

# Mine Safety Professional Development Course



## Program Outline

The Mine Safety Professional Development Program is a progressive, 3-phase curriculum, with each phase building on the previous one. A combination of classroom learning, hands-on experience, mentoring, and real-world application is critical for growth. The key is a solid foundation in safety principles, followed by guided practical experience and feedback.

Level	Week	Section & Topics
Foundational	1	<b>Introduction to Safety in Mining</b> <ul style="list-style-type: none"> <li>Overview of mining operations, regulations, and agencies (MSHA, OSHA).</li> <li>CRF Title 30 and key parts.</li> <li>Fundamental safety concepts.</li> <li><b>Competency Checklist:</b> Demonstrate knowledge of mining regulations, reporting, and training requirements.</li> <li><b>Assessment:</b> Pre-assessment to benchmark baseline knowledge.</li> </ul>
Foundational	2	<b>Safety Culture and Principles</b> <ul style="list-style-type: none"> <li>Building a safety-conscious environment.</li> <li>Human factors and personal accountability.</li> <li><b>Capstone Project:</b> Create a safety culture improvement plan for a crew or department.</li> </ul>
Foundational	3	<b>Risk Assessment &amp; Hazard ID</b> <ul style="list-style-type: none"> <li>Hazard types and JHA process.</li> <li>Hierarchy of controls application.</li> <li>Formal Risk Assessments and Risk Registers.</li> <li><b>Capstone Project:</b> Risk assess a hazardous component of the operation.</li> </ul>
Foundational	4	<b>Emergency Response &amp; Preparedness</b> <ul style="list-style-type: none"> <li>Emergency planning, evacuation, first aid, and fire safety.</li> <li><b>Capstone Project:</b> Develop or review an Emergency Response Plan.</li> </ul> <p><b>Optional Add-On:</b> Advanced First Aid or EMR (+1week)   Establishing and managing a Fire Brigade (+1week)</p>
Advanced	5	<b>Regulatory Compliance</b> <ul style="list-style-type: none"> <li>MSHA Part 46/48, reporting, and inspections.</li> <li>Navigating MSHA visits and leveraging regulatory impacts.</li> <li><b>Capstone Project:</b> Perform a mock MSHA audit / Participate in next inspection.</li> </ul>
Advanced	6	<b>Personal Protective Equipment (PPE)</b> <ul style="list-style-type: none"> <li>Selection, use, and training for specific tasks.</li> </ul>

		<ul style="list-style-type: none"> <li>• <b>Capstone Project:</b> Evaluate and correct PPE programs.</li> </ul>
Advanced	7	<b>Equipment &amp; Machinery Safety</b> <ul style="list-style-type: none"> <li>• Safe operation, competency-based training, and inspections.</li> <li>• <b>Capstone Project:</b> Develop or improve competency-based training for one machine.</li> </ul>
Advanced	8	<b>Environmental &amp; Health Safety</b> <ul style="list-style-type: none"> <li>• Dust, noise, chemical hazards, and ergonomics.</li> <li>• <b>Capstone Project:</b> Conduct an environmental/health field audit.</li> </ul>
Advanced	9	<b>Incident Investigation</b> <ul style="list-style-type: none"> <li>• Accident investigation, corrective actions, and reporting.</li> <li>• <b>Capstone Project:</b> Lead an incident investigation.</li> </ul>
Advanced	10	<b>Mine Ventilation &amp; Air Quality</b> <ul style="list-style-type: none"> <li>• Basics of ventilation systems and gas monitoring.</li> <li>• <b>Capstone Project:</b> Conduct a ventilation risk assessment.</li> </ul>
Advanced	11	<b>Working at Heights &amp; Confined Spaces</b> <ul style="list-style-type: none"> <li>• Fall protection, confined space entry, and rescue.</li> <li>• <b>Capstone Project:</b> Create a confined space entry and work at heights plan.</li> </ul> <p><b>Optional Add-On:</b> Confined Space Rescue Certification (+1week)   High/Low Angle Rope Rescue (+1week)</p>
Advanced	12	<b>Digital Skills &amp; Data-Driven Safety</b> <ul style="list-style-type: none"> <li>• Digital safety tools (apps, software, emerging technologies).</li> <li>• Data trending, leading indicators, and predictive analytics.</li> <li>• <b>Capstone Project:</b> Build a safety dashboard, produce a training video, or develop a digital safety form.</li> </ul>
Advanced	13	<b>Regulatory Defense Strategies</b> <ul style="list-style-type: none"> <li>• Understanding enforcement actions, defense preparation, communication with regulators, and strategic approaches.</li> <li>• Using conference and litigation, leveraging experts, consultants, and legal counsel.</li> <li>• Turning Citations into opportunities for positive improvement.</li> <li>• <b>Capstone Project:</b> Conduct a mock defense of a citation, presenting evidence, corrective actions, and arguments to demonstrate due diligence and minimize potential penalties.</li> </ul>
Leadership	14	<b>Training &amp; Communication</b> <ul style="list-style-type: none"> <li>• Effective training delivery, toolbox talks, and safety meetings.</li> <li>• <b>Capstone Project:</b> Design and deliver a safety training session.</li> </ul>
Leadership	15	<b>Safety Management Systems</b> <ul style="list-style-type: none"> <li>• Developing, auditing, and tracking safety performance.</li> <li>• Assessing staffing needs and staffing roles effectively.</li> <li>• <b>Capstone Project:</b> Analyze safety KPIs and report to leadership.</li> </ul>
Leadership	16	<b>Leadership &amp; Mentorship</b> <ul style="list-style-type: none"> <li>• Leading safety initiatives, mentoring junior employees, and building teams.</li> </ul>

		<ul style="list-style-type: none"> <li>• <b>Capstone Project:</b> Mentor a junior employee through hazard identification.</li> </ul>
Leadership	17	<b>Change Management</b> <ul style="list-style-type: none"> <li>• Preparing teams for new safety systems, technology, and regulations.</li> <li>• <b>Capstone Project:</b> Develop a change management strategy for implementing a new safety process.</li> </ul>
Leadership	18	<b>Contractor &amp; Subcontractor Safety</b> <ul style="list-style-type: none"> <li>• Prequalification, orientations, and compliance oversight.</li> <li>• <b>Capstone Project:</b> Develop or review existing Contractor Management Plan.</li> </ul>
Leadership	19	<b>Behavior-Based Safety (BBS)</b> <ul style="list-style-type: none"> <li>• Observation, coaching, and trend analysis.</li> <li>• <b>Capstone Project:</b> Apply BBS principles to a workplace behavioral challenge.</li> </ul>
Leadership	20	<b>Safety &amp; ESG</b> <ul style="list-style-type: none"> <li>• Safety's role in ESG strategies, sustainability, and community engagement.</li> <li>• <b>Capstone Project:</b> Create a safety initiative aligned with ESG goals.</li> </ul>
Leadership	21	<b>Safety Technology &amp; Innovation</b> <ul style="list-style-type: none"> <li>• Drones, wearables, and predictive systems.</li> <li>• <b>Capstone Project:</b> Propose an innovative safety technology adoption plan.</li> </ul>
Leadership	22	<b>Industrial Hygiene</b> <ul style="list-style-type: none"> <li>• Monitoring exposures, health surveillance, and major risks (silica, diesel particulates).</li> <li>• <b>Capstone Project:</b> Design a monitoring and control program.</li> </ul>
Leadership	23	<b>Security &amp; Site Access Control</b> <ul style="list-style-type: none"> <li>• Visitor management, workplace violence, drug &amp; alcohol programs.</li> <li>• <b>Capstone Project:</b> Review site security system effectiveness.</li> </ul>
Leadership	24	<b>Mental Health &amp; Wellness</b> <ul style="list-style-type: none"> <li>• Fatigue, stress, CISM, and wellness programs.</li> <li>• <b>Capstone Project:</b> Propose a wellness initiative for employees.</li> </ul>
Leadership	25	<b>Community &amp; Environmental Stewardship</b> <ul style="list-style-type: none"> <li>• Reclamation, sustainability, and CSR.</li> <li>• <b>Capstone Project:</b> Develop a stewardship engagement plan.</li> </ul>
Leadership	26	<b>Crisis Management &amp; Media Response</b> <ul style="list-style-type: none"> <li>• Crisis communication, reputation management, regulatory engagement.</li> <li>• <b>Capstone Project:</b> Drill a crisis management plan.</li> </ul>
Leadership	27	<b>Networking, Certification, Mentorship</b> <ul style="list-style-type: none"> <li>• Professional organizations, certifications (CMSP, CSP, CIH, CHST).</li> </ul>

		<ul style="list-style-type: none"> <li>Continuing education and career development.</li> <li><b>Capstone Project:</b> Create a personal professional development plan.</li> </ul>
<b>Capstone</b>	<b>28</b>	<b>Portfolio Building</b> <ul style="list-style-type: none"> <li>All capstone projects are compiled into a professional portfolio.</li> <li>Demonstrates competency, readiness, and career advancement potential.</li> </ul>
<b>Capstone</b>	<b>29</b>	<b>Final Capstone Presentations</b> Participants present a proposal to management on implementing the Safety Pro Development Program. They will: <ul style="list-style-type: none"> <li>Demonstrate knowledge gained.</li> <li>Share their newly compiled professional portfolio.</li> <li>Demonstrate how new skills will bring value to the operation.</li> <li>Propose changes to safety programs to reduce operational risk.</li> <li>Answer leadership questions and defend recommendations.</li> </ul>

### Assessment & Evaluation

- **Pre-Assessment:** Baseline knowledge and skills.
- **Competency Checks:** Competency-based evaluation at the conclusion of each module.
- **Post-Assessment:** Demonstrates growth and mastery.
- **Portfolio Presentation:** Participants present cumulative work as proof of competency.
- **Profile Developed:** Profile report generated for each participant (strengths, weaknesses, character traits, and estimated growth throughout the program).