



# Model Curriculum

## Safety Operator

**SECTOR: Mining**  
**SUB-SECTOR: Mining Operations**  
**OCCUPATION: HSE Functions**  
**REF ID: MIN/Q0437**  
**NSQF LEVEL: 4**



## Certificate

### CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

**SKILL COUNCIL FOR MINING SECTOR**

for the

### MODEL CURRICULUM

Complying to National Occupational Standards of  
Job Role/ Qualification Pack: 'Safety Operator' QP No. 'MIN/ Q.0437 NSQF Level 4'

Date of Issuance: December 4<sup>th</sup>, 2023

Valid up to: March 31<sup>st</sup>, 2027

\* Valid up to the next review date of the Qualification Pack

Authorized Signatory  
(Skill Council for Mining Sector)

## TABLE OF CONTENTS

1. <a href="#">Curriculum</a>	<b>01</b>
2. <a href="#">Trainer Prerequisites</a>	<b>04</b>
3. <a href="#">Annexure: Assessment Criteria</a>	<b>05</b>

# Safety Operator

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Safety Operator", in the "Mining" Sector/Industry and aims at building the following key competencies amongst the learner

<b>Program Name</b>	<b>Safety Operator</b>		
<b>Qualification Pack Name &amp; Reference ID.</b>	MIN/Q0437		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	
<b>Pre-requisites Training</b>	<b>to</b>	Xth and awareness of DGMS Rules & its applications on mines safety perspective.	
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b> monitoring and assessing hazardous and unsafe situations and developing measures to assure personnel safety. Safety Operator needs to be aware of applicable safety rules and situations arising in mines. Safety Operator needs to organize safety training sessions for new employees and refreshers &amp; advanced training for existing workers on Safety Equipment and practices. SO is required to organize periodic meetings of Safety Council and involve in Safety Week initiatives. Safety Officer needs to act as Rescue/Emergency operator.</p> <p><b>Gain Strict knowledge about regulatory compliances of DGMS rules and its application as per MVTR 1966</b></p> <p><b>Become well versed with Environment Health &amp; Safety:</b> Well versed with on-site health and safety measures relating to blasting and use of personal protective equipment.</p> <p><b>Identify and use basic tools, equipment &amp; materials:</b> Understanding of carrying out monitoring of safety at workplace.</p>		

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “Safety Operator” Qualification Pack issued by “Skill Council for Mining Sector”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p><b>Introduction</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p> <p><b>Corresponding NOS Code</b> Bridge Module</p>	<ul style="list-style-type: none"> <li>Monitoring and assessing hazardous and unsafe situations and developing measures to assure personnel safety.</li> <li>Needs to be aware of applicable safety rules and situations arising in mines.</li> <li>Needs to organize safety training sessions for new employees and refreshers &amp; advanced training for existing workers on Safety Equipment and practices.</li> <li>Safety Officer is required to organize periodic meetings of Safety Council, Safety Committee meeting and involve in Safety Week initiatives. Safety Officer needs to act as Rescue/Emergency operator and also conduct mock rehearsal.</li> </ul>	
2	<p><b>Awareness &amp; execution of applicable safety rules, Safety Equipment, dangerous situations, safety locations in mine and Rescue Plan.</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 45:00</p> <p><b>Corresponding NOS Code</b> MIN/N 0503</p>	<p>Demonstrate competence to display awareness of applicable safety rules, Safety Equipment, Dangerous Situations, Safety Locations in mine and Rescue Plan. This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Understand Safety rules &amp; compliances.</li> <li>Understanding of Safety Equipment.</li> <li>Clear understanding of Dangerous Situations &amp; Safety locations along with execution of Rescue Plan.</li> <li>Understand the DGMS Guidelines on Safety &amp; related compliances</li> <li>Understand the Electric, Sound Safety standard</li> <li>Maintain the DGMS reports</li> <li>Understand the utility and importance of Safety Equipment like Shoes, Belt, Tight fit clothing, Safety Belt, Hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, Gum Boots, Ear Mufflers, Face Mask etc.</li> <li>Understand the Dangerous Situations arising out of Flooding, Fire, Roof Fall, Explosion, Mechanical fault, Electrical Faults, Human Mistake, Signaling Errors.</li> <li>Be familiar with the roles of Pump Khalasi, timber Khalasi etc. for rescue management purpose.</li> <li>Rehearse Rescue drill periodically.</li> <li>Display awareness of siren or messages used for safety / emergency situation.</li> <li>In case of emergency, set up Rescue Office.</li> <li>Support rescue operations after the arrival of Mine Manager/Safety Officer/ Operations In-Charge.</li> <li>Knowledge of different types of mines and detail of the mine he is working in Mine Organisation, time keeping, need for discipline and punctuality.</li> <li>Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and Hygiene.</li> <li>Standing orders in force at the mine. Safety in the vicinity of machinery.</li> <li>Shot-firing and Safety regulations. How and where to</li> </ul>	<p>Safety Kit, Equipment as per OEM, Shoes, Fluorescent Jackets, Belt, Tight fit clothing, Safety Belt, Hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, Gum Boots, Ear Mufflers, Face Mask etc.</p>

		<p>take shelter.</p> <ul style="list-style-type: none"> <li>• Duties of workmen.</li> <li>• Awareness about provision of wages, working hours and accident compensation as per Mines act.</li> <li>• Knowledge of mining safety procedures.</li> <li>• Impact of violation of safety procedures.</li> </ul>	
3	<p><b>Organize Safety trainings, meetings of Safety Council and support vocational training related to safety.</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 70:00</p> <p><b>Corresponding NOS Code</b> MIN/N 0479</p>	<p>Organizing and training new workers on Safety Rules, Regulations, Equipment, usage of safety Equipment and organizing Safety Council Meetings.</p> <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Trainings on Safety rules and regulations.</li> <li>• Trainings on Safety Equipment Usage &amp; importance</li> <li>• Create awareness on Safety Regulations and &amp; Compliances in new workers.</li> <li>• Plan and organize refresher training courses on Safety for existing workers.</li> <li>• Create awareness on Safety Equipment in new workers.</li> <li>• Plan and organize refresher training courses on Safety equipment for existing workers.</li> <li>• Organize periodic meetings of Safety Council.</li> <li>• Support Vocational Training Officer in conducting regular trainings to ensure safety norms are communicated and understood.</li> </ul>	<p>Safety Kit, Equipment as per OEM, Shoes, Fluorescent Jackets, Belt, Tight fit clothing, Safety Belt, Hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, Gum Boots, Ear Mufflers, Face Mask etc.</p>
4	<p><b>Health &amp; Safety</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 15:00</p> <p><b>Corresponding NOS Code</b> MIN/N 0901</p>	<p>This unit is about health and safety measures critical in open-cast mines</p> <ul style="list-style-type: none"> <li>• Health and safety measures critical for personnel working in open-cast mines</li> <li>• Comply with occupational health and safety regulations adopted by the employer.</li> <li>• Follow mining operations procedures with respect to materials handling and accidents.</li> <li>• Adhere to the safety guidelines specified by Directorate General of Mine Safety (DGMS)).</li> </ul>	<p>Gloves, Safety shoes, Safety goggles, Safety helmet, Fire extinguisher, Types of log book, First Aid box</p>
	<p><b>Total Duration</b></p> <p><b>Theory Duration</b> 60:00</p> <p><b>Practical Duration</b> 150:00</p>	<p><b>Unique Equipment Required:</b> Gloves, Industrial workers helmet, Signage, poster on road traffic, rules &amp; signs in mining, Safety poster on accidents, fire &amp; environmental disasters, Fire extinguishers, Cradle, Paddling, Shovel, Safety jackets, Gloves, Safety shoes, Torch.</p>	

Grand Total Course Duration: 210 Hours, 0 Minutes

(This syllabus/ curriculum has been approved by SSC: Skill Council for Mining Sector)

## Trainer Prerequisites for Job role: "Safety Operator" mapped to Qualification Pack: "MIN/Q0437"

Sr. No.	Area	Details
1	<b>Description</b>	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack "MIN/Q0437".
2	<b>Personal Attributes</b>	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	<b>Minimum Educational Qualifications</b>	Preferably Class X Passed and statutory certificate.
4a	<b>Domain Certification</b>	Statutory Certificate from Directorate General of Mines Safety (DGMS) for Job Role: "Safety Operator" mapped to QP: "MIN/Q0437". Minimum accepted score for domain certification will be 85%.
4b	<b>Platform Certification</b>	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MIN/Q0437". Minimum accepted score for platform certification will be 90%.
5	<b>Experience</b>	2-3 years of experience in mining environment.

## Annexure: Assessment Criteria

<b>Assessment Criteria for Safety Operator</b>	
<b>Job Role</b>	<b>Safety Operator</b>
<b>Qualification Pack</b>	<b>MIN/Q0437</b>
<b>Sector Skill Council</b>	<b>Mining</b>

<b>Sr. No.</b>	<b>Guidelines for Assessment</b>
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment of the theory/knowledge will be based on written test/viva-voce or both while skill test shall be hands on practical. Behavior and attitude will be assessed while performing the task.
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training Centre (as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training Centre based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% in skills, 30 % in knowledge and 70% in practical including Behavior separately in each attributes.
6	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.



### Marks Allocation

Assessable Outcome	Assessment Criteria	Total Mark (100)	Out Of	Theory	Skills Practical
1.MIN/ N0503 (Awareness & execution of applicable safety rules, Safety Equipment, dangerous situations, safety locations in mine and Rescue Plan)	PC1. Understand the DGMS Guidelines on Safety & related compliances	<b>35</b>			
			3	1	2
	PC2. Understand the Electric, Sound Safety standard		3	1	2
	PC3. Maintain the DGMS reports		3	1	2
	PC4. Understand the utility and importance of Safety Equipment like Shoes, Belt, Tight fit clothing, Safety Belt, Hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, Gum Boots, Ear Mufflers, Face Mask etc.		4	1	3
	PC5. Understand the Dangerous Situations arising out of Flooding, Fire, Roof Fall, Explosion, Mechanical fault, Electrical Faults, Human Mistake, Signaling Errors.		4	1	3
	PC6. Be familiar with the roles of Pump Khalasi, timber Khalasi etc. for rescue management purpose.		4	1	3
	PC7. Rehearse Rescue drill periodically.		4	1	3
	PC8. Display awareness of siren or messages used for safety / emergency situation.		3	1	2
	PC9. In case of emergency, set up Rescue Office.		3	2	1
	PC10. Support rescue operations after the arrival of Mine Manager/Safety Officer/Operations In-Charge.		4	2	2
			<b>35</b>	<b>12</b>	<b>23</b>
2. MIN/ N0504 (Organize Safety Trainings and organize Safety Council Meetings)	PC1. Create awareness on Safety Regulations and & Compliances in new workers .	<b>35</b>			
			6	2	4
	PC2. Plan and organize refresher training courses on Safety for existing		6	2	4

	workers.				
	PC3. Create awareness on Safety Equipment in new workers.		6	2	4
	PC4. Plan and organize refresher training courses on Safety equipment for existing workers.		6	2	4
	PC5. Organize periodic meetings of Safety Council.		6	2	4
	PC6. Support Vocational Training Officer in conducting regular trainings to ensure safety norms are communicated and understood		5	2	3
			<b>35</b>	<b>12</b>	<b>23</b>
3. MIN / N 0204 (Health and S afety)	PC1. Comply with occupational health and safety regulations adopted by the employer.	<b>30</b>	3	1	2
	PC2. Follow mining operations procedures with respect to materials handling and accidents.		3	0	3
	PC3. Follow the correct safety steps in case of accident or major failure .		3	1	2
	PC4. Comply with safety regulations and procedures in case of fire hazard.		3	1	2
	PC5. Operate various grades of fire extinguishers.		3	1	3
	PC6. Work responsibly and as safe and careful as possible so as not to put the health and safety of self or others at risk, including members of the public.		2	1	1
	PC7. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.		2	1	1
	PC8. Deal with misfires as per statutory requirement.		2	1	1
	PC9. Identify characteristics of post-blast fumes and take necessary precautions.		3	1	2
	PC10. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection.		3	1	2
	PC11. Follow the manufacturer's instructions for care and safe operation of the equipment.		3	1	2
	<b>NOS TOTAL</b>	<b>Total</b>	<b>30</b>	<b>10</b>	<b>21</b>
	<b>QP TOTAL</b>	<b>100</b>		<b>30</b>	<b>70</b>
	<b>Percentage Weightage:</b>			<b>30%</b>	<b>70%</b>
	<b>Minimum Pass% to qualify (aggregate):</b>			<b>70%</b>	