

School / Faculty: Faculty of Science and Technology

Course Title: UNDERGROUND MINE PLANNING AND INFRASTRUCTURE DEVELOPMENT

Course ID: ENGIN3504

Credit Points: 15.00

Prerequisite(s): (ENGIN3501 or ENMIN3020)

Co-requisite(s): Nil

Exclusion(s): (ENMIN3060)

ASCED Code: 030303

Grade Scheme:

Graded (HD, D, C, etc.)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component:

No

Program Level:

AQF Level of Program						
	5	6	7	8	9	10
Level						
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:

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

Knowledge:

- K1.** Describe in detail the principles and various practices of mine development
- K2.** Explain in detail what shaft sinking, tunnelling, raising and winzing is
- K3.** Describe mechanical rock cutting systems
- K4.** Explain and critically evaluate the different mine development techniques available for difficult ground

Skills:

Course Outline (Higher Education)

ENGIN3504 UNDERGROUND MINE PLANNING AND INFRASTRUCTURE DEVELOPMENT

- S1.** Analyse, consolidate and synthesise knowledge and identify and provide solutions to complex underground mining problems
- S2.** Generate and evaluate complex ideas in mine development
- S3.** Select appropriate tools to solve problems in underground mine development
- S4.** Use theoretical concepts from underground mine development in the formulation of solutions and problems

Application of knowledge and skills:

- A1.** Plan, implement and evaluate short, medium and long term plans and schedules for a underground mine
- A2.** Act with Responsibility and have accountability for personal outputs and all aspects of the work or function of others

Course Content:

Topics may include:

- Mine planning
- Shafts versus declines
- Conventional tunnelling
- Jumbo methods
- Road headers
- Full face tunnel boring
- Raising methods
- Sinking and winzing
- Ground support
- Underground layouts
- Case studies and costs

Values:

- V1.** Plan and design development requirements for a mine

Graduate Attributes:

FedUni graduate attributes statement. To have graduates with knowledge, skills and competence that enable them to stand out as critical, creative and enquiring learners who are capable, flexible and work ready, and responsible, ethical and engaged citizens.

Attribute	Brief Description	Focus
Knowledge, skills and competence	This course requires students to command surface mining systems and operation techniques. As such systems and techniques evolve with new equipment and technology over time, this course provides the knowledge and skills for continuous learning.	Medium
Critical, creative and enquiring learners	This course requires students to command surface mining systems and operation techniques. As such systems and techniques evolve with new equipment and technology over time, further professional development in this field can be self-reliance or driven by the industry.	Low

Course Outline (Higher Education)

ENGIN3504 UNDERGROUND MINE PLANNING AND INFRASTRUCTURE DEVELOPMENT

Attribute	Brief Description	Focus
Capable, flexible and work ready	The practical elements in this course may include field excursion and project design, exposing students to productivity and safety, environmental protection, and commitment to economy and safety of project.	Medium
Responsible, ethical and engaged citizens	The practical elements in this course may include field excursion and design project, exposing students to operational safety, environmental protection, and commitment to economy and safety of project design.	Medium

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1-4, S1-4, A1-2	Numerical and conceptual tasks	Submitted assignments	20-30%
K1-4, S1-4, A1-2	Design project	Report	20 - 30%
K1-4, S1-4, A1-2	Examination of some or all of the course materials	Examination	40-60%

Adopted Reference Style:

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