Gold Processing Techniques 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 Gold Processing Techniques Training Course is designed to equip learners with advanced knowledge of modern gold extraction, mineral processing, metallurgical optimization, and sustainable mining technologies. This course integrates cutting-edge practices in gravity separation, flotation, cyanidation, leaching, and hydrometallurgy, ensuring participants gain both theoretical foundations and hands-on operational competence. With the rising global demand for efficient and environmentally responsible gold recovery, this training emphasizes process optimization, recovery efficiency, cost reduction, and eco-friendly gold beneficiation techniques aligned with international mining standards.

In today’s competitive mining and mineral processing industry, mastering high-yield gold recovery systems, plant optimization strategies, and advanced metallurgical workflows is essential. This course bridges the gap between academic knowledge and real-world plant operations by focusing on crushing, grinding, ore characterization, gold liberation techniques, reagent chemistry, and tailings management systems. Participants will develop the skills required to improve gold recovery rates, reduce operational losses, and implement sustainable processing solutions in both artisanal and industrial mining environments.

Programme Curriculum

Gold Processing Techniques Training Course

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Course Duration

5 days

Course Objectives

1. Master advanced gold ore beneficiation techniques
2. Understand mineral liberation and comminution theory
3. Optimize gravity separation and concentration systems
4. Apply modern froth flotation processes
5. Execute efficient cyanidation and leaching operations
6. Improve carbon-in-pulp (CIP) and carbon-in-leach (CIL) performance
7. Enhance metallurgical recovery efficiency
8. Conduct ore characterization and assay analysis
9. Implement process plant optimization strategies
10. Apply reagent chemistry and dosage control
11. Reduce losses through tailings management systems
12. Integrate sustainable and eco-friendly gold processing
13. Develop plant troubleshooting and operational diagnostics

Target Audience

1. Mining Engineers
2. Metallurgists
3. Mineral Processing Technicians
4. Geologists
5. Plant Operators in Gold Processing Plants
6. Chemical Engineers in Extractive Metallurgy
7. Mining Supervisors and Managers
8. Technical Students in Mining & Metallurgy

Course Modules

Module 1: Fundamentals of Gold Ore Processing

- Ore types and gold mineralogy
- Principles of comminution
- Particle size reduction and liberation
- Ore hardness and Bond Work Index
- Case Study: Optimization of ore crushing at a medium-scale gold mine in West Africa

Module 2: Mineral Characterization & Assay Techniques

- Gold assay methods
- Mineralogical microscopy analysis
- Ore sampling techniques
- Head grade determination
- Case Study: Ore variability assessment in a South American gold deposit

Module 3: Gravity Separation Techniques

- Jigging, shaking tables, and spirals
- Dense media separation principles
- Gold particle density behavior
- Free-milling gold recovery systems
- Case Study: Gravity recovery improvement in artisanal mining operations

Module 4: Froth Flotation Processes

- Reagent selection and chemistry
- Bubble-particle attachment theory
- Flotation circuit design
- Sulfide gold ore processing
- Case Study: Flotation optimization in refractory gold ore plant

Module 5: Cyanidation & Leaching Systems

- Cyanide chemistry and gold dissolution
- Heap leaching operations
- Tank leaching methods
- Oxygen and pH control
- Case Study: Heap leach efficiency improvement in arid-region mine

Module 6: Carbon-in-Pulp (CIP) & Carbon-in-Leach (CIL)

- Activated carbon adsorption principles
- Elution and regeneration processes
- Carbon management strategies
- Gold recovery optimization
- Case Study: CIP plant recovery enhancement in an Australian gold mine

Module 7: Tailings & Waste Management

- Tailings storage facilities design
- Detoxification of cyanide residues
- Environmental compliance systems
- Water recycling in processing plants
- Case Study: Tailings reprocessing project in a closed gold mine

Module 8: Plant Optimization & Troubleshooting

- Process flow diagnostics
- Recovery loss identification
- KPI monitoring in gold plants
- Automation and control systems

- Case Study: Digital optimization of gold plant throughput in a modern refinery

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

Start Date	End Date	Location	Price
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

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