



# Unit Outline (Higher Education)

<b>Institute / School:</b>	Institute of Innovation, Science & Sustainability
<b>Unit Title:</b>	Materials Handling and Hoisting
<b>Unit ID:</b>	ENGRG4404
<b>Credit Points:</b>	15.00
<b>Prerequisite(s):</b>	Nil
<b>Co-requisite(s):</b>	Nil
<b>Exclusion(s):</b>	(ENGIN5513)
<b>ASCED:</b>	030303

## Description of the Unit:

This course qualifies participants to apply an advanced body of knowledge in the area of surface and underground loading, haulage and hoisting 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 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	■	■	■	■	■	■
Intermediate	■	■	■	■	■	■

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Advanced	■	■	■	✓	■	■

### Learning Outcomes:

#### Knowledge:

- K1.** Interpret materials handling and hoisting systems used in surface and underground mining.
- K2.** Demonstrate cycle time calculations within materials handling.
- K3.** Identify the interaction between different materials handling systems.

#### Skills:

- S1.** Select appropriate systems for the various types of mineral deposits in varying conditions.
- S2.** Assess materials handling and hoisting systems.
- S3.** Select appropriate tools to solve problems in materials handling.
- S4.** Partition materials handling and/or hoisting systems.

#### Application of knowledge and skills:

- A1.** Plan a materials handling and/or hoisting system for a underground mining system, and conceptualize the major infrastructure and equipment required.
- A2.** Design and optimise a materials handling and/or hoisting system as a core part of mine planning to facilitate the requests of mining production, mine ventilation and services.

#### Unit Content:

Hoisting, Underground Rail, Trackless Mining, Conveyors, Pipeline Systems, Pneumatic Systems.

Topics may include:

- Selection of appropriate materials systems for differing mining systems.
- Design features, design calculations accounting for the whole cycle of operations and system optimisation.
- Interaction between different materials handling systems, determination of storage requirements.
- Planning materials handling systems.
- Tracked or fixed haulage systems comparison with trackless methods, which is the optimal choice.
- Automation of mine materials handling systems, available and future systems.

#### 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 Courses. Graduate attribute attainment typically follows an incremental development process mapped through Course progression.

**One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all attributes must be directly assessed in each Course**

Graduate attribute and descriptor		Development and acquisition of GAs in the Unit	
		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.	K1-3, S1-4, A1-2	AT1-2
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	AT1-2
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.	K1-3, 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.	K1-3, S1-4, A1-2	AT1-2
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.	K1-3, S1-4, A1-2	AT2

### Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-3, S1-4	Numerical and conceptual tasks related to the learning outcomes of this course.	Written assignments	50-60%
K1-3, S1-4, A1-2	Design a materials handling or hoisting system for a mining method, or a component of the system	Design report	40-50%

### 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](#)