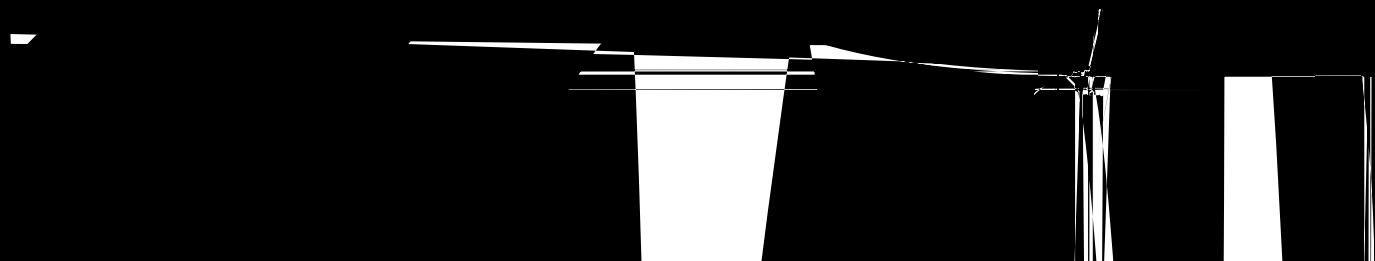
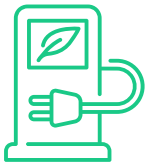


Welcome to the School of Minerals and Energy Resources Engineering. The School has been a provider of innovative world class engineering

Research Strengths



Geoenergy focuses on fundamental and applied research related to minerals, energy extraction and storage. Of particular interest are technologies that improve recovery and provide new insights into the production of transition fuels and critical minerals.

Traditional knowledge and expertise in petroleum and mining engineering will drive new technologies related to the geological storage of CO2 and hydrogen, recovery of critical minerals, production of transition fuels, and extraction of geothermal energy.

- Multiscale Reservoir Engineering
- Integrated Storage and Recovery Systems
- Critical Minerals for Future Energy Systems

This research area focuses on fundamental and applied geomechanics related to mining and geotechnics including well integrity. Our interests are oriented towards improving safety performance related to current and emerging technologies.

Our experts closely collaborate with industry partners to find innovative ways to ensure environmentally safe and sustainable practices are incorporated in all aspects of design and operation.

- Underground Mining and Safety
- Coupled Geotechnical Systems
- Exploration and Production Systems

Our Transformative Technologies work focuses on innovating new technologies and operational excellence to accelerate the transformation of the minerals and energy resources sectors. Of particular interest is to adopt scientific knowledge and emerging technologies from other disciplines tailored for the minerals and energy resources sectors.

This includes monitoring and communication technologies to improve operational safety, evaluate environmental impact and expand efficiencies, and artificial intelligence for automation and data analytics.

- Data Analytics and Digital Integration for Resources Engineering
- Low Emission Technologies
- Exploring and Engineering Extreme Environments

Research in Australia

Each year our academics and research centres work with businesses, government and community organisations on specific projects, transferring our research into practice. We are making an impact that matters with the following research:

Future “Smart” Mining
Integration of advanced technology

To assist in sustaining the Australian mining industry’s comparative advantage of costcompetitive, safe and environmentally responsible operations. Our research aims to be a catalyst for transforming mining systems through integration of advanced technology and mining operational excellence. Our objective is to create smart mining outcomes which generate expanded research capability and knowledge, to improve productivity with greater safety while creating new jobs and to reduce mining’s environmental footprint. This will help sustain and grow the mining industry in Australia in response to global megatrends.

We are focused on four key technical themes supported by our industry partners:

- Technology Integration
- Machine Learning & Robotics
- Mine Internet of Things (MIoT)
- Automation

Clean Energy Technology
Research Laboratory

Our facility is unique as it enables researchers and industry to measure and characterise complex material structure and properties in 3D at high resolution under reservoir pressure conditions.

Understanding heterogeneity is important, as it can lead to uncertainties in reservoir performance parameters. This is imperative to understand as a single well can cost up to $270 million.

The technique has other signi f cant advantages, including:

- it is faster, reducing analysis to weeks instead of months
- it enables researchers to carry out numerical experiments where standard laboratory experiments are impossible

Programs

- Bachelor of Engineering (Honours) in Mining Engineering
- Bachelor of Engineering (Honours) in Petroleum Engineering
- Bachelor of Engineering (Honours)/Bachelor of Engineering Science – with Mining and/or Petroleum and other Engineering disciplines

Plus a range of other dual degrees in Arts, Science, Commerce and Law.

- Master of Mining Engineering
- Graduate Diploma of Mining Engineering
- Graduate Certificate of Mining Engineering
- Master of Mine Geotechnical Engineering
- Graduate Diploma of Mine Ventilation
- Statutory Coal Mine Ventilation Officers Course
- Master of Engineering Science (Petroleum Engineering)
- Master of Engineering Science (Petroleum Engineering Open Learning)
- Master of Engineering Science (Geothermal Engineering)
- Graduate Diploma of Engineering Science (Petroleum Engineering)
- Graduate Diploma of Engineering Science (Petroleum Engineering Open Learning)
- Graduate Certificate of Petroleum Engineering

Customised Professional Development Programs

Our Alumni

“UNSW Engineering is really big, so there’s a corresponding amount of opportunities – societies, projects, volunteering, travel; there really is something for everyone. We get a lot of indupreally big ʻ ʻ] rres ṅ ɲ ȳ ᴰ ɒ
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Current Industry Partners

- Anglo American
- BHP
- BP
- Centennial
- CCTEG
- DSI Underground
- Glencore
- Jennmar Australia
- Maptek
- Mitsubishi Development Corporation
- New Hope Group
- Newcrest
- Peabody Energy
- Roobuck
- Santos
- Saudi Aramco
- Schlumberger
- Shell
- Sino Pec
- South 32
- Total Energies
- Wintershall Dea
- Woodside

Industry Sponsored Chair

These senior positions are held by our academics who have a strong research reputation in their area of expertise:

Professor Ismet Canbulat

Professor Serkan Saydam

Industry Partnership & Collaborations Enquiries

+61 2 9385 5006

mere.admin@unsw.edu.au

Enquiries

Ask a question unsw.edu.au/ask

Call 1300 UNI NSW (1300 864 679)

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