

University of Pretoria Yearbook 2025

BScHons in Applied Science specialising in Mining (12243057)

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 Bachelor of Science (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 mining engineering at a university of technology in South Africa, with a cumulative weighted average of at least 75% for the degree
and
no modules failed in the BTech degree
or
a relevant Advanced Diploma qualification (NQF Level 7), excluding the National Diploma; i.e. one offered by a department of mining engineering at a university of technology in South Africa, with a cumulative weighted average of at least 70% for the diploma
and

no modules failed in the Advanced Diploma

2. A minimum of five (5) years mining experience
3. Comprehensive intellectual CV
4. An entrance examination may be required

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 recommendation 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

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 |

General Academic Regulations and Student Rules

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations. The G Regulations are updated annually and may be amended after the publication of this information.

Regulations, degree requirements and information

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this information.

University of Pretoria Programme Qualification Mix (PQM) verification project

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.