

Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie / Lefapha la Boetšenere, Tikologo ya Kago le Theknolotši ya Tshedimošo

Bachelor of Engineering in Mining Engineering







What does the programme entail?

As a profession, mining engineering encompasses a broad spectrum of engineering work—from mine evaluation to industrial control. For instance, mining engineers may assess a new mining project as soon as the geological confirmation of a newly discovered mineral deposit has been completed. If such a mineral deposit is found to be viable, mining engineers will design the mine to exploit the mineral deposit. Where the mineral deposit is close to the surface, an opencast mine is preferred, but for deeper deposits, an underground mine will be planned. Mining engineers will coordinate the construction of such a mine and bring it to the stage where it starts producing.

A typical mine has a lifespan of 15 to perhaps 100 years. The design of the mining excavations, with their equipment and services, the planning of all the activities and the management of the operation at all levels is the responsibility of the mining engineer. This professional will also provide expert advice on rock breaking, blasting, materials transport systems, mine planning and scheduling, mechanical tunnel development, mine climate control, rock mechanics, support of excavations, devising mining methods, as well as the design and development of equipment.



What makes this programme unique?

The Mining Engineering Leadership Academy

Our students have a sound academic foundation. To that, we add skills such as self-awareness, communication skills and the ability to work in multi-disciplinary settings and groups.

The philosophy of the Leadership Academy programme is to expose final-year students to experiential situations, which teaches them intrapersonal and interpersonal skills. Psychometric assessments and real-life case studies hone well-rounded leadership habits.

The University of Pretoria provides excellent facilities to our Mining Engineering students and these include access to the:

- Kumba Mine Design Laboratory
- Kumba Virtual Reality 3D360 cylinder
- Kumba Virtual Reality 3D theatre
- ARM Laboratory
- Virtual Blasting Wall
- The Metallurgical, civil and mechanical engineering laboratories on the Hatfield Campus



Who are the ideal candidates?

The aptitudes and skills of successful engineers include the following:

- Be able to visualise objects in three dimensions
- Have good health and stamina
- Have mathematical and scientific ability
- Be curious
- Be disciplined
- Be passionate about mining
- Have creativity and initiative
- Be responsible
- Have self-confidence
- Have organisational skills
- Command respect
- Maintain a cool head and take charge of a situation
- Have listening, speech and writing skills



The mining industry is one of the largest industries in South Africa, producing more than **60 different minerals in over 1 000 mines and quarries**.

Mining amounts to one eighth of the gross national product.

Mining engineers are employed at a wide range of companies, both locally and internationally. They are responsible for the effective, safe and profitable operation of mining undertakings.

Mining engineering careers include that of rock engineer; mine ventilation engineer; explosives engineer; rock breaking engineer; drill and blast engineer; project engineer; mine planner and environmental engineer to mention but a few.

- Mining engineers are mining experts and they are engineers, who have a background in geology as well as in civil, mechanical and electrical engineering.
- Mining engineers research mining-related topics in order to improve safety and find better ways to extract minerals.
- Mining engineers also work in the banking sector and at the Stock Exchange, where they specialise in risk analysis and investment.
- Mining engineers are also needed for sales and marketing as well as business development of mining companies or supporting industries.

There is a shift in mining as it progresses towards mechanisation and automation through robotics. Mechanisation requires in-depth engineering skills to support and operate mobile mechanised equipment.



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Bachelor of Engineering in Mining Engineering

(continued)



Make today matter

Mining Engineering is the study and application of technological methods to effectively and safely operate a mining operation. Mining engineers conduct mine evaluations as soon as geological confirmation of a mineral deposit, are confirmed. Mining engineers will design the mine itself. If the mineral deposit is close to the surface, an opencast mine will be preferred, but for deeper deposits, an underground mine will be required.

The rewarding profession of being a mining engineer

Mining engineers coordinate the construction of such a mine, from the planning phase to full production phase. Mining engineers design mining excavations; manage operations at all levels; provide expert advice on rock breaking, blasting materials, transport systems and scheduling; mechanical tunnel development, mine ventilation, rock mechanics, support of excavations, mining methods, as well as the design and development of equipment.

Mining engineers do mine planning and design. They also oversee mining projects. As consultants, they provide crucial information to decision-makers.

Educating and leading mining engineers to become imagineers

Minimum admission requirements

Dragramma	Minimum requirements for NSC/IEB for 2026					
Programme	Achievement level					
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language	Mathematics	Physical Sciences	APS		
Bachelor of Engineering in Mining Engineering [4 years]	5	6	6	35		

The suggested second-choice programmes for Bachelor of Engineering in Mining Engineering are Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in Physics.



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Refer to the International undergraduate prospectus at www.up.ac.za/programmes > Undergraduate > Admission Information or click here for more information.

- The closing date for applications for programmes in this faculty is 30 June.
- Meeting the minimum admission requirements does not guarantee admission into a programme.

	Minimum requirements for 2026										
	Achievement level										
		GCSE #			AS Level	A Level	IB				
		The qualifications in the two columns below will be considered only for conditional admission. If final AS and/or A levels have been completed, these two columns will not apply. It can also not be used for final admission and/ or registration.									
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY Programmes	Compulsory subjects	CIE IGCSE LGCSE BGCSE EGCSE O Level NSSC OL CGCE UCE NECO WAEC WASSCE ZGCE	UK England Wales Northern Ireland Pearson Edexcel GCSE	HIGCSE NSSC HL	GCE CIE NSSC AS	GCE CIE CGCE UACE WAEC ZGCE	IB SL	IB HL	KOMBI ABITUR	KCSE	
Bachelor of Science in Architecture	English Mathematics Physics	C D D	4 3 3	3 3 3	C D D	E E	4 2 2	3 2 2	60-69% 50-59% 50-59%	B C+ C+	
Bachelor of Town and Regional Planning	English Mathematics	C D	4 3	3 3	C D	E E	4 2	3 2	60-69% 50-59%	B C+	
Bachelor of Science in Construction Management	English Mathematics Physics Chemistry (or Accounting*)	C C	4	3	C C	E	4 4	3	60-69% 60-69%	B B	
Bachelor of Science in Real Estate		D) 3) 3	3 3	D D	E	2 2	2 2	50-59% 50-59%	C+ C+	
Bachelor of Science in Quantity Surveying		D									
Bachelor of Engineering in Industrial Engineering											
Bachelor of Engineering in Chemical Engineering											
Bachelor of Engineering in Civil Engineering	English Mathematics Physics Chemistry										
Bachelor of Engineering in Electrical Engineering											
Bachelor of Engineering in Electronic Engineering		English C Mathematics B Physics B Chemistry B	4	3 2 2 2	C B B B	E D D	4 5 5 5	3 4 4 4	60-69% 70-79% 70-79% 70-79%	B B+ B+ B+	
Bachelor of Engineering in Mechanical Engineering			5								
Bachelor of Engineering in Metallurgical Engineering											
Bachelor of Engineering in Mining Engineering											
Bachelor of Engineering in Computer Engineering											

Only English with at least a C symbol on this level can be used for final admission. * Offer both PHYSICS and CHEMISTRY, or ACCOUNTING only



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Make today matter

	Minimum requirements for 2026									
	Achievement level									
		GCSE #			AS Level A Level		IB			
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY Programmes	Compulsory subjects	The qualifications in the two columns below will be considered only for conditional admission. If final AS and/or A levels have been completed, these two columns will not apply. It can also not be used for final admission and/ or registration.								
		CIE IGCSE LGCSE BGCSE EGCSE O Level NSSC OL CGCE UCE NECO WAEC WASSCE ZGCE	UK England Wales Northern Ireland Pearson Edexcel GCSE	HIGCSE NSSC HL	GCE CIE NSSC AS	GCE CIE CGCE UACE WAEC ZGCE	IB SL	IB HL	KOMBI ABITUR	KCSE
Bachelor of Information Technology in Information Systems	English Mathematics	C C	4 4	3 3	C C	E	4 4	3 3	60-69% 60-69%	B B
Bachelor of Information Science	English	D	3	3	D	E	3	2	50-59%	C+
Bachelor of Information Science specialising in Publishing	English	С	4	3	С	E	4	3	60-69%	В
Bachelor of Information Science specialising in Multimedia**	English Mathematics	D C	3 4	3 3	D C	E	3 4	2 3	50-59% 60-69%	C+ B
Bachelor of Science in Computer Science	English Mathematics	C B	4 5	3 2	C B	E D	4 5	3 4	60-69% 70-79%	B B+
Bachelor of Science in Information Technology in Information and Knowledge Systems	English Mathematics	D B	3 5	3 2	D B	E D	3 5	3 4	50-59% 70-79%	C+ B+
Bachelor of Engineering This is a 5-year programme in all Engineering disciplines. Previously called ENGAGE	English Mathematics Physics Chemistry	с с с с	4 4 4 4	3 3 3 3	C C C C	E E E E	4 4 4 4	3 3 3 3	60-69% 65% 65% 65%	B B B B

Only English with at least a C symbol on this level can be used for final admission. * Offer both PHYSICS and CHEMISTRY, or ACCOUNTING only

**Possible name change to: Bachelor of Information Science specialising in Interactive Technology

