

# We'll stop at nothing to develop competitive and sustainable practices across energy, resources and mining



**UniSA develops new methodologies and technologies that improve equipment longevity, optimise mineral extraction, increase efficiency, strengthen mining value chain integration and advance sustainable practices. We're at the forefront of mineral processing research and development, with expertise in:**

- **mineral exploration and development of mineral resources, geoscience**, geological sensors, virtual and augmented reality tools and drilling engineering
- **minerals processing**, encompassing flotation, leaching, physical separation and surface chemical control in grinding and milling
- **agglomeration chemistry**, exploring relationships between mineral formation and processing, and interactions between bulk properties and surface reactions
- **water chemistry** and its impact on tailings processing and recovery values
- **surface engineering** to extend drilling component life
- **mine process digitalisation and optimisation**, including developing near-real-time simulation models of mining processes to optimise mineral quality
- **extracting critical minerals efficiently and sustainably** and making step-changes in beneficiation to improve recovery rates and selectivity
- **low footprint technologies** in concentrate production and microfluidic technologies exploitation
- **sustainable mining practices and mine remediation**, including the development of green mining technologies, enhanced community engagement and closure monitoring.

## Through the Enterprise Hub you'll have access to:

- **Future Industries Institute (FII)** – FII houses more than \$80 million of specialised infrastructure and is delivering the next generation of industrial advances in mining technologies, sustainable minerals processing and surface engineering.
- **MinEx CRC** – MinEx CRC is a ten-year, \$200 million+ collaborative research effort supported by miners, exploration companies, METS and all state government survey organisations.
- **Industrial AI Research Centre (IAI) & The Australian Research Centre for Interactive and Virtual Environments (IVE)** – IAI drives data-driven decision-making and sustainable solutions in resource extraction, while IVE, the largest concentration of mixed reality researchers in Australia, leads innovations in digital twin technologies, immersive training, simulations, asset management and operational safety.

## UniSA in action - transforming mineral extraction

### Amira Global and UniSA's partnership:

- made it easier, faster, cheaper and more environmentally-friendly to extract minerals
- created benefits worth more than \$1.6 billion to the mineral resources sector
- delivered a 22:1 return on investment for more than 100 industry partners
- supported more than 50 PhD students, with most now working in the mining and processing sector
- received recognition from the European Commission's University-business Cooperation as an exemplar of joint R&D and value delivery.

UniSA initiated the AMIRA P260 project to help the mining industry improve the way it processes minerals. Researchers from UniSA's Future Industries Institute, in partnership with Amira Global – an independent not-for-profit research organisation that represents members from the mining and resources industry – examined hydrodynamics, surface chemistry, the physical chemistry of mineral particle-bubble interactions and the innovative use of spectroscopies and surface chemical probes.

Ultimately, the project has enhanced the efficiency of the flotation process used to separate precious minerals and base metals, improving the recovery and grade of the minerals. The joint project has delivered more than \$1.6 billion in benefits to industry by significantly reducing the energy and water consumption required to extract and process minerals. AMIRA P260 has not only made mineral processing cheaper but also faster, safer and more environmentally-friendly.

***"The project has had a huge impact on the mining and resources industry. The project delivered more than \$1 billion in value, a 22:1 return on investment for partners and supported over 50 PhD students. It is an exemplar long-running university-business collaboration and as lead researchers, UniSA played an integral role."***



Anthony Kobina Anyimadu, GM Africa, VP Mineral Processing, Amira Global

# UniSA's Enterprise Hub

## World-leading technology and research expertise at your side

### We are committed to developing technology and creating processes that drive change in the mining industry.

The Enterprise Hub can connect you to experts in metallurgy, applied physics and mathematics, physical and polymer chemistry, process engineering, augmented and virtual reality, data analytics and artificial intelligence. 3,000 expert academics, 30+ world-class research institutes, 37,000+ students and 2,500+ industry partners are within your reach.

We're here to help you find solutions by providing you with access to our experts, cutting-edge facilities, research-backed technology and our talented students and graduates.



Partner with us to uncover the ideas, solutions and connections that will make your business unstoppable.

To learn more, scan the QR code or visit [unisa.edu.au/enterprisehub](http://unisa.edu.au/enterprisehub)

Through the Enterprise Hub you can:



#### Put unstoppable research teams to work

100% of our research is world-class or above\*. Imagine what could be possible if our team partnered with yours.



#### Build your best team

Bespoke training (from a three-hour webinar to a three-year degree), internships, co-located researchers, access to talent for workforce planning. Our people are our strength, they can be yours too.



#### Push boundaries with access to state-of-the art equipment, systems and places

Our doors are open. Access technology and resources out of commercial reach and unlock your organisational potential.



#### Explore unexpected connections

We're nurturing more than 6,500 relationships and 2,500 partnerships in a creative and collaborative space. Be part of our global ideas network that's breaking with tradition.

\* 2018 Excellence in Research for Australia (ERA), 4-digit Fields of Research.

### Advance your energy, resources and mining practices with UniSA

Through our integrated approach, we combine our strengths with our enablers to develop the tangible solutions you need.



*"We pride ourselves on cultivating relationships that are rooted in collaboration and innovation, providing mutual growth and long-term benefits. Together we can co-create a brighter, sustainable future for the energy, resources and mining sectors."*

#### Get in touch today:

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