Mining Operations Research
Capability Statement

The University of Adelaide has an outstanding capability in mining operations research concentrations. Bringing together industry tested expertise in modelling, simulation, analysis and optimisation, our people have saved industry partners millions of dollars in unnecessary capital expenditures and operational costs. Our success is built on outstanding research and operational experience, bringing together teams with the right skill sets to tackle tough problems that actually matter.

Capability Domains
• Mine planning and optimal mine design
• Orebody modelling and resource estimation
• Mine simulation and dispatching system
• Optimal resource utilisation and production scheduling
• Optimal blending and product control
• Geomechanical and geotechnical considerations
• Water distribution systems
• Communications networks
• Uncertainty and risk

Experience
Our Operations Research capability is built upon the outstanding research and applied problem solving skills of research groups in the Engineering, Computer and Mathematical Sciences Faculty of the University of Adelaide.

Our multi-disciplinary team of Professorial and PhD qualified staff, adjunct members and numerous PhD students maintains leading edge capacity and capability across a wide range of topics, and includes over 100 years of mining specific operations research experience in industrial and academic environments.

Our skills have been applied to problems for companies in a range of industries including mining, telecommunications, automotive, chemical, water and transport. These partners have benefitted through lower operational costs, deferred or lowered capital expenditure and improved operational performance.

Techniques
• Statistical analysis and modelling
• Discrete event simulation
• Geostatistics and geospatial modelling
• Linear and dynamic programming
• Non-linear and multi-objective optimisation
• Genetic algorithms
• Artificial neural networks
• Queueing theory
• Scheduling algorithms
• Game theory and decision-making under risk