Underground Mining Methods Training Course

Professional Development Training Course Outline

Category	General Training	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Underground Mining Methods Training Course is designed to equip learners with advanced competencies in modern underground mining operations, mineral extraction techniques, mine safety systems, geotechnical control, and mechanized mining technologies. This course integrates globally recognized standards in mining engineering, rock mechanics, ventilation systems, ore handling, and sustainable mining practices, ensuring participants are prepared for high-performance roles in today's evolving mining sector. With the increasing demand for critical minerals, deep-level mining efficiency, automation, and digital mine planning, this training provides a strategic advantage for professionals aiming to excel in underground mining environments.

This program emphasizes practical and theoretical mastery of cut-and-fill mining, room-and-pillar mining, longwall mining, block caving, sublevel stoping, and shrinkage stoping methods, combined with real-world simulations and case-based learning. Learners will gain exposure to mine safety compliance (ISO standards), risk assessment frameworks, ventilation design, rock support systems, and advanced mining equipment operation. The course is structured to meet the needs of mining engineers, supervisors, technicians, and safety officers who aim to enhance productivity, reduce operational risks, and implement smart mining technologies, automation systems, and sustainable extraction strategies in underground environments.

Programme Curriculum

Underground Mining Methods Training Course

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Course Duration

5 days

Course Objectives

1. Understand advanced underground mining methods and extraction systems
2. Apply modern mine planning and design techniques using digital tools
3. Implement rock mechanics and ground control strategies
4. Develop expertise in ventilation engineering and airflow optimization
5. Enhance knowledge of mine safety management systems
6. Operate and evaluate mechanized underground mining equipment
7. Apply risk assessment and hazard identification in deep mining operations
8. Optimize ore recovery and mineral beneficiation processes
9. Integrate automation and smart mining technologies
10. Improve efficiency in drilling and blasting techniques
11. Understand mine sustainability and environmental impact reduction
12. Strengthen skills in emergency response and underground rescue planning
13. Apply cost control and productivity optimization in mining operations

Target Audience

1. Mining Engineers
2. Underground Mine Supervisors and Shift Bosses
3. Geotechnical Engineers and Rock Mechanics Specialists
4. Mining Technicians and Drill Operators
5. Health, Safety, and Environment (HSE) Officers
6. Metallurgical and Mineral Processing Professionals
7. Mining Students and Graduates
8. Government Mining Inspectors and Regulators

Course Modules

Module 1: Fundamentals of Underground Mining Systems

- Overview of underground mining classifications and methods
- Differences between hard rock and soft rock mining systems
- Selection criteria for mining methods based on ore body geometry

- Introduction to mine lifecycle: exploration to closure
- **Case Study:** Comparative analysis of deep-level gold mines in South Africa

Module 2: Cut-and-Fill Mining Method

- Principles of sequential ore extraction and backfilling
- Use of hydraulic and cemented paste backfill systems
- Ground stability and dilution control techniques
- Equipment used in cut-and-fill operations
- **Case Study:** Application in narrow vein gold deposits in Canada

Module 3: Room-and-Pillar Mining

- Design of pillar layouts and extraction sequencing
- Pillar stability and stress distribution analysis
- Mechanized coal and industrial mineral extraction
- Subsidence control techniques
- **Case Study:** Coal mining operations in the USA Appalachian Basin

Module 4: Longwall Mining Techniques

- Fully mechanized longwall face operations
- Shearer, conveyor, and hydraulic support systems
- Ventilation and methane control strategies
- Productivity optimization in coal seams
- **Case Study:** High-efficiency longwall mining in Australia

Module 5: Block Caving Methods

- Gravity-based ore extraction principles
- Cave propagation and draw control methods
- Fragmentation and ore flow management
- Risk management in large-scale caving operations
- **Case Study:** Copper mining operations in Chile

Module 6: Sublevel Stoping and Shrinkage Stoping

- Design of sublevel drilling patterns
- Ore extraction sequencing and blasting control
- Stope stability and backfill integration
- Productivity and ore recovery optimization
- **Case Study:** Hard rock mining operations in Scandinavian mines

Module 7: Mine Safety, Ventilation & Ground Control

- Advanced ventilation network design
- Gas control and air quality monitoring systems
- Rock support systems
- Emergency evacuation and refuge chamber systems
- **Case Study:** Safety system upgrades in deep platinum mines

Module 8: Smart Mining, Automation & Digital Integration

- Use of AI, IoT, and sensor-based monitoring in mining
- Autonomous drilling and haulage systems
- Digital twin technology for underground mines
- Real-time data analytics for production optimization
- **Case Study:** Smart mine implementation in Scandinavian underground operations

Training Methodology

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price

23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com