

POSTGRADUATE STUDY OPPORTUNITIES

DEPARTMENT OF MINING ENGINEERING

Learn more:

www.up.ac.za/mining-engineering



OUR RESEARCH IMPACT

EBIT's Department of Mining Engineering contributed greatly to the South African mining industry by providing it with world-class leaders in mining engineering. The Department focuses on conducting world-class research to address the unique challenges of the South African mining industry and to contribute to its resilience. Our research prioritises the development of methods for improved productivity, lower production costs, mine safety and sustainability.

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Pretoria, a world-class
research institution**

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postgraduate journey?**



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RESEARCH OPPORTUNITIES

ROCK ENGINEERING

The Rock Engineering Research Group benefits from the expertise of two internationally acclaimed specialists in the field: Prof Francois Malan and Prof John Napier (an extraordinary professor in the Department). A key aspect of the research in this focus area is the development of new design criteria and layouts for hard rock mines to ensure their sustainability. Improved formulae and methods for designing hard rock pillars are also being investigated. Researchers in this group also work in Harmony Chair in Rock Engineering and Numerical Modelling. The Chair conducts research into techniques to simulate the rock mass behaviour in South African deep-level gold mines. Research in this Chair actively develops the rock engineering tools to improve safety in and profitability of the deep tabular gold mining industry.

SAMERDI RESEARCH ACTIVITY FOR MECHANISED MINING SYSTEMS

Research in Mechanised Mining Systems is being conducted in collaboration with EBIT's Department of Mechanical and Aeronautical Engineering. This transdisciplinary research activity leverages the strengths of both departments to contribute to three specific research thrusts: the cutting and drilling of hard rock, the productivity and maintenance optimization of mining equipment, and the utilization, performance and condition monitoring of mechanized mining equipment.

KUMBA VIRTUAL REALITY CENTRE FOR MINE DESIGN

The Department is contributing to the advancement of VR education and training in the mining industry with its cutting-edge Kumba VR Centre for Mine Design. Topics that are being addressed in this field include fully integrated mine design using VR to visually represent the consequences of good or poor mine design, and ways in which VR can be fully optimised and implemented as a simulation tool.

MINING RESILIENCE RESEARCH CENTRE (MRRC)

The focus of the MRRC is to develop interdisciplinary research collaboration within the various departments at the University of Pretoria, as well as external organisations involved in research related to mining challenges. This is in an effort to ensure that the mining industry meets the full expectations of investors, government, employees, organised labour, communities and other stakeholders in the mining industry, particularly within the context of the role played by the industry as a source of economic growth and social transformation.



**Faculty of Engineering,
Built Environment and
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Fakulteit Ingenieurswese, Bou-omgewing en
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Tikologo ya Kago le Theknolotši ya Tshedimošo

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CAREER PATHWAYS

Qualified mining engineers can register as professional engineers (Pr. Eng.) after obtaining the required industry exposure. In addition to occupying prestigious industry positions, professional engineers can also undertake consultation work. Honours and Master's degree programmes in the Department allow postgraduate students to obtain specialised knowledge in their chosen field, which will benefit them in their careers in industry. For those interested in an academic career, a PhD degree from the Department is an invaluable asset.

#41



IN THE WORLD FOR
MINERALS AND MINING
ENGINEERING

(2025 QS World University Subject Rankings)

ALUMNI RELATIONSHIPS

The Department of Mining Engineering believes in continuing the relationship that has been formed with its students even after they graduate. Many alumni occupy leading positions in industry and have made significant contributions to the economic development of the country. The Mining Alumni Society of the University of Pretoria (MASUP) is an active alumni body. Members of the Society support the Department by raising sponsorships, ensuring that high skills and educational standards are maintained, offering mentorship, providing external examiners, being available for industry discussions, offering guidance and serving on the advisory committee of the Department. MASUP also serves as a social network for mining engineers in industry.

POSTGRADUATE DEGREE PROGRAMMES

Honours programmes

The Department's honours degree programmes prepare students for a career in research through the teaching of its modules. However, there is also a strong need for these programmes in industry, without students having to commit to Master's degree studies.

BEngHons Mining Engineering • BScHons (Applied Science) Mining

Master's programmes

Through the Department's Master's programmes, the student initiates, plans and executes a scientific investigation on a mining engineering topic and then writes a dissertation on the research project and its findings.

MEng Mining Engineering • MSc (Applied Science) Mining

Doctoral programmes

A doctoral degree in the Department is awarded for a successful thesis on advanced original research that makes a real and substantial contribution to the knowledge of engineering science or practice.

PhD Mining Engineering • PhD Mining