### Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1-5, S1-4, A1	AT1-2: Numerical and conceptual tasks	Written assignments	30-40%
K1-5, S1-4, A1-2	AT3: Design Project	Written design project report	40-60%
K2-5, S1-4, A1-2	AT4: Underground mine site report	PowerPoint Presentation	10-30%

### Adopted Reference Style:

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