



# Model Curriculum

**QP Name: Jack Hammer Operator**  
Electives: Underground Metal/ Opencast/ Underground Coal

**QP Code: MIN/Q1202**

**QP Version: 2.0**

**NSQF Level: 4**

**Model Curriculum Version: 2.0**

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## Training Parameters

<b>Sector</b>	Mining
<b>Sub-Sector</b>	Mining Operation
<b>Occupation</b>	Drilling/Cutting
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/8111.0100
<b>Minimum Educational Qualification and Experience</b>	8th grade pass plus 2-year NTC plus 1 Year NAC OR 8th pass plus 1-year NTC plus 1-Year NAC plus CITS OR 10th grade pass and pursuing continuous schooling OR 10th grade pass with 2 years relevant experience OR Previous relevant Qualification (Jr. Jack Hammer Operator) of NSQF Level 3.0 with minimum education as 5th Grade pass with 2 years relevant experience
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	20 years
<b>Last Reviewed On</b>	27/01/2022
<b>Next Review Date</b>	27/01/2025
<b>NSQC Approval Date</b>	27/01/2022
<b>QP Version</b>	2.0
<b>Model Curriculum Creation Date</b>	27/01/2022
<b>Model Curriculum Valid Up to Date</b>	27/01/2025
<b>Model Curriculum Version</b>	2.0
<b>Minimum Duration of the Course</b>	510 hours
<b>Maximum Duration of the Course</b>	510 hours

# Program Overview

This section summarizes the end objectives of the program along with its duration.

## Training Outcomes

At the end of the program, the learner will be able to:

- Demonstrate how to prepare the Jack Hammer for operations
- Show how to perform jackhammer operations
- Display how to perform basic maintenance and troubleshooting of the Jack Hammer
- Perform the steps on how to carry out reporting and documentation related to the Jack Hammer Operation
- Explain health, safety and environmental guidelines to be followed for underground metalliferous mines, underground coal mines and open cast mines.

## Compulsory Modules

The table lists the modules, their duration and mode of delivery.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
<b>Bridge Module</b>	<b>10:00</b>	<b>00:00</b>	<b>00:00</b>		<b>10:00</b>
Module 1 - Introduction to the sector and the job role of Jack Hammer Operator	10:00	00:00	00:00		10:00
<b>MIN/N1204- Prepare the Jack Hammer for operations NOS Version No. 1 NSQF Level-4</b>	<b>30:00</b>	<b>30:00</b>	<b>50:00</b>		<b>110:00</b>
Module 2: Prepare the Jack Hammer for operation	30:00	30:00	50:00		110:00
<b>MIN/N1205-Perform Jack Hammer operations NOS Version No.1 NSQF Level-4</b>	<b>10:00</b>	<b>60:00</b>	<b>50:00</b>		<b>120:00</b>
Module 3: Perform Jack Hammer operations	10:00	60:00	50:00		120:00
<b>MIN/N1206-Perform basic maintenance and troubleshooting of the Jack Hammer NOS Version No.1 NSQF Level-4</b>	<b>10:00</b>	<b>50:00</b>	<b>30:00</b>		<b>90:00</b>
Module 4: Perform basic maintenance and troubleshooting of the Jack Hammer	10:00	50:00	30:00		90:00

<b>MIN/N1207-Carry out reporting and documentation related to the Jack Hammer operator NOS Version No.1 NSQF Level-4</b>	<b>10:00</b>	<b>10:00</b>	<b>10:00</b>		<b>30:00</b>
Module 5: Carry out reporting and documentation related to the Jack Hammer operator	10:00	10:00	10:00		30:00
<b>DGT/VSQ/N0102: Employability Skills (60 Hours) NOS Version No. 1 NSQF Level- 4</b>	<b>24:00</b>	<b>36:00</b>	<b>00:00</b>	-	<b>60:00</b>
Introduction to Employability Skills	00:30	01:00	00:00	-	01:30
Constitutional values - Citizenship	00:30	01:00	00:00	-	01:30
Becoming a Professional in the 21st Century	01:00	01:30	00:00	-	02:30
Basic English Skills	04:00	06:00	00:00	-	10:00
Career Development & Goal Setting	01:00	01:00	00:00	-	02:00
Communication Skills	02:00	03:00	00:00	-	05:00
Diversity & Inclusion	01:00	01:30	00:00	-	02:30
Financial and Legal Literacy	02:00	03:00	00:00	-	05:00
Essential Digital Skills	04:00	06:00	00:00	-	10:00
Entrepreneurship	03:00	04:00	00:00	-	07:00
Customer Service	02:00	03:00	00:00	-	05:00
Getting Ready for Apprenticeship & Jobs	03:00	05:00	00:00	-	08:00
<b>Total Duration</b>	<b>94:00</b>	<b>186:00</b>	<b>140:00</b>	-	<b>420:00</b>

### Elective Modules- (mandatory to select at least one)

The table lists the elective modules, their duration and mode of delivery.

#### Elective 1: Underground Metal

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
<b>MIN/N1702-Follow Health, Safety and Environmental Guidelines for Underground Metalliferous Mines (UMM)(Including Mine Vocational Training Rule and Mine Rescue Rule) NOS Version No. 1.0</b>	<b>20:00</b>	<b>30:00</b>	<b>40:00</b>		<b>90:00</b>

NSQF Level-4					
Module 6: Follow Health, Safety and Environmental Guidelines for Underground Metalliferous Mines (UMM)	20:00	30:00	40:00		90:00
<b>Total Duration</b>	<b>20:00</b>	<b>30:00</b>	<b>40:00</b>		<b>90:00</b>

### Elective 2: Opencast

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
<b>MIN/N1703-Follow Health, Safety and Environmental Guidelines for Opencast Mines (Including Mine Vocational Training Rule)</b> NOS Version No. 1.0 NSQF Level-4	20:00	30:00	40:00		90:00
Module 7: Follow Health, Safety and Environmental Guidelines for Opencast Mines	20:00	30:00	40:00		90:00
<b>Total Duration</b>	<b>20:00</b>	<b>30:00</b>	<b>40:00</b>		<b>90:00</b>

### Elective 3: Underground Coal

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
<b>MIN/N1704-Follow Health, Safety and Environmental Guidelines for Underground Coal Mines (Including Mine Vocational Training Rule and Mine Rescue Rule)</b> NOS Version No. 1.0 NSQF Level-4	20:00	30:00	40:00		90:00
Module 8: Follow Health, Safety and Environmental Guidelines for Underground Coal Mines	20:00	30:00	40:00		90:00
<b>Total Duration</b>	<b>20:00</b>	<b>30:00</b>	<b>40:00</b>		<b>90:00</b>

# Module Details

## Module 1: Introduction to the sector and the job role of Jack Hammer Operator

### Bridge Module

#### Terminal Outcomes:

- Discuss the scope of mining industry
- Explain the role and responsibility of the Jack Hammer Operator

<i>Duration:10:00</i>	<i>Duration: 00:00</i>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe the concept of Underground and Opencast Mining operation</li> <li>• Discuss the role and the importance of the Jack Hammer Operator</li> <li>• Discuss Regulatory context specified to work in Mines</li> <li>• Discuss the characteristic features of Metal mines, Coal Mines</li> <li>• Throw light on provision of wages, working hours and accident compensation as per Mines Act.</li> </ul>	
<b>Classroom Aids</b>	
LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers	
<b>Tools, Equipment and Other Requirements</b>	
Posters for describing different types of Mines and associated operations.	

## Module 2: Prepare the Jack Hammer for operations

Mapped to MIN/N1204, v1.0

### Terminal Outcomes:

- Demonstrate how to conduct pre-operation checks
- Perform the steps on how to record and report details of daily checks

<i>Duration:30:00</i>	<i>Duration:30:00</i>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Discuss the job-specific documents e.g. daily maintenance checklist.</li> <li>• Discuss how to follow work related instructions given by the supervisor before the shift starts.</li> <li>• Explain the risk and impact of not following defined procedures/work instructions.</li> <li>• Discuss the shift/day’s production plan and schedule with Foreman/Mine Sirdar/site engineer.</li> <li>• State the hierarchy for reporting identified problems.</li> <li>• Elucidate the manufacturer’s instructions for safe handling of the machine/automobile.</li> <li>• Discuss the impact of damaged equipment and delays in the process on the company.</li> <li>• Discuss hand over and take over procedures of the Jack Hammer according to company's SOP.</li> <li>• Summarize the safety guidelines specified by Directorate General of Mines Safety (DGMS) specific to Jack Hammer operations.</li> <li>• List the different types of mines and detail of the mine one is working in.</li> <li>• Recall the Jack Hammer of appropriate weight for the given work.</li> <li>• Discuss benching in quarries, dressing of overhangs, undercuts, fencing etc.</li> <li>• Discuss how to arrange right air flush or wet flush drilling, type of tool and mounting as required.</li> <li>• Throw light on the importance of first aid and hygiene.</li> <li>• State the code of practice in specific areas of the mine.</li> <li>• Discuss the standing orders in force at the mine.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to inspect the body components for cracks and wears.</li> <li>• Show how to ensure that the Jack Hammer is in good order and all guards, handles and safety mechanisms are fitted and operational.</li> <li>• Apply appropriate techniques to inspect the hydraulic oil level, and the degree of contamination.</li> <li>• Demonstrate how to apply grease to all the required parts.</li> <li>• Show how to inspect the tool and bushing for abnormal wear and cracks.</li> <li>• Display how to inspect the electrical cables for cuts, marks, wear, and other signs of damage while using Electric Jack Hammer.</li> <li>• Show how to check whether the electrical lead is connected to an approved safety switch for electric Jack Hammer.</li> <li>• Display how to check the pneumatic connection and hose joints for Pneumatic Jack Hammers.</li> <li>• Display how to check air hoses for breaks, cracks, and worn or broken couplings.</li> <li>• Demonstrate how to inspect whether right type of chisel bit is fitted and whether the bit/point is in good order or needs replacing.</li> <li>• Show how to check the various controls, gauges, warning lamp and other safety devices.</li> <li>• Demonstrate how to update the operation and maintenance log book to detail all activities conducted before starting the Jack Hammer.</li> <li>• Role-play the situation on how to inform the supervisor of those problems which are not under one's purview.</li> </ul>

- Throw light on the importance of safety in the vicinity of machinery.
- Explain shot-firing/blasting related safety regulations including taking shelter during blasting.
- Discuss the duties of workmen, provision of compensation, working hours, leaves, etc. under the Mines Act-1952.
- Throw light on the manufacturer's instructions specified for care and safe operating condition of the Jack Hammer.
- Discuss the outcome of violation of safety procedures.
- List the different types of Heavy Earth Moving Machines (H.E.M.M) and their use.
- List the different types of Jack Hammer such as pneumatic, electro-mechanical or electro-pneumatic, hydraulic, their specifications and usage.
- Discuss about the different type of stand and mounting rigs and their operating principle like Percussive, Rotary Percussive etc.
- Recall the components, assemblies and accessories of the machine.
- Discuss about the compressor, storage and compressed air, pipeline for transmission and assembly of pipes.
- Explain the process of removing and fitting the handles, mount on the carriage, replace chisels to the body of the Jack Hammer.
- List the different type soft cutting tools/bits and their uses.
- Discuss how to follow the manufacturer's instructions specified for care and safe operating condition of the Jack Hammer.
- Describe the ways to conduct routine checks for Jack Hammer operations, including visual check of machine and surrounding for any defect or unsafe conditions.
- Throw light on available dust reduction measures and how to use them effectively.
- List the various spare parts used for Jack Hammer.
- Summarize the safety provisions for machine.

#### Classroom Aids

LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers

**Tools, Equipment and Other Requirements**

Drilling machine, Drill HSS 6 mm, Drill angle gauge, drilling machine motorized pillar 20 mm, steel tape 1 meter, direct reading vernier calliper, Jack Hammer, Hydraulic jack, jib crane, chisel bits / compressed air / couplings/ rods etc.; Different types of Jack Hammer such as pneumatic, electro-mechanical or electro-pneumatic, hydraulic; Different type soft cutting tools/bits; spare parts used for Jack Hammer;

## Module 3: Perform Jack Hammer operations

Mapped to MIN/N1205, v1.0

### Terminal Outcomes:

- Demonstrate how to perform Jack Hammer operations

<i>Duration:10:00</i>	<i>Duration:60:00</i>
<p><b>Theory – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Discuss about the emergency response/disaster management plan prepared by the organization.</li> <li>• Discuss how to plan and organise the tasks/works according to the supervisor's/site engineer's instructions.</li> <li>• Explain the risk and impact of not following defined procedures/work instructions.</li> <li>• Discuss how to ensure proper scaling/dressing of loose rocks from the roof and wall of the worksite.</li> <li>• Explain how to ensure cleaning of the drill site.</li> <li>• Discuss the impact of damaged equipment and delays in process to the company.</li> <li>• Summarize the safety guidelines for Jack Hammer operations specified by Directorate General of Mines Safety (DGMS).</li> <li>• List the different types of mines and detail of the mine one is working in.</li> <li>• Describe benching in quarries, dressing of overhangs, undercuts, fencing, etc.</li> <li>• Discuss how to place the compressor as far as possible from the work site to reduce the amount of noise.</li> <li>• Summarize the importance of first aid and hygiene.</li> <li>• Explain about shot-firing / blasting related safety regulations including taking shelter during blasting.</li> <li>• Throw light on the duties of workmen, provision of compensation and working hours, leaves, etc. under the Mines Act-1952.</li> <li>• Discuss the operating manual of the Jack Hammer.</li> <li>• State the specifications and details of the Jack Hammer used.</li> <li>• List the various levers and switches in order to operate the Jack Hammer properly.</li> <li>• Describe the various operations of the Jack Hammer.</li> </ul>	<p><b>Practical – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Demonstrate how to inspect the support group for bolting, resincing plate tightening etc.</li> <li>• Display how to check ongoing proper ventilation of the worksite for UG mines, as applicable.</li> <li>• Show how to erect signage, barricaded or bounded as required to make work area.</li> <li>• Show where the compressor is supposed to be placed to reduce the amount of noise.</li> <li>• Demonstrate how to ensure that all air and water hoses are flushed or blown clear before they are connected to the Jack Hammer.</li> <li>• Show how to connect compressed-air and water lines to the Jack Hammer.</li> <li>• Display how to adjust the desired angle of hammer with respect to the rock or worksite.</li> <li>• Apply appropriate techniques to drill holes in ore or rock as per required dimension given by supervisor.</li> <li>• Demonstrate how to perform Jack Hammer operation for scaling/dressing of the loose and breaking the rock and concrete.</li> <li>• Show how to periodically check chisel bits for spending need and other operating parameters, etc.</li> <li>• Display how to shut off the air supply and relieve pressure from the supply hose before changing tool points and when leaving the Jack Hammer unattended.</li> </ul>

- Throw light on the process of scaling of loose/rocks.
- Discuss how to ensure all machine consumables and spares (chisel bits / compressed air / couplings/ rods etc.) are used to their maximum potential.
- Discuss about instrument panel, various controls, their location and operation.
- Explain how to reduce downtime and wastage.
- List the different types of Jack Hammer such as pneumatic, electro-mechanical or electro-pneumatic, hydraulic, their specifications and usage.
- Explain how to perform caution against hazards of Jack Hammer machine in operation.
- Describe the process of connecting of hose pipe with Jack Hammer.
- Discuss the replacement process of bits and joints.
- Throw light on the setting up of the Jack Hammer for various operations - horizontal, vertical or inclined.
- Recall the mining area signs and other safety and emergency signals.

#### Classroom Aids

LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers

#### Tools, Equipment and Other Requirements

Drilling machine, Drill HSS 6 mm, Drill angle gauge, drilling machine motorized pillar 20 mm, steel tape 1 meter, direct reading vernier calliper, Jack Hammer, Hydraulic jack, jib crane, chisel bits / compressed air / couplings/ rods etc.; Different types of Jack Hammer such as pneumatic, electro-mechanical or electro-pneumatic, hydraulic; Different type soft cutting tools/bits; spare parts used for Jack Hammer

## Module 4: Perform basic maintenance and troubleshooting of the Jack Hammer

Mapped to MIN/N1206, v1.0

### Terminal Outcomes:

- Demonstrate how to perform basic maintenance and troubleshooting of the Jack Hammer

<i>Duration:10:00</i>	<i>Duration:50:00</i>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Discuss job-specific documents e.g. daily maintenance checklist.</li> <li>• Explain how to ensure proper Lock out and Tag out (LOTO).</li> <li>• Summarize the safety guidelines specified by Directorate General of Mines Safety (DGMS) specific to Jack Hammer operations.</li> <li>• Discuss standard operating procedure set out for diagnosing faults.</li> <li>• List different types of mines and detail of the mine one is working in.</li> <li>• Explain how to ensure that the Jack Hammer air supply is shut off and pressure is relieved in the supply hose.</li> <li>• Describe benching in quarries, dressing of overhangs, undercuts, fencing, etc.</li> <li>• Explain how to ensure that the Original Equipment Manufacturer (OEM) recommended procedure and checklist is followed for routine servicing.</li> <li>• Summarize the importance of safety in the vicinity of machinery.</li> <li>• Explain how to track machine operating hours to assess the required service.</li> <li>• Discuss the duties of workmen under the Mines Act-1952.</li> <li>• Throw light on the outcome of violation of safety procedures.</li> <li>• Discuss about levers, switches, instrument panel and various controls in order to operate the Jack Hammer properly.</li> <li>• Throw light on the maintenance of gauges and sensors.</li> <li>• Explain the correct maintenance procedures for the Jack Hammer.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to review complaint sheet, Log Book and History Sheet of the Equipment to identify the repair requirements.</li> <li>• Show how to observe any unusual noise, crack, vibration, leak, spillage, accumulation etc. on the Jack Hammer and supply pneumatic/hydraulic /electro pneumatic system and seek corrective Measures.</li> <li>• Display how to check for proper functionality of gauges, indicators, and sensor and observe any fault message and diagnose the problem solution.</li> <li>• Demonstrate how to replace chisel bits when required.</li> <li>• Show how to check structural integrity and any crack failure of stand or support structure.</li> <li>• Apply appropriate technique to drain water and sediment /fuel separators.</li> <li>• Demonstrate how to replenish coolants, lubricants and fluids.</li> <li>• Role-play the scenario on how to inform technician and fitters for any major repair.</li> <li>• Show how to fill the daily, weekly and monthly maintenance/defect sheets as per the format lay down by the organization.</li> <li>• Display how to check the machine parameters before restart the machine operation.</li> <li>• Show the process of installation of various tools.</li> <li>• Demonstrate how to conduct scheduled, routine examination and assessments against equipment specifications to identify wear, damage, corrosion, inadequate fluid levels, leaks and general condition and serviceability.</li> </ul>

<ul style="list-style-type: none"> <li>• Describe the process of disposing waste material and broken parts.</li> <li>• Recall how to respond to emergencies e.g. fire /inundation.</li> <li>• List the various spare parts used for jack Hammer.</li> <li>• Discuss how to assist fitter and technician as and when required.</li> <li>• List the various cutting tools/bits of Jack Hammer and its uses.</li> <li>• Explain how to troubleshoot and maintain the Jack Hammer.</li> <li>• Discuss how to ensure cleaning of the drilling site and dispose of waste material and broken parts at appropriate place.</li> <li>• Discuss how to do visual checks to identify damage, defects or leaks.</li> <li>• Recall fault in the Jack Hammer and trace the causes of this fault.</li> <li>• Enlist the different types of hydraulic mechanism.</li> <li>• List the various tools and equipment used for routine check.</li> <li>• Discuss about the instrument panel, their location and operation.</li> <li>• Explain how to follow "5-S" practice near the workshop area.</li> <li>• Throw light on the various sources of information available for assessing service and repair requirements of the vehicle including diagnostics displays, visual inspection, test drives.</li> <li>• State when the problem is beyond his competence and report the problem to Technicians / Site engineer.</li> <li>• Describe how to updating the logbook with works carried out and further works to be done.</li> </ul>	<ul style="list-style-type: none"> <li>• Show how to carry out diagnostic procedures as per the troubleshooting checklist prepared by the Original Equipment Manufacturer (OEM).</li> </ul>
<p><b>Classroom Aids</b></p>	
<p>LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers</p>	
<p><b>Tools, Equipment and Other Requirements</b></p>	
<p>Drilling machine, Drill HSS 6 mm, Drill angle gauge, drilling machine motorized pillar 20 mm, steel tape 1 meter, direct reading vernier calliper, Jack Hammer, Hydraulic jack, jib crane, chisel bits / compressed air / couplings/ rods etc.; Different types of Jack Hammer such as pneumatic, electro-</p>	



mechanical or electro-pneumatic, hydraulic; Different type soft cutting tools/bits; spare parts used for Jack Hammer

## Module 5: Carry out reporting and documentation related to the Jack Hammer operator

Mapped to MIN/N1207, v1.0

### Terminal Outcomes:

- Demonstrate how to perform reporting and documentation

<i>Duration:10:00</i>	<i>Duration:10:00</i>
<p><b>Theory – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Describe the importance of different types of documentation in the organisation to be completed e.g. daily maintenance checklist.</li> <li>• Discuss how to prepare all documentation correctly on time.</li> <li>• State the different types of mines and detail of the mine one is working in.</li> <li>• List commonly used mining terminologies.</li> <li>• Discuss the duties of the workers under The Mines Act-1952.</li> <li>• Summarize the risk and impact of not following defined procedures/work instructions.</li> <li>• Explain how to ensure that all documents are available to all appropriate authorities for inspection.</li> <li>• List on various problems/incidents likely to occur and precautions to be taken when handling heavy equipment.</li> <li>• Discuss the handover and takeover procedures of the Jack Hammer according to company's SOP.</li> <li>• Explain how to handover all important information to the reliever in a proper manner.</li> </ul>	<p><b>Practical – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Role-play the situation to report completion of job allocated during the shift, problems encountered and further actions that need to be taken.</li> <li>• Role-play the situation to report safety and hazard related problems on urgent and priority basis to the supervisor and the manager.</li> <li>• Show how to record the details of the machine operations accurately using the appropriate format.</li> <li>• Demonstrate how to use Mineral Conservation and development Rules (MCDR) based logbook and fill accurate data in correct format along with the signature at the end.</li> </ul>
<p><b>Classroom Aids</b></p> <p>LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers</p>	
<p><b>Tools, Equipment and Other Requirements</b></p> <p>Drilling machine, Drill HSS 6 mm, Drill angle gauge, drilling machine motorized pillar 20 mm, steel tape 1 meter, direct reading vernier calliper, Jack Hammer, Hydraulic jack, jib crane, chisel bits / compressed air / couplings/ rods etc.; Different types of Jack Hammer such as pneumatic, electro-mechanical or electro-pneumatic, hydraulic; Different type soft cutting tools/bits; spare parts used for Jack Hammer;</p>	

## Employability Skills (60 Hours)

Mapped to DGT/VSQ/N0102, v1.0

Key Learning Outcomes	
<b>Introduction to Employability Skills</b>	<b>Duration: 1.5 Hours</b>
<ol style="list-style-type: none"> <li>1. Discuss the Employability Skills required for jobs in various industries</li> <li>2. List different learning and employability related GOI and private portals and their usage</li> </ol>	
<b>Constitutional values - Citizenship</b>	<b>Duration: 1.5 Hours</b>
<ol style="list-style-type: none"> <li>3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen</li> <li>4. Show how to practice different environmentally sustainable practices.</li> </ol>	
<b>Becoming a Professional in the 21st Century</b>	<b>Duration: 2.5 Hours</b>
<ol style="list-style-type: none"> <li>5. Discuss importance of relevant 21st century skills.</li> <li>6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.</li> <li>7. Describe the benefits of continuous learning.</li> </ol>	
<b>Basic English Skills</b>	<b>Duration: 10 Hours</b>
<ol style="list-style-type: none"> <li>8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone</li> <li>9. Read and interpret text written in basic English</li> <li>10. Write a short note/paragraph / letter/e-mail using basic English</li> </ol>	
<b>Career Development &amp; Goal Setting</b>	<b>Duration: 2 Hours</b>
<ol style="list-style-type: none"> <li>11. Create a career development plan with well-defined short- and long-term goals</li> </ol>	
<b>Communication Skills</b>	<b>Duration: 5 Hours</b>
<ol style="list-style-type: none"> <li>12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.</li> <li>13. Explain the importance of active listening for effective communication</li> <li>14. Discuss the significance of working collaboratively with others in a team</li> </ol>	
<b>Diversity &amp; Inclusion</b>	<b>Duration: 2.5 Hours</b>
<ol style="list-style-type: none"> <li>15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD</li> <li>16. Discuss the significance of escalating sexual harassment issues as per POSH act.</li> </ol>	
<b>Financial and Legal Literacy</b>	<b>Duration: 5 Hours</b>
<ol style="list-style-type: none"> <li>17. Outline the importance of selecting the right financial institution, product, and service</li> <li>18. Demonstrate how to carry out offline and online financial transactions, safely and securely</li> <li>19. List the common components of salary and compute income, expenditure, taxes, investments etc.</li> <li>20. Discuss the legal rights, laws, and aids</li> </ol>	
<b>Essential Digital Skills</b>	<b>Duration: 10 Hours</b>
<ol style="list-style-type: none"> <li>21. Describe the role of digital technology in today's life</li> <li>22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely</li> <li>23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely</li> <li>24. Create sample word documents, excel sheets and presentations using basic features</li> <li>25. utilize virtual collaboration tools to work effectively</li> </ol>	
<b>Entrepreneurship</b>	<b>Duration: 7 Hours</b>
<ol style="list-style-type: none"> <li>26. Explain the types of entrepreneurship and enterprises</li> <li>27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan</li> <li>28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement</li> <li>29. Create a sample business plan, for the selected business opportunity</li> </ol>	

<b>Customer Service</b>	<b>Duration: 5 Hours</b>
<p>30. Describe the significance of analyzing different types and needs of customers</p> <p>31. Explain the significance of identifying customer needs and responding to them in a professional manner.</p> <p>32. Discuss the significance of maintaining hygiene and dressing appropriately</p>	
<b>Getting Ready for apprenticeship &amp; Jobs</b>	<b>Duration: 8 Hours</b>
<p>33. Create a professional Curriculum Vitae (CV)</p> <p>34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively</p> <p>35. Discuss the significance of maintaining hygiene and confidence during an interview</p> <p>36. Perform a mock interview</p> <p>37. List the steps for searching and registering for apprenticeship opportunities</p>	

### Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate/CITS	Any discipline	-	-	2	Teaching experience	Prospective ES trainer should:
Current ITI trainers	Employability Skills Training (3 days full-time course done between 2019-2022)	-	-	-	-	<ul style="list-style-type: none"> <li>• have good communication skills</li> <li>• be well versed in English</li> <li>• have digital skills</li> <li>• have attention to detail</li> <li>• be adaptable</li> <li>• have willingness to learn</li> </ul>
Certified current EEE trainers (155 hours)	from Management SSC (MEPSC)	-	-	-	-	
Certified Trainer	Qualification Pack: Trainer (MEP/Q0102)	-	-	-	-	

Trainer Certification	
Domain Certification	Platform Certification
Certified in 60-hour Employability NOS (2022), with a minimum score of <b>80%</b>  <b>OR</b>  Certified in 120-, 90-hour Employability NOS (2022), with a minimum score of <b>80%</b>	MEP/Q2601, v2.0 Trainer (VET and Skills). Minimum accepted score as per SSC guideline is 80%.

### Master Trainer Requirements

Master Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate/CITS	Any discipline	-	-	3	Employability Skills curriculum training experience with an interest to train as well as orient other peer trainers	Prospective ES Master trainer should: <ul style="list-style-type: none"> <li>• have good communication skills</li> <li>• be well versed in English</li> <li>• have basic digital skills</li> </ul>
Certified Master Trainer	Qualification Pack: Master Trainer (MEP/Q2602)	-	-	3	EEE training of Management SSC (MEPSC) (155 hours)	<ul style="list-style-type: none"> <li>• have attention to detail</li> <li>• be adaptable</li> <li>• have willingness to learn</li> <li>• be able to grasp concepts fast and is creative with teaching practices and likes sharing back their learning with others</li> </ul>

Master Trainer Certification	
Domain Certification	Platform Certification
Certified in 60-hour Employability NOS (2022), with a minimum score of <b>90%</b> .  <b>OR</b>  Certified in 120-, 90-hour Employability NOS (2022), with a minimum score of <b>90%</b>	MEP/Q2602, v2.0 Master Trainer (VET and Skills). Minimum accepted score as per SSC guideline is 90%.

### Assessment Strategy

The trainee will be tested for the acquired skill, knowledge and attitude through formative/summative assessment at the end of the course and as this NOS and MC is adopted across sectors and qualifications, the respective AB can conduct the assessments as per their requirements.

LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS		
S No.	Name of the Equipment	Quantity
1.	Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below)	As required
2.	UPS	As required
3.	Scanner cum Printer	As required
4.	Computer Tables	As required
5.	Computer Chairs	As required
6.	LCD Projector	As required
7.	White Board 1200mm x 900mm	As required

*Note: Above Tools & Equipment not required, if Computer LAB is available in the institute.*

### Proposed Assessment Strategy/Guidelines:

1. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria mentioned above).
2. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

## Module 6: Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines

Mapped to MIN/N1702, v1.0

### Terminal Outcomes:

- Discuss about the worksite health and safety measures, and environmental guidelines

<i>Duration:20:00</i>	<i>Duration:30:00</i>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain how to undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work (DGMS Tech. circulars 2/2014).</li> <li>• Discuss how to comply with safety, health and security - related regulations/guidelines at the mine e.g. follow Standard Operating Procedure (SOP) for material handling in underground (U/G) mine, safety guidelines specified by Directorate General of Mine Safety (DGMS).</li> <li>• List the precautions to be followed against U/G electrical appliances.</li> <li>• List appropriate safety practices while traveling on U/G haul roads, in case of post blast fumes and misfire.</li> <li>• Discuss the manufacturer’s instructions for care and safe operation of mine machinery and equipment.</li> <li>• Discuss about various types of gases found in the mine and their effect.</li> <li>• Discuss the laid out procedure to be followed in case of gas detecting alarm signal on leakage of inflammable gases.</li> <li>• Shed light on how to use appropriate PPE as per the requirement.</li> <li>• Discuss how to identify six directional hazards at workplace and take decisions accordingly.</li> <li>• Discuss how to check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR) while undertaking work in an area.</li> <li>• Discuss how to follow appropriate Standard Operating Procedure while working near any isolated and sealed off area of the mine.</li> <li>• List the different types of machineries used in U/G mines.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to operate various types of fire extinguishers to control different types of fire at a worksite when required.</li> <li>• Show how to use self-rescue apparatus, appropriately when required.</li> <li>• Read line diagram of ventilation circuit to identify the working ventilation district, to direct air to the working face.</li> </ul>

- Throw light on provision of medical examination (IME & PME) of person employed as per Mines Rules 1955.
- State the importance of first aid and hygiene.
- Explain how to take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment.
- Discuss duties and rights of workers, as well as the safety and occupational health policy of organization.
- Throw light on the selection process of person for rescue training.
- Cite about the isolation and sealed off area of the mine.
- Discuss the various problems/incidents likely to occur and precautions to be taken when handling heavy equipment.
- State the mine safety standard including illumination level, noise levels, dust level, pollutants, etc. at the work-site.
- List the common sources of pollution in the mines and ways to minimize it.
- Discuss how to follow process for reporting any unsafe act/condition in work area to the concerned person.
- Describe how to use underground mine communication system.
- Throw light on how to ensure positive isolation near the work place if applicable.
- Describe about the safety appliances and rescue equipment.
- State how to report any symptoms of illness to the shift-in-charge.
- Outline the role of Internal Safety Organisation, safety committee, workman's inspector and DGMS.
- Discuss the mining area-specific signs, and other safety and emergency signals and the outcome of violation of safety procedures.
- List the role and responsibilities of rescue room and rescue station and how to contact them in case of emergency.
- State the importance of taking shelter at the miner's station during blasting operation.
- Discuss about the safety equipment like safety shoes, safety belt, tight fit clothing,

hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots, ear plugs, Face Mask, etc. and importance of FAB (Fresh Air Base).

- Describe shot-firing / blasting related safety regulations including taking shelter during blasting.
- Throw light on the emergency response /disaster management plan prepared by the organization as per DGMS guideline.
- Explain the rules and regulations for safety and security while handling hazardous materials.
- Outline the basic provisions in Mines Creche Rules, 1966 (MCR) for females employed in the mines.
- Discuss the importance of sensitization towards different genders and persons with disabilities. (PWD).
- Explain the importance of following infection control policies, '5-S' practices, and waste management.
- Discuss the importance of water/material/energy conservation and management.
- Discuss Safety Management Plan (SMP) and Emergency Management Plan (EMP).
- Explain how to maintain hand hygiene by washing hands with alcohol based sanitisers/soap.
- Elucidate on how to maintain hygiene at the work site and disinfect the machine/tools before and after work/task.
- Discuss the environmental impact of mining related operations and steps to reduce those impacts.
- Throw light on the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery.
- Explain how to ensure that stowing practices produce minimum disturbance to the surface.
- Discuss how to ensure that the subgrade ore is carried out to surface and stacked separately at the earmarked place.

- Explain how to ensure the productivity of the machine for material/fuel conservation.

#### Classroom Aids

LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers

#### Tools, Equipment and Other Requirements

Helmet, gloves, harness, earplugs, Safety Goggles, Node mask, Safety shoes, Fire extinguisher, Types of log book, First Aid box, MCDR, MCR, Company's SOP; Diagrams showing quarries, overhangs, fencing, etc.; samples of different types of rocks to be encountered; Mines Act; "5-S" Charts; Daily, Weekly, Monthly Maintenance/Defect sheets; Systematic Support Plan (SSP); Systematic Support Rules (SSR); self-rescue apparatus; Line Diagram of Ventilation Circuit; Alcohol based sanitisers; self-rescue apparatus; Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots; Diagrams of Armoured face conveyor; Charts of coal mines occupational diseases; CMR; MMR; MRR, Company's Safety Management Plan (SMP) and Emergency Management Plan (EMP)

## Module 7: Follow Health, Safety, and Environmental Guidelines for opencast mines

Mapped to MIN/N1703, v 1.0

### Terminal Outcomes:

- Discuss about the worksite health and safety measures and environmental guidelines

<i>Duration:20:00</i>	<i>Duration:30:00</i>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain how to comply with safety, health, and security-related regulations/guidelines at the open cast mine and safety instructions given by the workman's inspector.</li> <li>• Describe about various environmental awareness program related to mining, organized by the various government bodies/ company.</li> <li>• Discuss how to follow adequate safety while working at haul roads, heights, overburden dumps, sump area, stockyard, near moving parts, etc.</li> <li>• Recall the safety precautions to be taken while working on sites (sub-station, workshop etc.), with equipment, and conducting welding and cutting operations.</li> <li>• Discuss how to follow appropriate Safe Operating Procedure (SOP) while dealing with explosives.</li> <li>• Illustrate how to respond promptly and appropriately to an accident/ incident or an emergency situation, within limits of the role and responsibility.</li> <li>• Discuss usage of appropriate PPE as per the requirement.</li> <li>• Explain how to maintain hand hygiene by washing hands with alcohol based sanitizers/soap.</li> <li>• Elucidate on how to maintain hygiene at the work site and disinfect the machine/tools before and after work/task.</li> <li>• State how to report any symptoms of illness to the shift-in-charge.</li> <li>• Discuss the safety guidelines specified by Directorate General of Mine Safety (DGMS).</li> <li>• List basic mining terminologies and definitions.</li> </ul>	<ul style="list-style-type: none"> <li>• Show how to provide first aid to an injured person.</li> <li>• Display how to operate various types of fire extinguishers to control different types of fire at a worksite when required.</li> <li>• Role-play the situations on how to assist supervisor for reducing environmental impact caused due to related mining operations.</li> </ul>

- Explain about the means of access and egress from the mines, location of workshop, haul roads and working face including dump yards.
- Outline about the shot-firing / blasting related safety regulations including taking shelter during blasting.
- Discuss the duties of workers, working hours and accident compensation as per under The Mines act-1952.
- Throw light on the hierarchy of the reporting.
- Recall the proper documents specific to the machine.
- Discuss about the machine operation, condition of the machine and worksite.
- Throw light on various problems/ incidents and precautions to be taken when handling heavy equipment.
- Throw light on the environmental impact of related opencast mining operations.
- Discuss how to follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines.
- Explain the process of top soil removal and management and ensure not to mix topsoil with waste in day to day tasks.
- Discuss how to ensure that HEMM is washed at the designated location.
- Illuminate on how to ensure the productivity of the machine for material/fuel conservation.
- Discuss the mineral conservation practices specified by the organization in accordance with MCDR-2017 (Mineral Conservation and Development Rules).
- Discuss the role of workmen inspector, safety committee and internal safety organization.
- Throw light on the signage, mining area-specific signs, and other safety and emergency signals.
- State the outcome of violation of safety procedures.
- Summarise the importance of sensitization towards different genders and PWD (Persons with Disabilities).

- Throw light on mine sump and pumping system of the mines.
- State the mine safety standard including illumination level, noise levels, dust level, pollutants, etc. at the work-site.
- List the common sources of pollution in the mines and ways to minimize it.
- Enlist the safety equipment like safety shoes, safety belt, tight fit clothing, hand gloves, safety goggles, gas detector, safety lamp, self-contained breathing apparatus, gum boots, ear plugs, face mask, etc.
- Discuss emergency response /disaster management plan prepared by the organization.

#### Classroom Aids

LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers

#### Tools, Equipment and Other Requirements

Helmet, gloves, harness, earplugs, Safety Goggles, Node mask, Safety shoes, Fire extinguisher, Types of log book, First Aid box, MCDR, MCR, Company's SOP; Diagrams showing quarries, overhangs, fencing, etc.; samples of different types of rocks to be encountered; Mines Act; "5-S" Charts; Daily, Weekly, Monthly Maintenance/Defect sheets; Systematic Support Plan (SSP); Systematic Support Rules (SSR); self-rescue apparatus; Line Diagram of Ventilation Circuit; Alcohol based sanitizers; self-rescue apparatus; Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots; Diagrams of Armoured face conveyor; Charts of coal mines occupational diseases; CMR; MMR; MRR, Company's Safety Management Plan (SMP) and Emergency Management Plan (EMP)

## Module 8: Follow Health, Safety, and Environmental guidelines for underground coal mines

Mapped to MIN/N1704, v1.0

### Terminal Outcomes:

- Follow worksite health and safety measures
- Follow environmental Guidelines

<i>Duration:20:00</i>	<i>Duration:30:00</i>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• List the preventive measures against firedamp, white damp, blackdamp etc.</li> <li>• Explain how to undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work (DGMS Tech. circulars 2/2014).</li> <li>• Discuss how to check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR while undertaking work in an area.</li> <li>• Throw light on various types of gases available in the mine and their effects; and their control measures.</li> <li>• Discuss how to comply with safety, health and security-related regulations/guidelines at the mine e.g. SOP for material handling in underground (U/G) mine.</li> <li>• Describe how to ensure that oil, grease, canvas or other inflammable material are stored in fire-proof receptacle.</li> <li>• List the safety precautions to be followed against spontaneous heating of the coal.</li> <li>• Discuss how to ensure that no person is traveling/working/staying under unsupported roof.</li> <li>• Throw light on how to take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment.</li> <li>• Discuss Safety Management Plan (SMP) and Emergency Management Plan (EMP) and precautions against U/G electrical appliances.</li> <li>• Discuss the safety guidelines specified by Directorate General of Mine Safety (DGMS) and selection process of person for rescue training.</li> </ul>	<ul style="list-style-type: none"> <li>• Show how to use the flame safety lamp for detecting the methane gas as per Standard Operating Procedure (SOP).</li> <li>• Demonstrate how to operate various types of fire extinguishers to control different types of fire at worksite, if required.</li> <li>• Display how to use self-rescue apparatus appropriately when required.</li> <li>• Read the line diagram of ventilation circuit to identify the working ventilation district to direct air to the working face.</li> <li>• Apply appropriate techniques to ensure that every instrument, apparatus and equipment are DGMS approved before these are used.</li> <li>• Demonstrate how to ensure that Armoured face conveyor (AFC) and chocks must be kept in straight line for every cycle of operations and tightened up to the setting pressure while keeping it in full contact with the roof, applicable for longwall mining.</li> <li>• Show how to provide first aid to an injured person.</li> <li>• Role-play the situations on how to report any symptoms of illness to the shift-incharge.</li> </ul>

- Elucidate on how to take proper care against damage and accidents while loading, transporting, dismantling and erecting of roof supports.
- Throw light on how to follow appropriate SOP while working near any isolated and sealed off area of the mine.
- Discuss the provision of medical examination (Initial Medical Examination (IME) & Periodical Medical Examination (PME)) of a person employed, as per Mines Rules 1955.
- List different types of machineries used in U/G mines.
- Enlist different types of supporting system used in U/G mines as per SSP and SSR.
- Cite precautions to be taken when handling heavy equipment.
- Discuss how to ensure that the roof and sidewalls of the mine face (or newly exposed area of the mines) have been scaled/ dressed properly.
- List relevant safety precautions to be taken during depillaring operation in UCM. (PC20)
- Recall the safety precautions to be followed while traveling on U/G haul roads, incase of post blast fumes and misfire.
- Discuss the manufacturer's instructions for care and safe operation of mine machinery and equipment.
- Throw light on the laid out SOP in case of alarm signal for leakage of inflammable gases.
- Explain the process of reporting any unsafe act/condition in the working area to the concerned person.
- Discuss how to use underground mine communication system.
- Elucidate how to ensure positive isolation near the work place if applicable.
- Discuss how to use appropriate Personal Protective Equipment (PPE) as per the requirement and safety equipment.
- Explain how to maintain hand hygiene by washing hands with alcohol based sanitisers/soap, disinfect the machine/tools before and after work/task and maintain hygiene at the work site.
- Discuss how to identify six directional hazards at workplace and take decisions accordingly.

- Discuss the environmental impact of mining related operations and steps to reduce those impacts.
- Throw light on the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery.
- Describe how to ensure that the stowing practices produce minimum disturbance to the surface.
- Summarise how to ensure that the subgrade coal is carried out to surface and stacked separately at the earmarked place.
- Throw light on how to ensure the productivity of the machine for material/fuel conservation.
- Outline the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines.
- Discuss the "5-S" practice at work site like cleaning oil from ground (to avoid soil from getting damaged), etc.
- Discuss the duties and rights of workers.
- List the various problems/incidents likely to occur.
- Throw light on the role of Internal Safety Organization, safety committee, workman's inspector and DGMS.
- State mine safety standard including light illumination level, noise levels, dust level, pollutants, etc. at the work-site.
- List common sources of pollution in the mines and ways to minimize it.
- Discuss shot-firing / blasting related safety regulations including taking shelter during blasting.
- Recall mining area-specific signs, and other safety and emergency signals.
- Discuss the outcome of violation of safety procedures.
- List safety appliances and rescue equipment.
- Discuss the safety and occupational health policy of organisation.
- Explain the importance of FAB (Fresh Air Base).
- State basic provisions in Mines Creche Rules, 1966 (MCR) for any females employed in the mines.

<ul style="list-style-type: none"> <li>• Discuss about basic safety regulations of Coal Mines Regulation,2017 (CMR).</li> <li>• List types of stone dust barrier and its importance.</li> <li>• Explain coal dust explosion and its preventive measures.</li> <li>• Outline the classification of coal mines as per the degree of gassiness of coal seams such as first degree, second degree, and third-degree mines.</li> <li>• List the precautions as per the gassiness of the coal mines.</li> <li>• Discuss about coal mines occupational disease such as pneumoconiosis or 'black lung' and their preventive measures.</li> <li>• List the roles, duties and responsibilities of rescue team members, rescue room and rescue station and how to contact them in case of emergency.</li> <li>• Enlist the correct steps for conducting any rescue work as per Mine Rescue Rule (MRR).</li> <li>• Summarize the importance of sensitization towards different genders and persons with disabilities (PWD).</li> <li>• Discuss the importance of waste management, hazardous material safety, security rules and regulations.</li> <li>• Throw light on importance of water/material/energy conservation and management.</li> </ul>	
<b>Classroom Aids</b>	
LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers	
<b>Tools, Equipment and Other Requirements</b>	
Helmet, gloves, harness, earplugs, Safety Goggles, Node mask, Safety shoes, Fire extinguisher, Types of log book, First Aid box, MCDR, MCR, Company’s SOP; Diagrams showing quarries, overhangs, fencing, etc.; samples of different types of rocks to be encountered; Mines Act; “5-S” Charts; Daily, Weekly, Monthly Maintenance/Defect sheets; Systematic Support Plan (SSP); Systematic Support Rules (SSR); self-rescue apparatus; Line Diagram of Ventilation Circuit; Alcohol based sanitisers; self-rescue apparatus; Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots; Diagrams of Armoured face conveyor; Charts of coal mines occupational diseases; CMR; MMR; MRR, Company’s Safety Management Plan (SMP) and Emergency Management Plan (EMP)	

# Annexure

## Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Class X	NA	6	Relevant experience required in Jack Hammer operations in the field of mining sector.	NA	-	-
<b>OR</b>						
ITI	Mechanical Engineering	6	Relevant experience required in Jack Hammer operations in the field of mining sector.	NA	-	-
<b>OR</b>						
Diploma	Mechanical Engineering	5	Relevant experience required in Jack Hammer operations in the field of mining sector.	NA	-	-
<b>OR</b>						
B-Tech	Mechanical Engineering	4	Relevant experience required in Jack Hammer operations in the field of mining sector.	NA	-	-
<b>OR</b>						
CITS-NCIC	Machinist & Operator, Advance Machine Tool	1	Relevant experience in mining	NA	-	-

Trainer Certification	
Domain Certification	Platform Certification
MIN/Q1202, V2.0 Jack Hammer Operator. Minimum accepted score as per SSC guideline is 80%.	MEP/Q2601, v2.0 Trainer (VET and Skills). Minimum accepted score as per SSC guideline is 80%.

## Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Class X	NA	8	Relevant experience required in Jack Hammer operations in the field of mining sector.	NA	-	-
<b>OR</b>						
ITI	Mechanical Engineering	8	Relevant experience required in Jack Hammer operations in the field of mining sector.	NA	-	-
<b>OR</b>						
Diploma	Mechanical Engineering	7	Relevant experience required in Jack Hammer operations in the field of mining sector.	NA	-	-
<b>OR</b>						
B-Tech	Mechanical Engineering	6	Relevant experience required in Jack Hammer operations in the field of mining sector.	NA	-	-
<b>OR</b>						
CITS-NCIC	Machinist & Operator, Advance Machine Tool	1	Relevant experience in mining	NA	-	-

Assessor Certification	
Domain Certification	Platform Certification
MIN/Q1202, V2.0 Jack Hammer Operator. Minimum accepted score as per SSC guideline is 80%.	MEP/Q2701, v2.0 Assessor (VET and Skills). Minimum accepted score as per SSC guideline is 80%.

## Assessment Strategy

### Assessment system Overview:-

Assessment will be carried out by SCMS affiliated assessment partners. Based on the results of assessment, SCMS certifies the learners. Candidates have to pass online theoretical assessment which is approved by SCMS.

The assessment will have both theory and practical components in 30:70 ratio.

While theory assessment is summative and an online written exam; practical will involve demonstrations of applications and presentations of procedures and other components. Practical assessment will also be summative in nature.

### Testing Environment:-

Training partner has to share the batch start date and end date, number of trainees and the job role.

Assessment is fixed for a day after the end date of training. It could be next day or later. Assessment will be conducted at the training venue.

Question bank of theory and practical will be prepared by assessment agency and approved by SCMS. From this set of questions, assessment agency will prepare the question paper. Theory testing will include multiple choice questions, pictorial question, etc. which will test the trainee on theoretical knowledge of the subject.

The theory and practical assessments will be carried out on same day. If number of candidates are many, more assessors and venue will be organized on same day of the assessment.

Assessment			
Assessment Type	Formative or Summative	Strategies	Examples
Theory	Summative	Written Examination	Knowledge of facts related to the job role and functions. Understanding of principles and concepts related to the job role and functions
Practical	Summative	Structured tasks	Presentation
Viva	Summative	Questioning and Probing	Mock interview on topics

## References

## Glossary

Term	Description
<b>Declarative Knowledge</b>	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
<b>Key Learning Outcome</b>	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
<b>OJT (M)</b>	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
<b>OJT (R)</b>	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
<b>Procedural Knowledge</b>	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
<b>Training Outcome</b>	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
<b>Terminal Outcome</b>	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

## Acronyms and Abbreviations

Term	Description
<b>NSQF</b>	National Skills Qualification Framework
<b>NSQC</b>	National Skills Qualification Committee
<b>NOS</b>	National Occupational Standards
<b>RE</b>	Rare Earths
<b>SIP</b>	Skill India Portal
<b>SOP</b>	Standard Operating Procedure
<b>SCMS</b>	Skill Council for Mining Sector
<b>NSQF</b>	National Skills Qualification Framework