Mining Cycle & Operations 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

The Mining Cycle & Operations Training Course is designed to equip learners with cutting-edge competencies in modern mining engineering, surface and underground mining operations, drill-and-blast systems, mineral extraction processes, and operational safety excellence. This course integrates digital mining technologies, smart mine planning, sustainable resource extraction, and operational risk management to prepare participants for high-performance roles in today's evolving mining sector. With the rapid adoption of automation, AI-driven mining systems, ESG compliance frameworks, and Industry 4.0 mining technologies, this training ensures learners are future-ready and operationally competent across the full mining lifecycle.

This program emphasizes the complete mining value chain, from exploration, excavation, material handling, processing, and haulage systems to environmental rehabilitation and production optimization. Learners gain practical and theoretical expertise in mine production planning, ore body evaluation, blasting efficiency, conveyor systems, load-haul-dump operations, and mine safety compliance standards. The course is designed to strengthen decision-making, operational productivity, and safety leadership while aligning with global best practices in sustainable mining operations, digital mine transformation, and productivity-driven mining engineering systems.

Programme Curriculum

Mining Cycle & Operations Training Course

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Course Duration

5 days

Course Objectives

1. Master end-to-end mining cycle operations management
2. Apply smart mining technologies and automation systems
3. Understand drill, blast, load, haul optimization techniques
4. Implement AI-driven mine planning and scheduling tools
5. Enhance mineral extraction efficiency and ore recovery rates
6. Strengthen mine safety, health, and risk compliance systems
7. Optimize heavy equipment utilization and fleet management
8. Develop skills in underground and surface mining operations
9. Apply geotechnical and rock mechanics principles
10. Improve production forecasting and operational analytics
11. Integrate ESG and sustainable mining practices
12. Use digital twin and IoT-based mining monitoring systems
13. Build competency in mining productivity benchmarking and KPI analysis

Target Audience

1. Mining Engineers and Engineering Graduates
2. Drill and Blast Technicians
3. Heavy Equipment Operators (Loaders, Haul Trucks, Excavators)
4. Mining Supervisors and Shift Bosses
5. Safety Officers and HSE Practitioners
6. Geology and Mineral Exploration Professionals
7. Plant and Processing Operators
8. Students pursuing Mining Engineering or Earth Sciences

Course Modules

Module 1: Introduction to Mining Cycle & Systems

- Overview of mining lifecycle stages
- Surface vs underground mining methods
- Mineral extraction fundamentals
- Mine site organization and workflow

- Mining production chain integration
- **Case Study:** Evaluation of an open-pit gold mine production cycle optimization

Module 2: Exploration, Drilling & Resource Evaluation

- Geological mapping and ore body identification
- Core sampling and drilling techniques
- Resource estimation methods
- Data interpretation and modeling
- Exploration risk assessment
- **Case Study:** Copper deposit exploration project using core drilling analysis

Module 3: Drill and Blast Engineering

- Blast design principles and fragmentation control
- Explosive types and charging techniques
- Vibration and fly-rock control
- Blast optimization and cost reduction
- Regulatory compliance in blasting
- **Case Study:** Improved fragmentation results in a limestone quarry blasting project

Module 4: Loading, Hauling & Material Handling Systems

- Load-Haul-Dump (LHD) operations
- Truck-shovel optimization strategies
- Conveyor belt systems and maintenance
- Fleet productivity monitoring
- Cycle time reduction techniques
- **Case Study:** Haulage efficiency improvement in an iron ore mining operation

Module 5: Mine Planning & Production Scheduling

- Short-term and long-term mine planning
- Production sequencing strategies
- Software-based mine design tools
- Ore blending and grade control
- Cost optimization planning
- **Case Study:** Optimization of coal mine production scheduling for maximum yield

Module 6: Mining Safety, Risk & Compliance

- Occupational health and safety systems
- Hazard identification and risk assessment (HIRA)
- Emergency response planning
- PPE and safety audits
- Legal and regulatory frameworks
- **Case Study:** Reduction of incidents in an underground platinum mine safety program

Module 7: Mineral Processing & Plant Operations

- Crushing, grinding, and screening processes
- Mineral separation techniques

- Recovery rate optimization
- Plant flow sheet analysis
- Energy efficiency in processing plants
- **Case Study:** Gold recovery improvement in a cyanidation processing plant

Module 8: Sustainable Mining & Environmental Management

- Mine rehabilitation and closure planning
- Water and waste management systems
- ESG compliance in mining operations
- Carbon footprint reduction strategies
- Environmental impact assessments
- **Case Study:** Land rehabilitation success in a decommissioned diamond mine

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
07 Sep 2026	11 Sep 2026	Online	$1,000
07 Sep 2026	11 Sep 2026	Physical	$1,500
14 Sep 2026	18 Sep 2026	Online	$1,000
14 Sep 2026	18 Sep 2026	Physical	$1,500
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500
28 Sep 2026	02 Oct 2026	Online	$1,000
28 Sep 2026	02 Oct 2026	Physical	$1,500

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

Register Online Now

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