

RISK MANAGEMENT IN THE MINING SECTOR



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Introduction

Risk Management in the Mining Sector Training Course prepares mining professionals to control the safety, environmental, operational, and financial risks that shape every stage of a mining project. Mining operates in remote locations, under geological uncertainty, and with heavy machinery, which multiplies exposure on several fronts. This programme addresses those conditions directly. It covers hazard identification, ground control risk, tailings management, community and regulatory exposure, and commodity price volatility. Furthermore, it aligns practice with ISO 31000, ICMM guidance, and the Global Industry Standard on Tailings Management. In addition, participants test judgement on realistic mine site scenarios. As a result, they can protect people, licences, and production.

Risk Management in the Mining Sector Course Objectives

- Apply ISO 31000 risk processes to exploration, development, and operations.
- Identify geotechnical, ground control, and geohazard risks at mine sites.
- Assess tailings storage facility risk against GISTM requirements.
- Build risk registers for mining operations and capital projects.
- Apply ICMM critical control management for fatal and high-consequence risks.
- Manage environmental, water, and rehabilitation risk.
- Evaluate community, social licence, and stakeholder risk.
- Assess commodity price, currency, and capital cost exposure.
- Manage contractor and mining services risk in field operations.
- Report risk to boards, regulators, and joint venture partners.



Course Methodology

This course combines technical presentations, mining case analysis, and facilitated group workshops. Participants run a hazard identification session for an open pit and an underground section, build a bow-tie model for a high-consequence risk, and review a tailings risk assessment. In addition, financial risk scenarios connect commodity exposure to project outcomes. Templates, checklists, and peer review support immediate application.

Who Should Take This Course

- HSE and safety professionals in mining operations.
- Geotechnical, mine planning, and operations engineers.
- Risk managers and assurance staff in mining companies.
- Environment, community, and permitting specialists.
- Project and contracts managers in mine development.

Risk Management in the Mining Sector Course Outlines

Day 1: Risk Foundations in Mining

- Defining risk, hazard, and uncertainty across the mining lifecycle.
- ISO 31000 process applied to exploration, development, and operations.
- Risk governance, roles, and regulatory obligations.
- Risk registers for pits, underground mines, and plants.
- Risk culture in high-hazard mining environments.
- Critical control management and ICMM guidance.
- Case study: a high-consequence mining incident.



Day 2: Geotechnical, Ground Control, and Operational Risk

- Geotechnical risk and slope stability assessment.
- Ground control risk in underground operations.
- Geohazard identification and monitoring methods.
- Blasting, haulage, and mobile equipment risk.
- Barrier models and safety critical controls.
- Bow-tie analysis for fatal and high-consequence risks.
- Workshop: identifying site hazards in open pit and underground.

Day 3: Tailings, Environmental, and Closure Risk

- Tailings storage facility risk and failure modes.
- Global Industry Standard on Tailings Management (GISTM).
- Dam safety inspections and surveillance programmes.
- Water, dust, and biodiversity risk management.
- Acid rock drainage and contamination risk.
- Mine closure and rehabilitation liability.
- Exercise: reviewing a tailings risk assessment.

Day 4: Social, Regulatory, and Commercial Risk

- Community engagement and social licence risk.
- Land access, resettlement, and local content obligations.
- Permitting, compliance, and regulatory change risk.
- Commodity price, currency, and royalty exposure.

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- Capital cost, schedule, and resource estimation risk.
- Contractor and mining services risk management.
- Simulation: a mine project risk review.

Day 5: Monitoring, Assurance, and Reporting

- Key risk indicators for safety, production, and environment.
- Incident investigation and root cause analysis.
- Assurance reviews and audit coordination.
- Risk reporting to boards, regulators, and partners.
- Cumulative and portfolio risk across assets.
- Lessons learned and control improvement.
- Action planning for site risk reduction.

Conclusion

By successfully completing the Risk Management in the Mining Sector Training Course, participants will have acquired the knowledge to apply ISO 31000 to mining operations, assess geotechnical and tailings risk, and build effective critical control and bow-tie models. They will understand how environmental, social, and commercial risks connect to licence to operate and performance. As a result, they can reduce exposure across their assets. Gentex Training Center delivers this programme with practical tools participants apply directly on site.

FAQs for the Risk Management in the Mining Sector course





Q1 What is the "Risk Management in the Mining Sector" course about?

It applies risk management to the specific hazards and uncertainties of mining across exploration, development, operation, and closure. The course covers geotechnical and ground control risk, tailings management, environmental and social exposure, and commercial risk, so participants can protect people, licences, and production.

Q2 What are the key benefits of the "Risk Management in the Mining Sector" course?

Participants gain a method that connects technical hazard analysis with environmental, social, and financial decisions. The course improves critical control management for fatal risks, strengthens tailings and geotechnical oversight, reduces regulatory and community surprises, and provides reporting that satisfies boards, regulators, and partners.

Q3 What skills will I gain from the "Risk Management in the Mining Sector" course?

Participants develop hazard identification and geotechnical risk assessment, tailings and environmental risk management, social, regulatory, and commercial risk assessment, and risk monitoring, assurance, and reporting. These four skills form the core capability set the course reinforces through its workshops.



Q4 What tools, methods, or standards are covered in the "Risk Management in the Mining Sector" course?

The course covers ISO 31000, ICMC critical control management guidance, the Global Industry Standard on Tailings Management (GISTM), bow-tie analysis, barrier models and safety critical controls, geotechnical slope stability assessment, dam safety surveillance programmes, environmental risk assessment methods, risk registers, key risk indicators, and root cause analysis.

Q5 How is the "Risk Management in the Mining Sector" course applied in real-world practice?

Professionals apply it by running hazard identification sessions before mining block changes, maintaining critical controls for fatal risks, and auditing tailings surveillance and inspection programmes. They also screen contractor risk, analyse commodity exposure, and report site risk to management, regulators, and joint venture partners.