



**QUALIFICATION FILE**

**Drill Operator {Down-the-hole/Long Hole (DTH/LH)}**

Short Term Training (STT)  Long Term Training (LTT)  Apprenticeship

Upskilling  Dual/Flexi Qualification  For ToT  For ToA

General  Multi-skill (MS)  Cross Sectoral (CS)  Future Skills  OEM

**NCrF/NSQF Level: 3.0**

**Submitted By:**

**Skill Council for Mining Sector (SCMS)**

**FIMI House, B-311,**

**Okhla Industrial, Phase-1**

**New Delhi-110020**

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Section 1: Basic Details

1.	<b>Qualification Name</b>	<b>Drill Operator {Down-the-hole/Long Hole (DTH/LH)}</b>																			
2.	<b>Sector/s</b>	<b>Mining</b>																			
3.	<b>Type of Qualification:</b> <input checked="" type="checkbox"/> New <input type="checkbox"/> Revised <input checked="" type="checkbox"/> Has Electives/Options <input type="checkbox"/> OEM	<b>NQR Code &amp; version of existing/previous qualification:</b> <i>(change to previous, once approved)</i> Not Applicable	<b>Qualification Name of existing/previous version:</b> Not Applicable																		
4.	<b>a. OEM Name</b> <b>b. Qualification Name</b> <i>(Wherever applicable)</i>	Not Applicable																			
5.	<b>National Qualification Register (NQR) Code &amp; Version</b> <i>(Will be issued after NSQC approval)</i>	QG-03-MG-02928-2024-V1-SCMS & Version 1.0	<b>6. NCrf/NSQF Level: 3.0</b>																		
7.	<b>Award (Certificate/Diploma/Advance Diploma/ Any Other)</b> <i>(Wherever applicable specify multiple entry/exits also &amp; provide details in annexure)</i>	Not Applicable																			
8.	<b>Brief Description of the Qualification</b>	The DTH/LH (Down the Hole/Long Hole) Drill Operator is responsible for drilling long holes and down holes in the mines by operating DTH/LH drill rig. They also ensure that the safety systems are working correctly and performing essential maintenance on the DTH/LH drill rig available in underground mines.																			
9.	<b>Eligibility Criteria for Entry for Student/Trainee/Learner/Employee</b>	<p style="text-align: center;"><b>a. Entry Qualification &amp; Relevant Experience:</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>S. No.</th> <th>Academic/Skill Qualification (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10th Grade pass or equivalent</td> <td></td> </tr> <tr> <td>2</td> <td>9th grade pass</td> <td>1.5 years in Mining Industry</td> </tr> <tr> <td>3</td> <td>8th grade pass</td> <td>3 years in Mining Industry</td> </tr> <tr> <td>4</td> <td>5th grade pass</td> <td>7.5 years in Mining Industry</td> </tr> <tr> <td>5</td> <td>Previous relevant Qualification of NSQF Level (2.0: Assistant-Underground Mines)</td> <td>3 years in Mining Industry</td> </tr> </tbody> </table> <p style="text-align: center;"><b>b. Age: 20 years</b></p>		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1	10th Grade pass or equivalent		2	9th grade pass	1.5 years in Mining Industry	3	8th grade pass	3 years in Mining Industry	4	5th grade pass	7.5 years in Mining Industry	5	Previous relevant Qualification of NSQF Level (2.0: Assistant-Underground Mines)	3 years in Mining Industry
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1	10th Grade pass or equivalent																				
2	9th grade pass	1.5 years in Mining Industry																			
3	8th grade pass	3 years in Mining Industry																			
4	5th grade pass	7.5 years in Mining Industry																			
5	Previous relevant Qualification of NSQF Level (2.0: Assistant-Underground Mines)	3 years in Mining Industry																			

10.	<b>Credits Assigned to this Qualification, Subject to Assessment</b> (as per National Credit Framework (NCrF))	13	<b>11. Common Cost Norm Category (I/II/III)</b> (wherever applicable): I																					
12.	<b>Any Licensing requirements for Undertaking Training on This Qualification</b> (wherever applicable)	Not Applicable																						
13.	<b>Training Duration by Modes of Training Delivery</b> (Specify <b>Total Duration</b> as per selected training delivery modes and as per requirement of the qualification)	<input checked="" type="checkbox"/> Offline <input type="checkbox"/> Online <input type="checkbox"/> Blended <table border="1" data-bbox="1032 312 2130 480"> <thead> <tr> <th>Training Delivery Modes</th> <th>Theory (Hours)</th> <th>Practical (Hours)</th> <th>OJT Mandatory (Hours)</th> <th>OJT Recommended (Hours)</th> <th>Total (Hours)</th> </tr> </thead> <tbody> <tr> <td>Classroom (offline)</td> <td>90:00</td> <td>150:00</td> <td>150:00</td> <td></td> <td>390</td> </tr> <tr> <td>Online</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> (Refer Blended Learning Annexure for details)					Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	90:00	150:00	150:00		390	Online					
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Classroom (offline)	90:00	150:00	150:00		390																			
Online																								
14.	<b>Aligned to NCO/ISCO Code/s</b> (if no code is available mention the same)	NCO-2015/8111.0300																						
15.	<b>Progression path after attaining the qualification</b> (Please show Professional and Academic progression)	NSQF Level 4.0 – Drilling Foreman (to be developed)																						
16.	<b>Other Indian languages in which the Qualification &amp; Model Curriculum are being submitted</b>	Hindi																						
17.	<b>Is similar Qualification(s) available on NQR-if yes, justification for this qualification</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No URLs of similar Qualifications:																						
18.	<b>Is the Job Role Amenable to Persons with Disability</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If “Yes”, specify applicable type of Disability:																						
19.	<b>How Participation of Women will be Encouraged</b>	By creating awareness in women and training them																						
20.	<b>Are Greening/ Environment Sustainability Aspects Covered</b> (Specify the NOS/Module which covers it)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																						
21.	<b>Is Qualification Suitable to be Offered in Schools/Colleges</b>	Schools <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Colleges <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																						
22.	<b>Name and Contact Details of Submitting / Awarding Body SPOC</b> (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	<b>Name:</b> Mr. Navneet Kumar <b>Email:</b> coo@skillcms.in, scms@skillcms.in <b>Contact No.:</b> +91-11-26814593 <b>Website:</b> https://www.skillcms.in/																						
23.	<b>Final Approval Date by NSQC:</b> 27th August, 2024	<b>24. Validity Duration:</b> 3 Years	<b>25. Next Review Date:</b> 26th August, 2027																					

Section 2: Module Summary

**NOS/s of Qualifications**

*(In exceptional cases these could be described as components)*

**Mandatory NOS/s:**

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

**Th.-Theory Pr.-Practical OJT-On the Job Man.-Mandatory Training Rec.-Recommended Proj.-Project**

S. No	NOS/Module Name	NOS/Module Code & Version <i>(if applicable)</i>	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) <i>(if applicable)</i>
1.	Prepare DTH/LH drill rig for operation	MIN/N1218, v1.0	Core	3.0	1	10	20	-	-	30	30	50	00	20	100	15
2.	Perform DTH/LH drilling operations	MIN/N1219, v1.0	Core	3.0	5	20	45	85	-	150	30	50	00	20	100	25
3.	Perform maintenance of the DTH/LH drill rig	MIN/N1220, v1.0	Core	3.0	4	10	45	65	-	120	30	50	00	20	100	25
4.	Employability Skills (30 Hours)	DGT/VSQ/N0101, v1.0	Non-core	2	1	30	-	-	-	30	20	30	00	00	50	10
<b>Duration (in Hours) / Total Marks</b>					<b>11</b>	<b>70</b>	<b>110</b>	<b>150</b>		<b>330</b>	<b>110</b>	<b>180</b>	<b>00</b>	<b>60</b>	<b>350</b>	<b>75</b>

**Elective NOS/s:**

S. No	NOS/Module Name	NOS/Module Code & Version <i>(if applicable)</i>	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) <i>(if applicable)</i>
1.	Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines	MIN/N1702, v2.0	Core	3.5	2	20	40			60	30	50	00	20	100	25
2.	Follow Health, Safety, and Environmental guidelines for underground coal mines	MIN/N1704, v2.0	Core	3.5	2	20	40			60	30	50	00	20	100	25
<b>Duration (in Hours) / Total Marks</b>					<b>4</b>	<b>40</b>	<b>80</b>			<b>120</b>	<b>60</b>	<b>100</b>	<b>00</b>	<b>40</b>	<b>200</b>	<b>50</b>

Optional NOS/s: Not Applicable

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks				
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total
1.															
2.															
<b>Duration (in Hours) / Total Marks</b>															

Assessment - Minimum Qualifying Percentage

Please specify **any one** of the following:

**Minimum Pass Percentage – Aggregate at qualification level:** 70 % (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

**Minimum Pass Percentage – NOS/Module-wise:** Not Applicable % (Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)

**Section 3: Training Related**

1.	<b>Trainer’s Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	10th Pass with 6 years of industry experience in drilling operations Or ITI (Mechanical /Mining) with 6 years of industry experience in drilling operations Or Diploma (Mechanical /Mining) with 5 years of industry experience in drilling operations Or B.Tech (Mechanical /Mining) with 4 years of industry experience in drilling operations
2.	<b>Master Trainer’s Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	10th Pass with 6 years of industry experience in drilling operations Or ITI (Mechanical /Mining) with 6 years of industry experience in drilling operations Or Diploma (Mechanical /Mining) with 5 years of industry experience in drilling operations Or B.Tech (Mechanical /Mining) with 4 years of industry experience in drilling operations
3.	<b>Tools and Equipment Required for Training</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If “Yes”, details to be provided in Annexure)
4.	<b>In Case of Revised Qualification, Details of Any Upskilling Required for Trainer</b>	Not Applicable

**Section 4: Assessment Related**

1.	<b>Assessor’s Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	10th Pass with 8 years of industry experience in drilling operations Or ITI (Mechanical /Mining) with 8 years of industry experience in drilling operations Or Diploma (Mechanical /Mining) with 7 years of industry experience in drilling operations Or B.Tech (Mechanical /Mining) with 6 years of industry experience in drilling operations
2.	<b>Proctor’s Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	Must be aware about the Skill Ecosystem

3.	<b>Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	Must be aware about the Skill Ecosystem
4.	<b>Assessment Mode (Specify the assessment mode)</b>	Tablet based/ Online
5.	<b>Tools and Equipment Required for Assessment</b>	<input checked="" type="checkbox"/> Same as for training <input type="checkbox"/> Yes <input type="checkbox"/> No (details to be provided in Annexure-if it is different for Assessment)

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	<b>Latest Skill Gap Study (not older than 2 years) (Yes/No):</b> No
2.	<b>Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):</b> No
3.	<b>Government /Industry initiatives/ requirement (Yes/No):</b> Yes
4.	<b>Number of Industry validation provided:</b> 17
5.	<b>Estimated nos. of persons to be trained and employed:</b> 600
6.	<b>Evidence of Concurrence/Consultation with Line Ministry/State Departments:</b> Yes If "No", why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	<b>Annexure:</b> NCrf/NSQF level justification based on NCrf level/NSQF descriptors (Mandatory)	Attached
2.	<b>Annexure:</b> List of tools and equipment relevant for qualification (Mandatory, except in case of online course)	Attached
3.	<b>Annexure:</b> Detailed Assessment Criteria (Mandatory)	Attached
4.	<b>Annexure:</b> Assessment Strategy (Mandatory)	Attached
5.	<b>Annexure:</b> Blended Learning (Mandatory, in case selected Mode of delivery is "Blended Learning")	Not Applicable
6.	<b>Annexure:</b> Multiple Entry-Exit Details (Mandatory, in case qualification has multiple Entry-Exit)	Filled
7.	<b>Annexure:</b> Acronym and Glossary (Optional)	Filled
8.	<b>Supporting Document:</b> Model Curriculum (Mandatory – Public view)	Attached

9.	<b>Supporting Document:</b> Career Progression ( <i>Mandatory - Public view</i> )	Attached
10.	<b>Supporting Document:</b> Occupational Map ( <i>Mandatory</i> )	Attached
11.	<b>Supporting Document:</b> Assessment SOP ( <i>Mandatory</i> )	Attached
12.	<b>Any other document you wish to submit:</b>	No

Annexure: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
<b>Professional Theoretical Knowledge/Process</b>	DTH/LH Drill Operator is responsible for drilling long holes and down holes in the mines by operating DTH/LH drill rig. They also ensure that the safety systems are working correctly and performing essential maintenance on the DTH/ LH drill rig available in underground/opencast mines.	The DTH/LH Drill Operator uses the required drilling rig drilling long holes and down holes in the underground/ opencast mines adhering to the health, safety and environmental guidelines.	3.0
<b>Professional and Technical Skills/ Expertise/ Professional Knowledge</b>	Code of practice in specific areas of mine. Significance of fences and benching in quarries, Dressing of overhangs, undercuts, Fencing, First aid and Hygiene. Impact of damaged equipment on the company. Provisions of Mines Act, and other regulations. Knowledge of cost of equipment and loss for the company that results from damage of equipment, functioning of DTH/LH drill rig and its various systems and components, normal running characteristics of DTH/LH drill rig, how to drill holes in mines by using DTH/LH drill rig and maintenance activities for a DTH/LH drill rig. Importance of sensitization towards different genders and persons with disabilities (PWD)	Operate and maintain DTH/LH drill rig in the underground and opencast mines as per the Directorate General of Mines Safety (DGMS) guidelines.  Run the DTH/LH drill rig in the mine area safely. Operate DTH/LH drill rig to drill holes in mines. Carry out preventive and break down maintenance of DTH/LH drill rig and its components.	3.0
<b>Employment Readiness &amp; Entrepreneurship Skills &amp; Mind-set/Professional Skill</b>	Skills to operate the DTH/LH drill rig for drilling long holes and down holes in the mines. Skills to carry out preventive and break down maintenance for DTH/LH drill rig and its components. Apply appropriate techniques to inspect DTH/LH drill rig to identify risks, hazards, defects or the need for adjustment /repair.	Provide full attention for production work in given time and make decisions pertaining to the concerned area of work. Operate and maintain DTH/LH drill rig. Also able to make decision in emergency condition.	3.0

<b>Broad Learning Outcomes/Core Skill</b>	Take responsibility for completing one's own work assignment, methods to avoid accidents/errors while working with DTH/LH drill rig. Use appropriate DTH/LH drill rig to drill holes and perform preventive maintenance of DTH/LH drill rig.	Records and note down the routine work and observation and comply task list related to safety aspect such as fire-fighting process, handling Explosive safely, control dust on haul road etc. and notify the same to senior. Hence, Communication written and oral, with minimum required clarity, skill of basic arithmetic and algebraic principles are required.	3.0
<b>Responsibility</b>	This job requires the individual to concentrate on the job at hand and complete it efficiently and effectively without any accidents. The individual should be skilled in operation and maintenance of DTH/LH drill rig. The individual must be able to follow instructions provided by supervisor.	Works independently as per the instruction of supervisor/ Shift In- charge/Mines Manager	3.0

Annexure: Tools and Equipment (Lab Set-Up)  
(subject to change as per Industry requirement)

List of Tools and Equipment  
Batch Size: 30

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Helmet	Approved by DGMS	15
2	Dust Mask	Approved by DGMS	15
3	Goggles	Approved by DGMS	15
4	Ear Plug	Approved by DGMS	15
5	Gloves	Approved by DGMS	15
6	Reflective Jacket	Approved by DGMS	15
7	Safety Belt	Approved by DGMS	5
8	Gum Boots/ Safety shoes	Approved by DGMS	15
9	Fire Extinguisher Cylinders		2
10	First Aid Box		2
11	Fire Fighting Charts		1
12	First Aid Charts		1
13	Company's Safety Management Plan (SMP) and Emergency Management Plan (EMP)		1
14	DTH/LH drill rig		1
15	Collar piping		4
16	Covering devices (plugs, cones, hessian bags)		1
17	Drilling components (drill rods, bits, augers, down hole hammer, down hole tools)		1
18	Flood lights		1
19	Hoses		1
20	Inclinometer		1
21	Long hole extension drills		1
22	Measuring tape		1
23	Oil	Recommended by Manufacturer	5 Ltrs
24	Paint (spray cans)		5
25	Scaling bars		4
26	Signs, Tapes and Measuring Tape		1
27	Compressed air cylinder		1
28	De-watering pumps		1
29	Basic tool box		1

**Classroom Aids**

The aids required to conduct sessions in the classroom are:

1. Whiteboard, Pin Up boards, Demonstration Table
2. LCD Projector
3. Computer/Laptop with Internet
4. Trainer Chair and Table
5. Tables
6. Whiteboard markers

Annexure: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1	Tata Steel Mining Limited	Pankaj Kumar Satija	Managing Director	Bhubaneswar, Odisha	8092084533	pk.satija@tatasteelmining.com	
2	IREL (India) Limited	V. Chandrasekhar	GM& Head RETTP & IREL Corporate Skill Development Co-ordinator	Mumbai	999511750	v.chandrasekhar@irel.co.in	
3	Sprint Techserve	Rishi Pandit	Director	Delhi	9899037990	reachus@sprinttech.co.in	
4	Super panel pvt. Ltd.	Ankit Kumar	Director	Uttar Pradesh	9899417898	director.superpanel@hotmail.com	
5	ASR Truck Links Pvt. Ltd	R.Kumar	Director	Chattisgarh	7828550882	asrtruckings@gmail.com	
6	Noble Product	Er. Rajinder Pal Singh	Director	Punjab	9914464422	nobleproduct@gmail.com	
7	RIZA Engineering Solution	Er. Rupinder Singh	Managing Director	Punjab	9646864422	rizaengineeringsolution@gmail.com	
8	True Akash Enterprises	Rhythm Sharma	Director	Punjab	9888739007	rythmsharma.2795@gmail.com	
9	BKS Builders and Consultants	Er. Manish Khanna	Managing Director	Punjab	9041424259	bksbuidersandconsultants@gmail.com	

10	Embracive society	Er. Rupinder Singh	Managing Director	Punjab	9780564422	embracivesociety@gmail.com	
11	Shri Om Automotive Products	Abhinav Jain	Managing Partner	Haryana	9729711099	abhinavjain@so-amp.com	
12	Sukinda Mines (Chromite), IMFA	Lalatendu Mahapatra	Sr. GM(Mining) & Head-COMO	Orissa	9937297058	lalatendumahapatra@imfa.in	
13	Mahagiri Mines (Chromite), IMFA	Lalatendu Mahapatra	Sr. GM(Mining) & Head-COMO	Orissa	9937297058	lalatendumahapatra@imfa.in	
14	Ramco Cements Limited	Thayaraja MP	Manager-Mines	Tamil Nadu	8277220505	thayaraj.86@gmail.com	
15	Ferro Alloys Corporation Ltd.	Muthumari M	Business Head - Mining	Odisha	9673221359	muthumari.m@vedanta.co.in	
16	Udaipur Chamber of Commerce & Industry	Col. Narendra Singh Shaktawat	CEO	Rajasthan	8000155660	ceo@ucciudaipur.com	
17	ERM Group	Dhananjaya G. Reddy	CEO	Karnataka	9449842341	dhananjaya@ermgroup.in	

Annexure: Training & Employment Details

**Training and Employment Projections:**

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
2024-25	100	100	25	25	0	0
2025-26	200	200	50	50	0	0
2026-27	300	300	75	75	0	0

*Data to be provided year-wise for next 3 years*

**Training, Assessment, Certification, and Placement Data for previous versions of qualifications:** Not Applicable

Qualification Version	Year	Total Candidates				Women				People with Disability			
		Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed

*Applicable for revised qualifications only, data to be provided year-wise for past 3 years.*

**List Schemes in which the previous version of Qualification was implemented:** NA

- 1.
- 2.

**Content availability for previous versions of qualifications:** Not Applicable

Participant Handbook  Facilitator Guide  Digital Content  Qualification Handbook  Any Other:

**Languages in which Content is available:** Will be created post NSQC Approval

Annexure: Blended Learning

**Blended Learning Estimated Ratio & Recommended Tools:**

**Refer NCVET “Guidelines for Blended Learning for Vocational Education, Training & Skilling” available on:**

<https://ncvet.gov.in/sites/default/files/Guidelines%20for%20Blended%20Learning%20for%20Vocational%20Education,%20Training%20&%20Skilling.pdf>

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline: Online Ratio
1	<input checked="" type="checkbox"/> Theory/ Lectures - Imparting theoretical and conceptual knowledge	<ul style="list-style-type: none"> <li>• Books/ e-books</li> <li>• Presentations</li> <li>• Reference Material</li> <li>• Audio / Video Modules</li> </ul>	Only Offline. Online only on exceptional cases.
2	<input checked="" type="checkbox"/> Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	<ul style="list-style-type: none"> <li>• Self-Learning Videos</li> <li>• Broadcasts</li> <li>• Mobile Learning</li> <li>• Curated Digital content</li> </ul>	Only Offline. Online only on exceptional cases.
3	<input checked="" type="checkbox"/> Showing Practical Demonstrations to the learners	<ul style="list-style-type: none"> <li>• Video Content</li> <li>• E-Resource library</li> <li>• AR/ VR/ XR</li> </ul>	Only Offline
4	<input checked="" type="checkbox"/> Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	<ul style="list-style-type: none"> <li>• Training tools (tools list attached)</li> <li>• Video Play</li> <li>• Presentations</li> </ul>	Only Offline
5	<input checked="" type="checkbox"/> Tutorials/ Assignments/ Drill/ Practice	<ul style="list-style-type: none"> <li>• Online Question Bank</li> <li>• Mobile Quick test app</li> <li>• MCQ based tests</li> </ul>	Only Offline. Online only on exceptional cases.
6	<input checked="" type="checkbox"/> Proctored Monitoring/ Assessment/ Evaluation/ Examinations	<ul style="list-style-type: none"> <li>• Assessment engine for Essays</li> <li>• Up-loadable file examinations</li> <li>• Mock test sessions</li> </ul>	Tablet based/Online
7	<input checked="" type="checkbox"/> On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	<ul style="list-style-type: none"> <li>• Online tests</li> <li>• Offline assessments</li> </ul>	Only Offline

Annexure: Detailed Assessment Criteria

Detailed assessment criteria for each NOS/Module are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
MIN/N1218: Prepare DTH/LH drill rig for operation	<i>Prepare for drilling work</i>	8	16	-	8
	PC1. identify the work requirements from the instructions received from supervisor and interpreting information from previous day/shift logbook	1	3	-	1
	PC2. use personal protective equipment appropriate for work activities	2	3	-	2
	PC3. select appropriate type of auxiliary equipment for work activities	1	3	-	1
	PC4. inspect and assess site conditions to determine if scaling is required and take action according to site requirements	2	4	-	2
	PC5. place visible orientation marks to drill plan according to site procedures	2	3	-	2
	<i>Inspect and prepare the DTH/LH drill rig for operation</i>	22	34	-	12
	PC6. check various controls, gauges, warning lamp, Roll-Over Protection Structure (ROPS) and Falling Object Protective Structure (FOPS), hydraulic boom, front and rear mounted stingers and other safety devices of the DTH/LH drill rig for proper functioning and any defect	2	4	-	2
	PC7. perform visual checks to detect cracks, wear and tear or any damage that could result in structural weakness	2	3	-	1
	PC8. check coolant level and oil levels of engine, differential, hydraulic tank etc. and top up/refill as required	2	3	-	1
	PC9. check electrolyte level, terminals, seating arrangements of the battery and take corrective actions as per SOP, if required	2	3	-	1
	PC10. check functioning of fire extinguishers, automatically operated fire suppression system and devices including fire detection system in the drill rig	2	3	-	1
	PC11. check under carriage and superstructure of the drill rig	2	3	-	1
	PC12. apply grease to all greasing pins and pivot points of the drill rig	2	3	-	1
	PC13. keep footplates and steps clean and free from mud, dirt and oil	2	3	-	1
	PC14. ensure that drilling site is clear of other mine workers to avoid any accidents	2	3	-	1
	PC15. maintain the operation and maintenance logbook to detail all activities conducted before starting the drill rig	2	3	-	1
PC16. report defects precisely to the supervisor if beyond scope of his/her role	2	3	-	1	
<b>Total Marks</b>		<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>
	<i>Move and position the DTH/LH drill rig at site</i>	10	16	-	6
	PC1. start the engine using the push-button switch and key switch together	2	3	-	1

<b>MIN/N1219: Perform DTH/LH drilling operations</b>	PC2. follow safety practices such as wear safety belt & helmet, no use of phones etc. while driving	1	2	-	1
	PC3. raise drill guide to 1.5m above ground level and make it horizontal to prevent any damage in transit	2	3	-	1
	PC4. look out for people working, stationary objects and hazards such as overhead pipes, power lines, etc. during driving	2	3	-	1
	PC5. follow the safety signs and locally developed signals during driving	1	2	-	1
	PC6. move, position and stabilise the drill rig at site according to ground conditions	2	3	-	1
	<i>Perform drilling activities</i>	<b>15</b>	<b>25</b>	-	<b>10</b>
	PC7. connect auxiliary devices and computer control system with the drill rig	1	2	-	1
	PC8. align drill rod with the orientation marks	1	2	-	1
	PC9. feed the drilling parameters i.e. angle of drill rod, drilling speed etc. in the computer control system as per the requirement and drill plan	1	2	-	1
	PC10. operate the DTH/LH drill rig safely within working environment limitations and face/ground conditions	2	3	-	1
	PC11. drills holes in the surface as per the drill plan	2	3	-	1
	PC12. realign equipment according to drill design and ground conditions	1	2	-	1
	PC13. monitor the ground conditions and adjust drilling techniques and components to maintain drilling operations	2	3	-	1
	PC14. install collar pipes according to site procedures	2	3	-	1
	PC15. remove drill cuttings and sludge to ensure drill hole remains clean	2	3	-	1
	PC16. complete all required documentation clearly, concisely and mark misdirected holes according to site procedures	1	2	-	1
	<i>Perform post-drilling activities</i>	<b>5</b>	<b>9</b>	-	<b>4</b>
	PC17. carry out shutdown procedures and de-rig equipment according to manufacturer specifications and site requirements	2	3	-	1
	PC18. clear site and remove auxiliary services according to site requirements	1	2	-	1
	PC19. drive back the drill rig and park the vehicle on firm, level ground; with handbrake applied and drive & controls disengaged after completion of work	1	2	-	1
PC20. complete all required documentation clearly, concisely and on time	1	2	-	1	
<b>Total Marks</b>	<b>30</b>	<b>50</b>	-	<b>20</b>	
<b>MIN/N1220: Perform maintenance of the DTH/LH drill rig</b>	<i>Prepare for maintenance work</i>	<b>4</b>	<b>8</b>	-	<b>4</b>
	PC1. identify the drill rig and its manufacturer's specifications from the user manual and drawings	1	2	-	1
	PC2. read maintenance schedule and checklist and plan the time and schedule for conducting the maintenance	1	2	-	1
	PC3. track machine operating hours to assess the right service schedule	1	2	-	1

PC4.	identify and arrange the tools, consumables and spare parts required during the task	1	2	-	1
<i>Repair and maintain the DTH/LH drill rig</i>		<b>20</b>	<b>33</b>	-	<b>13</b>
PC5.	follow safety practices during maintenance activities as per organisational SOP	1	2	-	1
PC6.	perform basic health check-up of DTH/LH drill rig as specified in the maintenance checklist	1	2	-	1
PC7.	check and maintain the tyre rims, air pressure, wheel nuts and treads	1	2	-	1
PC8.	check battery levels and condition of the terminals and carrying out minor adjustments if required	2	3	-	1
PC9.	replace/change the spare parts and consumables of the DTH/LH drill rig as per the schedule	2	3	-	1
PC10.	replenish coolants, lubricants and fluids as per SOP	2	3	-	1
PC11.	clean air filter dust bowls, footplates, pedals and steps and ensure that they are free from mud, or dirt	2	3	-	1
PC12.	check the condition of DTH/LH drill rig parts i.e. hydraulic boom, front and rear mounted stingers, bearings, shafts, battery systems, motors, wiring harness and connectors and other similar parts etc. to test its working status and expected conditions	2	3	-	1
PC13.	check the instrument panel and control gauge to identify out of range readings to find the defect/cause of failure	2	3	-	1
PC14.	check the systems of the DTH/LH drill rig to find out root cause of the problems like any leakage, short circuit in parts, breakage of wires and clamps, etc. and discuss the same with senior if required	2	3	-	1
PC15.	ensure that no diagnosis on the machine is performed when it is running or is still hot	1	2	-	1
PC16.	ensure proper lock out and tag out of machine to avoid any untoward incident triggered due to unknowingly operation of machine / system under maintenance	1	2	-	1
PC17.	assess when the problem is beyond his competence and report the problem to suitably qualified/designated and competent personnel	1	2	-	1
<i>Perform post-maintenance activities</i>		<b>6</b>	<b>9</b>	-	<b>3</b>
PC18.	conduct trials of the DTH/LH drill rig and verify that specified parameters are attained with no abnormalities	2	3	-	1
PC19.	dispose off waste materials such as failed parts/aggregates, as per organisation's policies	2	2	-	1
PC20.	fill the daily, weekly and monthly maintenance/defect sheets as per the format lay down by the organization	1	2	-	1
PC21.	record all repairs carried out, time taken and unplanned tasks encountered during the maintenance activities	1	2	-	-
<b>Total Marks</b>		<b>30</b>	<b>50</b>	-	<b>20</b>
<i>Introduction to Employability Skills</i>		<b>1</b>	<b>1</b>	-	-

<b>DGT/VSQ/N0101: Employability Skills (30 hours)</b>	PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
	<i>Constitutional values – Citizenship</i>	1	1	-	-
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
	<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
	PC3. explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
	<i>Basic English Skills</i>	2	3	-	-
	PC4. speak with others using some basic English phrases or sentences	-	-	-	-
	<i>Communication Skills</i>	1	1	-	-
	PC5. follow good manners while communicating with others	-	-	-	-
	PC6. work with others in a team	-	-	-	-
	<i>Diversity &amp; Inclusion</i>	1	1	-	-
	PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
	PC8. report any issues related to sexual harassment	-	-	-	-
	<i>Financial and Legal Literacy</i>	3	4	-	-
	PC9. use various financial products and services safely and securely	-	-	-	-
	PC10. calculate income, expenses, savings etc.	-	-	-	-
	PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
	<i>Essential Digital Skills</i>	4	6	-	-
	PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
	PC13. use internet and social media platforms securely and safely	-	-	-	-
	<i>Entrepreneurship</i>	3	5	-	-
	PC14. identify and assess opportunities for potential business	-	-	-	-
	PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-	
PC16. identify different types of customers	-	-	-	-	
PC17. identify customer needs and address them appropriately	-	-	-	-	
PC18. follow appropriate hygiene and grooming standards	-	-	-	-	
<i>Getting ready for apprenticeship &amp; Jobs</i>	1	3	-	-	
PC19. create a basic biodata	-	-	-	-	
PC20. search for suitable jobs and apply	-	-	-	-	
PC21. identify and register apprenticeship opportunities as per the requirement	-	-	-	-	
<b>Total Marks</b>	<b>20</b>	<b>30</b>	<b>-</b>	<b>-</b>	
<i>Follow work-site health and safety measures</i>	<b>24</b>	<b>42</b>	<b>-</b>	<b>17</b>	

<b>MIN/N1702: Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines</b>	PC1.	undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work	-	2	-	2
	PC2.	comply with safety, health and security- related regulations/guidelines at the mine e.g.follow Standard Operating Procedure (SOP) formaterial handling in underground (U/G) mine	1	3	-	-
	PC3.	operate various types of fire extinguishers tocontrol different types of fire at a worksite when required	1	4	-	1
	PC4.	check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR) while undertakingwork in an area	1	1	-	-
	PC5.	take precaution against occupational health hazards (like dust, water, mine gases etc.) due toU/G working environment	1	2	-	1
	PC6.	use self-rescue apparatus, appropriately whenrequired	-	4	-	1
	PC7.	follow appropriate emergency response procedure during emergency such as fire, waterinrush, fall of ground etc.	1	2	-	1
	PC8.	follow precautions against U/G electricalappliances	2	2	-	2
	PC9.	follow appropriate Standard Operating Procedure while working near any isolated andsealed off area of the mine	2	2	-	1
	PC10.	follow appropriate safety practices while traveling on U/G haul roads, incase of post blastfumes and misfire	2	4	-	-
	PC11.	follow the manufacturer’s instructions forcare and safe operation of mine machinery andequipment	1	2	-	1
	PC12.	identify the working ventilation district from line diagram of ventilation circuit to direct air to the working face	1	1	-	-
	PC13.	follow Safety Management Plan (SMP) and Emergency Management Plan (EMP)	1	-	-	-
	PC14.	follow gas detecting alarm signal on leakage of inflammable gases and laid out procedure to ensure safety	1	2	-	1
	PC15.	follow process for reporting any unsafe act/condition in work area to the concerned person	-	2	-	1
	PC16.	use underground mine communication system	-	1	-	-
	PC17.	ensure positive isolation near the work place if applicable	1	1	-	1
	PC18.	use appropriate PPE as per the requirement	2	4	-	2
	PC19.	maintain hand hygiene by washing hands with alcohol based sanitisers/soap	1	1	-	1
	PC20.	disinfect the machine/tools before and after work/task	1	1	-	-
	PC21.	maintain hygiene at the work site	1	1	-	1
	PC22.	report any symptoms of illness to the shift- incharge	1	-	-	-
	PC23.	identify six directional hazards at workplace and take decisions accordingly	2	-	-	-
		<i>Follow environmental guidelines</i>	<b>6</b>	<b>8</b>	-	<b>3</b>
PC24.	identify the environmental impact of mining related operations and follow steps to reduce those impact	1	2	-	-	

	PC25. follow the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery	-	1	-	-
	PC26. ensure that the stowing practices produce minimum disturbance to the surface	1	1	-	-
	PC27. ensure that the subgrade ore is carried out to surface and stacked separately at the earmarked place	1	-	-	1
	PC28. ensure the productivity of the machine for material/fuel conservation	1	1	-	-
	PC29. 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	1	1	-	1
	PC30. follow the "5-S" practice at work site like cleaning oil from ground (to avoid soil from getting damaged), etc.	1	2	-	1
	<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>
<b>MIN/N1704: Follow Health, Safety, and Environmental guidelines for underground coal mines</b>	<i>Follow work-site health and safety measures</i>	<b>24</b>	<b>43</b>	<b>-</b>	<b>14</b>
	PC1. follow preventive measures against firedamp, whitedamp, blackdamp etc.	1	1	-	-
	PC2. use the flame safety lamp for detecting the methane gas as per Standard Operating Procedure (SOP)	-	1	-	-
	PC3. undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work	1	1	-	1
	PC4. comply with safety, health and security-related regulations/guidelines at the mine e.g. SOP for material handling in underground (U/G) mine	1	1	-	1
	PC5. ensure that oil, grease, canvas or other inflammable material are stored in fire-proof receptacle	-	1	-	-
	PC6. ensure that every instrument, apparatus and equipment are DGMS approved before these are used	1	1	-	-
	PC7. ensure that Armoured face conveyor (AFC) and chocks must be kept in a 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	3	3	-	-
	PC8. provide first aid to an injured person	1	2	-	1
	PC9. follow safety precautions against spontaneous heating of the coal	1	1	-	-
	PC10. operate various types of fire extinguishers to control different types of fire at worksite, if required	-	2	-	-
	PC11. ensure that no person is traveling/working/staying under unsupported roof	1	-	-	-
	PC12. check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR) while undertaking work in an area	-	2	-	1
	PC13. take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment	-	1	-	1
	PC14. use self-rescue apparatus appropriately when required	-	2	-	-
	PC15. follow Safety Management Plan (SMP) and Emergency Management Plan (EMP)	1	2	-	1
PC16. follow precautions against U/G electrical appliances	2	2	-	1	

PC17.	take proper care against damage and accidents while loading, transporting, dismantling and erecting of roof supports	1	2	-	-
PC18.	follow appropriate SOP while working near any isolated and sealed off area of the mine	1	1	-	1
PC19.	ensure that the roof and the sidewalls of the mine face (or newly exposed area of the mines) have been scaled/dressed properly	1	1	-	-
PC20.	take relevant safety precautions during depillaring operation in UCM	-	2	-	1
PC21.	follow appropriate safety practices while traveling on U/G haul roads, incase of post blast fumes and misfire	1	1	-	-
PC22.	follow the manufacturer's instructions for care and safe operation of mine machinery and equipment	-	1	-	1
PC23.	identify the working ventilation district from line diagram of ventilation circuit to direct air to the working face	-	1	-	1
PC24.	follow laid out SOP in case of alarm signal for leakage of inflammable gases	1	1	-	-
PC25.	follow the process of reporting any unsafe act/condition in the working area to the concerned person	-	1	-	1
PC26.	use underground mine communication system	-	1	-	-
PC27.	ensure positive isolation near the work place if applicable	1	1	-	-
PC28.	use appropriate Personal Protective Equipment (PPE) as per the requirement	2	2	-	1
PC29.	maintain hand hygiene by washing hands with alcohol based sanitisers/soap	-	1	-	-
PC30.	disinfect the machine/tools before and after work/task	1	1	-	-
PC31.	maintain hygiene at the work site	1	1	-	-
PC32.	report any symptoms of illness to the shift- incharge	1	1	-	-
PC33.	identify six directional hazards at workplace and take decisions accordingly	-	1	-	1
	<i>Follow environmental guidelines</i>	<b>6</b>	<b>7</b>	<b>-</b>	<b>6</b>
PC34.	identify the environmental impact of mining related operations and follow steps to reduce those impact	1	1	-	1
PC35.	follow the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery	1	1	-	1
PC36.	ensure that the stowing practices produce minimum disturbance to the surface	1	1	-	-
PC37.	ensure that the subgrade coal is carried out to surface and stacked separately at the earmarked place	1	1	-	1
PC38.	ensure the productivity of the machine for material/fuel conservation	1	1	-	1
PC39.	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	-	1	-	1

	PC40. follow the "5-S" practice at work site like cleaning oil from ground (to avoid soil from getting damaged), etc.	1	1	-	1
	<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

**Annexure: Assessment Strategy**

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

*Mention the detailed assessment strategy in the provided template.*

**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.

<b>Assessment</b>			
<b>Assessment Type</b>	<b>Formative or Summative</b>	<b>Strategies</b>	<b>Examples</b>
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

### **Assessment Quality Assurance framework**

Only certified assessor can be assigned for conducting assessment. Provision of 100 % video recording with clear audio to be maintained and the same is to be submitted to SCMS.

The training partner will intimate the time of arrival of the assessor and time of leaving the venue.

#### **Methods of Validation: -**

Unless the trainee is registered, the person cannot undergo assessment. To further ensure that the person registered is the person appearing for assessment, id verification will be carried out. Aadhar card number is required of registering the candidate for training. This will form the basis of further verification during the assessment. Assessor conducts the assessment in accordance with the assessment guidelines and question bank as per the job role. The assessor carries tablet with the loaded questions. This tablet is geo tagged and so it is monitored to check their arrival and completion of assessment. Video of the practical session is prepared and submitted to SCMS. Random spot checks/audit is conducted by SCMS assigned persons to check the quality of assessment. Assessment agency will be responsible to put details in SIP.

SCMS will also validate the data and result received from the assessment agency.

#### **Method of assessment documentation and access**

The assessment agency will upload the result of assessment in the portal. The data will not be accessible for change by the assessment agency after the upload. The assessment data will be validated by SCMS assessment team. After upload, only SCMS can access this data. SCMS approves the results within a week and uploads on SIP.

Annexure: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
ISCO	International Standard Classification of Occupations
NCO	National Classification of Occupations
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework
OJT	On the Job Training

Glossary

Term	Description
<b>National Occupational Standards (NOS)</b>	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.
<b>Qualification</b>	A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards
<b>Qualification File</b>	A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification.
<b>Sector</b>	A grouping of professional activities on the basis of their main economic function, product, service or technology.
<b>Long Term Training</b>	Long-term skilling means any vocational training program undertaken for a year and above. <a href="https://ncvet.gov.in/sites/default/files/NCVET.pdf">https://ncvet.gov.in/sites/default/files/NCVET.pdf</a>