University of Pretoria Yearbook 2022

BScHons (Applied Science) *Mining* (12243035)

Department	Mining Engineering
Minimum duration of study	1 year
Total credits	128
NQF level	08

Programme information

The BScHons (Applied Science) degree is conferred by the following academic departments:

- Chemical Engineering
- Civil Engineering
- Industrial and Systems Engineering
- Materials Science and Metallurgical Engineering
- Mechanical and Aeronautical Engineering
- Mining Engineering

Any specific module is offered on the condition that a minimum number of students are registered for the module, as determined by the relevant head of department and the Dean. Students must consult the relevant head of department in order to compile a meaningful programme, as well as on the syllabi of the modules. The relevant departmental postgraduate brochures must also be consulted.

Admission requirements

1. Three-year BSc (or equivalent) degree (in Natural Sciences)with a cumulative weighted average of at least 60% for the degree **or** relevant BTech qualification excluding the National Diploma; i.e.one offered by a department of civil engineering at a university of technology in South Africawith a cumulative weighted average of at least 75% for the degree and no modules failed in the BTech degree **or** four-year engineering-based university degree not recognised by ECSA for registration as a professional engineer **or** BEng degree awarded by the University of Pretoria **or** relevant four-year bachelor's degree in engineering that the Engineering Council of South-Africa (ECSA) regards as acceptable for registration as a candidate engineer and for eventual registration as a professional engineer
2. A minimum of 5 years mining experience
3. An entrance examination may be required
4. Comprehensive intellectual CV

Examinations and pass requirements

Refer also to G18 and G26.

i. The examination in each module for which a student is registered, takes place during the normal examination

period after the conclusion of lectures (i.e. October/November or May/June).

ii. G18(1) applies with the understanding that under exceptional circumstances an extension of a maximum of three years may be approved: provided that the Dean, on reccommendation of the relevant head of department, may approve a stipulated limited extension of this period.

iii. A student must obtain at least 50% in an examination for each module where no semester or year mark is required. A module may only be repeated once.

iv. In modules where semester or year marks are awarded, a minimum examination mark of 40% and a final mark of 50% is required.

v. No supplementary or special examinations are granted at postgraduate level.

Pass with distinction

A student passes with distinction if he or she obtains a weighted average of at least 75% (not rounded) in the first 128 credits for which he or she has registered (excluding modules which were discontinued timeously). The degree is not awarded with distinction if a student fails any one module (excluding modules which were discontinued timeously). The degree must be completed within the prescribed study period.

Curriculum: Final year

Minimum credits: 128

All modules compulsory / Alle modules verpligtend

Core modules

Basic mine ventilation engineering 701 (PKB 701)

Module credits	16.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	Self study
Language of tuition	Module is presented in English
Department	Mining Engineering
Period of presentation	Semester 1 or Semester 2

Underground mining methods 701 (PMY 701)

Module credits	32.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	10 lectures per week
Language of tuition	Module is presented in English
Department	Mining Engineering
Period of presentation	Semester 1 or Semester 2

Module content

PMY 701 provides an overview of mining by covering the following subject matter: history of mining in South Africa, surface-mining methods, underground mining methods, and a brief overview of mine environmental control and mine strata control. Then the module covers general mine layouts, mine plan reading, mine surveying, electricity supply, transport systems, water management systems, and mine fires. Specific mining techniques. Shafts: Types, methods and equipment for sinking; economic considerations. Tunneling: Design, development techniques and equipment. Design and construction of large excavation. Design, construction, reinforcing and repair of ore passes. Fires in gold and coal mines: Causes, prevention, detection, combating and insurance. Flooding: Water sources, results, dangers, sealing and control.

Surface-mining 703 (PMY 703)

Module credits	16.00
NQF Level	08
Prerequisites	No prerequisites.

Contact time	10 lectures per week
Language of tuition	Module is presented in English
Department	Mining Engineering
Period of presentation	Semester 1 or Semester 2

Module content

Mining methods for open pits and strip mine operations. Basic mine planning, scheduling and economic cut-off limits with regards to waste stripping and ore grade. Continuous and discontinuous operations: Selection and management of truck-based loading and transport systems. Selection and management of conveyor-based loading and transport systems. Dragline selection, operation, management and strip mining practices. Slope stability in surface mines, plane, wedge and circular/non-circular failures.

Explosives engineering 701 (PRX 701)

Module credits	16.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	10 lectures per week
Language of tuition	Module is presented in English
Department	Mining Engineering
Period of presentation	Semester 1 or Semester 2

Module content

History of explosives, types of explosives: primary and secondary explosives, thermodynamics of detonation, strength of explosives. Methods and techniques, explosive initiating systems, application of explosives in rock breaking; the effects of geology and drilling. Surface and underground blasting, controlled blasting, vibration control, air blast. Ethics and regulatory compliance. Equipment and calculations.

Research project 700 (PSS 700)

Module credits	32.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	Self study
Language of tuition	Module is presented in English
Department	Mining Engineering
Period of presentation	Year

Module content

*This is a compulsory research module.

Basic rock mechanics 703 (PSZ 703)

Module credits	16.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	Self study
Language of tuition	Module is presented in English
Department	Mining Engineering
Period of presentation	Semester 1 or Semester 2