

Course Outline (Higher Education)

Institute: Institute of Innovation, Science & Sustainability

Course Title: MINE PLANNING & SCHEDULING

Course ID: ENGIN5505

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (ENMIN4090 and ENMIN7010)

ASCED: 030303

Description of the Course:

This course qualifies participants to apply an advanced body of knowledge in the area of surface and 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, 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	<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"/>

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
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 course the students are expected to be able to:

Knowledge:

- K1.** Identify production planning and scheduling requirements for a mine.
- K2.** Select the parameters used in determining which planning and scheduling system should be used.
- K3.** Interpret common mining planning methods.
- K4.** Recognize a variety of planning exercises using modern simulation techniques.
- K5.** Appreciate the social, political and environmental issues associated with mining.

Skills:

- S1.** Select the best mining system for an ore deposit.
- S2.** Partition mine development plans.
- S3.** Evaluate the effects of mining operation on social, political and environmental issues.
- S4.** Select excavation processes for various types of mineral deposits in varying conditions.
- S5.** Incorporate the appropriate safety systems.

Application of knowledge and skills:

- A1.** Develop short, medium and long term plans and schedules for a mine.
- A2.** Manage personal outputs and all aspects of the work or function of others.

Course Content:

Topics may include:

- Introduction to mine planning and sustainability
- Mineral inventory and ore reserve estimation
- Determination of size of mine, life of mine and production rates
- Feasibility study

- Equipment selection, production planning and mining costs.

- Optimisation in open pits.

- 3D ultimate pit limit algorithms and their application.
- Haul road generation and dump design.
- Heuristic long and short term scheduling techniques.

- Mine optimisation for sequencing and scheduling.
- Mine closure planning
- Project management and network analysis

- Future concepts.

Values:

V1. Recognise the need for good engineering practice in underground mining operations.

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#)
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.	K1-5, S1-5, 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.	S1-5, 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.	K1-5, S1-5, 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.	K1-5, S1-5, 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.	K1-5, S1-5, A1-2	AT2

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1-5, S1-5, A1-2	Numerical and conceptual tasks.	Written assignments	40-50%
K1-5, S1-5, A1-2	Design project.	Written report and associated calculations	50-60%

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](#)