

Mining Operations and Engineering



Focus on: **The Manager** ☒ **The Specialist** ☒ **Spotlight Programme** ☐ **Hands-on Skills** ☒

This 5-day intensive training program is designed for mining engineers, operations planners, and technical managers involved in the design, execution, and optimization of surface and underground mining operations.

The course combines technical, operational, and analytical aspects to equip participants with the tools needed to enhance productivity, safety, and sustainability across the mine lifecycle.

Course Objectives		This Course is Ideal For:	
1	Understanding operational data, how it is captured, managed, and utilized to optimize productivity and track key performance indicators (KPIs) across the mining value chain.	✓	Mining engineers
2	Exploration of the methodologies and software tools used in short- and long-term mine planning, integrating production targets, equipment constraints, and cost optimization principles.	✓	Mining managers
3	The fundamentals of geotechnical design and monitoring, focusing on slope stability, ground control strategies, and risk assessment in open-pit and underground environments.	✓	Process plant engineers
4	The engineering and operational aspects of drill and blast design, along with effective mine dewatering techniques to maintain safe and productive mining conditions.	✓	Chemical engineers
5	Addresses ventilation network design and modelling, integrating safety, air quality, and energy efficiency principles to ensure sustainable and compliant mining operations.		

Course Content

Day	Theme	Coverage
1	Underground mining methods and selecting the best option	<ul style="list-style-type: none">• Overview of Underground Mining Methods• Economic and Risk Evaluation of Mining Methods• Mining Equipment Fleet Selection• Mine Design and Operational Considerations• Selecting the Optimal Method for Different Ore Bodies
2	Strategic and Tactical Mine Planning	<ul style="list-style-type: none">• Short and long term mine planning• Cost estimation in mine operation• Mining operation data management

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		<ul style="list-style-type: none"> • KPIs in mining operations • Mine fleet availability and utilization estimation
3	Geotechnical Stability and Ground Control	<ul style="list-style-type: none"> • Geotechnical Stability Considerations • Rockmass Classification Principals • Empirical Stope Design Fundamentals • Risk Assessment and Ground Control Management Planning
4	Drill, Blast, and Dewatering Optimization	<ul style="list-style-type: none"> • Drill and Blast Design in Underground Mines • Dilution and Losses, Planned and Unplanned • Mine Dewatering Fundamentals
5	Mine Ventilation and Integrated Systems Design	<ul style="list-style-type: none"> • Mine Ventilation Fundamentals • Systems integration • XRT Ore Sorting and its role in modern underground mining • Course assessment, summary and close

Course Assessment	Certification
Participants will be assessed on: Participation in sessions Completion of exercises & case studies Performance in assessments	Upon successful completion of the course, participants will receive a Certificate of Successful Completion , along with a Transcript of Marks showing the performance by grade in each element of assessment and overall.

Course Instructor
<p>The instructor for this course is a Mining Engineering Consultant with more than 30 years' experience in open pit and underground mining operations and mining project development.</p> <p>He has worked at or consulted to many different mines across Europe, Russia, Central Asia, Africa and the Americas, spanning many different orebody styles, mining methods and commodities, but predominantly in hard rock, precious and base metal underground mines.</p> <p>He holds a Masters' Degree in Mining Engineering from the world0famous Camborne School of Mines, he is a Chartered Engineer and he is a Member of the Institute of Materials, Minerals and Mining.</p>