Mine Scheduling Fundamentals 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

Mine scheduling is a critical pillar of modern mining operations, enabling organizations to optimize production planning, resource allocation, haulage efficiency, and cost control across surface and underground mines. Mine Scheduling Fundamentals Training Course provides a comprehensive foundation in mine planning software, short-term and long-term scheduling, production optimization, and strategic mine sequencing using industry-leading methodologies. Participants will gain practical exposure to how mine schedules directly influence ore recovery, stripping ratios, equipment utilization, and operational profitability in dynamic mining environments.

With increasing demand for data-driven mining, digital mine planning, AI-assisted scheduling, and real-time operational optimization, this course equips professionals with the essential skills to build, evaluate, and refine mine schedules. It bridges theory and practice by integrating geological modeling, mine design constraints, production forecasting, and risk-based scheduling techniques, ensuring participants are prepared for modern mining challenges in both surface and underground operations.

Programme Curriculum

Mine Scheduling Fundamentals Training Course

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5 days

Course Objectives

1. Master mine scheduling fundamentals for surface and underground mining operations
2. Understand short-term, medium-term, and long-term mine planning cycles
3. Apply production optimization techniques for ore extraction efficiency
4. Develop competency in mine sequencing and bench scheduling strategies
5. Integrate geological models into mine planning workflows
6. Improve haulage and fleet optimization planning
7. Use cut-off grade optimization for mine economics
8. Implement equipment utilization and dispatch optimization techniques
9. Learn stope and block scheduling methods for underground mines
10. Evaluate mine production constraints and bottleneck analysis
11. Apply risk-based scheduling and uncertainty modeling
12. Gain exposure to mining software-based scheduling simulations
13. Enhance decision-making using data-driven mine planning analytics

Target Audience

1. Mining Engineers
2. Mine Planning Engineers
3. Production and Operations Supervisors
4. Geologists involved in resource modeling
5. Mining Consultants and Analysts
6. Equipment and Fleet Managers
7. Technical Services Engineers
8. Mining Project Managers and Planners

Course Modules

Module 1: Introduction to Mine Scheduling Systems

- Fundamentals of mine planning hierarchy
- Difference between strategic, tactical, and operational scheduling
- Mining value chain integration
- Key performance indicators (KPIs) in mine scheduling
- Software overview in modern mining environments
- **Case Study:** Scheduling framework comparison in an open-pit gold mine transitioning from manual to digital planning.

Module 2: Geological Modeling for Scheduling

- Block model interpretation for scheduling

- Orebody geometry and mine design constraints
- Grade control and ore classification
- Data uncertainty in geological models
- Model reconciliation techniques
- **Case Study:** Copper mine block model reconciliation improving ore accuracy by 18%.

Module 3: Open-Pit Mine Scheduling

- Bench development and sequencing strategies
- Pushback design and optimization
- Waste stripping and ore extraction balance
- Haul road planning integration
- Production smoothing techniques
- **Case Study:** Iron ore mine optimizing strip ratio and reducing haulage cost by 12%.

Module 4: Underground Mine Scheduling

- Stope design and sequencing methods
- Development and production scheduling
- Ventilation and safety constraints integration
- Ore pass and material handling coordination
- Decline and shaft scheduling alignment
- **Case Study:** Platinum underground mine improving stope productivity through re-sequencing strategy.

Module 5: Production Planning & Optimization

- Short-term vs long-term production balancing
- Equipment allocation strategies
- Truck-shovel productivity optimization
- Blending strategies for ore quality control
- Throughput maximization techniques
- **Case Study:** Coal mine increasing plant throughput by optimizing truck dispatch system.

Module 6: Cut-off Grade & Economic Optimization

- Cut-off grade theory and application
- Revenue vs cost optimization models
- Net Present Value (NPV) in scheduling
- Sensitivity analysis in mine plans
- Commodity price impact modeling
- **Case Study:** Gold mine extending LOM (Life of Mine) through dynamic cut-off grade adjustment.

Module 7: Risk-Based Mine Scheduling

- Uncertainty in ore grade and tonnage
- Scenario-based scheduling approaches
- Stochastic modeling techniques
- Operational risk mitigation strategies
- Climate and geological risk factors
- **Case Study:** Diamond mine reducing production variance using stochastic scheduling models.

Module 8: Digital Mine Scheduling & Simulation Tools

- Introduction to mine scheduling software systems
- AI and machine learning in mine planning
- Real-time data integration systems
- Simulation and scenario testing
- Digital twin applications in mining
- **Case Study:** Open-pit mine implementing digital twin for real-time production optimization.

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

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