

# University of Pretoria Yearbook 2021

## 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 Africa with 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

## Curriculum: Final year

**Minimum credits: 128**

All modules compulsory / Alle modules verpligtend

### Core modules

#### Basic mine ventilation engineering 701 (PKB 701)

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

#### Underground mining methods 701 (PMY 701)

<b>Module credits</b>	32.00
<b>NQF Level</b>	08
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	10 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Mining Engineering
<b>Period of presentation</b>	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)

<b>Module credits</b>	16.00
<b>NQF Level</b>	08
<b>Prerequisites</b>	No prerequisites.



<b>Contact time</b>	10 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Mining Engineering
<b>Period of presentation</b>	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)

<b>Module credits</b>	16.00
<b>NQF Level</b>	08
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	10 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Mining Engineering
<b>Period of presentation</b>	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)

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

#### Module content

\*This is a compulsory research module.



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## Basic rock mechanics 703 (PSZ 703)

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

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The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.