

QUALIFICATION FILE

Tunnel Safety Supervisor

☒ 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: 5

Submitted By:

Integrated Council for Entrepreneurship and Skilling

Address: 301-303, Suncity Trade Tower, Sector-21, Gurugram, Haryana-122016

Submitting Body Contact Details:

Name: Maya Thakur

Position in the Organization: Chief Executive Officer (CEO)

Address: Same as above

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Table of Contents

Section 1: Basic Details	3
Section 2: Module Summary	6
NOS/s of Qualifications	6
Mandatory NOS/s:	6
Elective(s):	7
Optional(s):	7
Assessment - Minimum Qualifying Percentage	8
Section 3: Training Related	9
Section 4: Assessment Related	10
Section 5: Evidence of the need for the Qualification	11
Section 6: Annexure & Supporting Documents Check List	11
Annexure: Evidence of Level.....	12
Annexure: Tools and Equipment (Lab Set-Up).....	15
Annexure: Industry Validations Summary	17
Annexure: Training & Employment Details	20
Annexure: Blended Learning	21
Annexure: Detailed Assessment Criteria.....	22
Annexure: Assessment Strategy	33
Annexure: Acronym and Glossary.....	36
Acronym.....	36
Glossary	39
Annexure: Career Progression	40

Section 1: Basic Details

1.	Qualification Name	Tunnel Safety Supervisor																	
2.	Sector/s	Construction																	
3.	Type of Qualification: ☒ New ☐ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: NA <i>(change to previous, once approved)</i>	Qualification Name of existing/previous version: NA																
4.	a. OEM Name b. Qualification Name <i>(Wherever applicable)</i>	NA																	
5.	National Qualification Register (NQR) Code & Version <i>(Will be issued after NSQC approval)</i>	NG-05-CO-046462025-V1-ICES & Version 1.0	6. NCrF/NSQFLevel: 5																
7.	Award (Certificate/Diploma/Advance Diploma/Any Other) <i>(Wherever applicable specify multiple entry/exits also & provide details in annexure)</i>	Certificate																	
8.	Brief Description of the Qualification	The Tunnel Safety Supervisor is responsible for ensuring the safety and regulatory compliance of tunnel operations. This role includes conducting regular safety inspections and audits to identify and mitigate potential hazards, ensuring adherence to safety standards and regulations. The supervisor develops and maintains emergency response plans, conducts safety drills and provides training to personnel on emergency procedures. Additionally, they coordinate with various teams to implement safety measures, continuously assess risks and take corrective actions to prevent accidents and ensure a safe working environment.																	
9.	Eligibility Criteria for Entry for Student / Trainee / Learner / Employee	a. Entry Qualification & Relevant Experience: <table border="1"> <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>Completed 2nd year of UG (UG Diploma) (B.E. / B.Tech in Civil Engineering)</td> <td>4 Years of Relevant Industry Experience</td> </tr> <tr> <td>2.</td> <td>12th Grade Pass</td> <td>5 Years of Relevant Industry Experience</td> </tr> <tr> <td>3.</td> <td>10th Grade Pass</td> <td>6 Years of Relevant Industry Experience</td> </tr> <tr> <td>4.</td> <td>Previous relevant Qualification of NSQF Level 4.5</td> <td>1.5 Years of Relevant Industry Experience</td> </tr> </tbody> </table>			S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1.	Completed 2 nd year of UG (UG Diploma) (B.E. / B.Tech in Civil Engineering)	4 Years of Relevant Industry Experience	2.	12 th Grade Pass	5 Years of Relevant Industry Experience	3.	10 th Grade Pass	6 Years of Relevant Industry Experience	4.	Previous relevant Qualification of NSQF Level 4.5	1.5 Years of Relevant Industry Experience
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)																	
1.	Completed 2 nd year of UG (UG Diploma) (B.E. / B.Tech in Civil Engineering)	4 Years of Relevant Industry Experience																	
2.	12 th Grade Pass	5 Years of Relevant Industry Experience																	
3.	10 th Grade Pass	6 Years of Relevant Industry Experience																	
4.	Previous relevant Qualification of NSQF Level 4.5	1.5 Years of Relevant Industry Experience																	

		b. Age: As Per Government Norms					
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	17	11. Common Cost Norm Category (I/II/III) (wherever applicable): I				
12.	Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)	Not Applicable					
13.	Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	Minimum Duration:					
		☐ Offline ☐ Online ☒ Blended					
		Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)
		Classroom (offline)	150	240	60		450
		Online	60				60
		Maximum Duration:					
		☐ Offline ☐ Online ☒ Blended					
		Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)
		Classroom (offline)	150	240	60		450
		Online	60				60
(Refer Blended Learning Annexure for details)							
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/3257.0600					
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	Tunnel Safety Engineer (NSQF Level: 6)					

16.	Other Indian languages in which the Qualification & Model Curriculum are being submitted	Hindi	
17.	Is similar Qualification(s) available on NQR-if yes, justification for this qualification	☐ Yes ☒ No URLs of similar Qualifications:	
18.	Is the Job Role Amenable to Persons with Disability	☐ Yes ☒ No If “Yes”, specify applicable type of Disability:	
19.	How Participation of Women will be Encouraged	Education and scholarships, inclusive hiring procedures, a welcoming work environment with gender-sensitive training and flexible policies—all play a part in encouraging women to apply for positions as tunnel safety supervisors. Public awareness campaigns, collaborations with women's organizations and professional development opportunities can all help to advance diversity and encourage more women to pursue careers in the area.	
20.	Are Greening/ Environment Sustainability Aspects Covered (<i>Specify the NOS/Module which covers it</i>)	☒ Yes ☐ No (Covered in ICE/CON/N9901)	
21.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools ☐ Yes ☒ No Colleges ☒ Yes ☐ No	
22.	Name and Contact Details of Submitting / Awarding Body SPOC (<i>In case of CS or MS, provide details of both Lead AB & Supporting ABs</i>)	Name: Maya Thakur Email: ceo@iceskills.in Contact No.: +91 9717900050 Website: www.iceskills.in	
23.	Final Approval Date by NSQC: 07-10-2025	24. Validity Duration: 3 Years	25. Next Review Date: 07-10-2028

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 to the curriculum document.

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

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.	OJ T-Rec .	Total	Th.	Pr.	Pr oj.	Viva	Total	Weightage (%) (if applicable)
1.	Implement Tunnel Site Safety Management System	ICE/CON/ N0601, v1.0	Core	5	3	15	65	10		90	30	60		10	100	15
2.	Conduct Hazard Identification, Risk Assessment & Control for Tunnelling	ICE/CON/ N0602, v1.0	Core	5	2	15	35	10		60	30	60		10	100	15
3.	Manage Ventilation, Gas Monitoring and Occupational Hygiene in Tunnels	ICE/CON/ N0603, v1.0	Core	5	3	15	65	10		90	30	60		10	100	15
4.	Emergency Preparedness, Rescue & Evacuation in Tunnel Works	ICE/CON/ N0604, v1.0	Core	5	1	10	10	10		30	30	60		10	100	15
5.	Manage Ground Support, Excavation Face Safety and Rockfall Controls	ICE/CON/ N0605, v1.0	Core	5	2	10	40	10		60	30	60		10	100	15
6.	Manage Plant, TBM, Mechanical & Blasting Safety in Tunnelling	ICE/CON/ N0606, v1.0	Core	5	3	15	65	10		90	30	60		10	100	15
7.	Implement Safe Work Practices and Environmental Stewardship at Construction Sites	ICE/CON/ N9901, v1.0	Core	4	1	10	20			30	30	60		10	100	5
8.	Employability Skills (60 Hours)	DGT/VSQ/N 0102, v1.0	Non-Core	4	2	60				60	20	30			50	5
Duration (in Hours) / Total Marks					17	150	300	60		510	230	450		70	750	100

Elective(s):

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

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

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	Weightage (%) (if applicable)
1.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Duration (in Hours) / Total Marks					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Optional(s):

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

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

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	Weightage (%) (if applicable)
1.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Duration (in Hours) / Total Marks					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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: ____% *(Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)*

NSQC Approved

Section 3: Training Related

		Minimum Educational Qualification	Specialization	Relevant Industry Experience		Preferable Training Experience	
				Years	Specialization	Years	Specialization
1.	Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Post Graduation	Civil Engineering	2	Site Safety Supervision (Tunnel Work)	1	Site Safety Supervision (Tunnel Work)
		OR					
		Graduation	Civil Engineering	4	Site Safety Supervision (Tunnel Work)	1	Site Safety Supervision (Tunnel Work)
		OR					
		Diploma	Civil Engineering	6	Site Safety Supervision (Tunnel Work)	1	Site Safety Supervision (Tunnel Work)
2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Post Graduation	Civil Engineering	5	Site Safety Supervision (Tunnel Work)	2	Site Safety Supervision (Tunnel Work)
		OR					
		Graduation	Civil Engineering	7	Site Safety Supervision (Tunnel Work)	2	Site Safety Supervision (Tunnel Work)
		OR					
		Diploma	Civil Engineering	9	Site Safety Supervision (Tunnel Work)	2	Site Safety Supervision (Tunnel Work)
3.	Tools and Equipment Required for Training	☒ Yes ☐ No (If "Yes", details provided in Annexure)					
4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	Not Applicable					

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Minimum Educational Qualification	Specialization	Relevant Industry Experience		Preferable Training/Assessment Experience	
				Years	Specialization	Years	Specialization
		Post Graduation	Civil Engineering	2	Site Safety Supervision (Tunnel Work)	1	Site Safety Supervision (Tunnel Work)
		OR					
		Graduation	Civil Engineering	4	Site Safety Supervision (Tunnel Work)	1	Site Safety Supervision (Tunnel Work)
		OR					
		Diploma	Civil Engineering	6	Site Safety Supervision (Tunnel Work)	1	Site Safety Supervision (Tunnel Work)
2.	Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Minimum Educational Qualification	Specialization	Relevant Technical Experience			
				Years		Specialization	
		Graduation	In any stream	1		in basic computer skills, documentation, coordination etc.	
		OR					
		Diploma	In any stream	2		in basic computer skills, documentation, coordination etc.	
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Minimum Educational Qualification	Specialization	Relevant Industry Experience		Preferable Training/Assessment Experience	
				Years	Specialization	Years	Specialization
		Post Graduation	Civil Engineering	10	Site Safety Supervision (Tunnel Work)	2	Site Safety Supervision (Tunnel Work)
		OR					
		Graduation	Civil Engineering	10	Site Safety Supervision (Tunnel Work)	2	Site Safety Supervision (Tunnel Work)

4.	Tools and Equipment Required for Training	☒ Yes ☐ No (If “Yes”, details provided in Annexure)
5.	Assessment Mode (Specify the assessment mode)	Offline
6.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ 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.	Latest Skill Gap Study (not older than 2 years) (Yes/No):	Yes
2.	Latest Market Research Reports or any other source (not older than 2years) (Yes/No):	Yes
3.	Government /Industry initiatives/ requirement (Yes/No):	Yes
4.	Number of Industry validations provided:	30
5.	Estimated nos. of people to be trained and employed:	2,100 & 1,500
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: If “No”, why:	In Process

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name:

1.	Annexure: NCrF/NSQF level justification based on NCrF level/NSQF descriptors (Mandatory)	Yes
2.	Annexure: List of tools and equipment relevant for qualification (Mandatory, except in case of online course)	Yes
3.	Annexure: Detailed Assessment Criteria (Mandatory)	Yes
4.	Annexure: Assessment Strategy (Mandatory)	Yes
5.	Annexure: Blended Learning (Mandatory, in case selected Mode of delivery is “Blended Learning”)	No
6.	Annexure: Multiple Entry-Exit Details (Mandatory, in case qualification has multiple Entry-Exit)	No
7.	Annexure: Acronym and Glossary (Optional)	Yes
8.	Supporting Document: Model Curriculum (Mandatory – Public view)	Yes
9.	Supporting Document: Career Progression (Mandatory - Public view)	Yes
10.	Supporting Document: Occupational Map (Mandatory)	Yes
11.	Supporting Document: Assessment SOP (Mandatory)	Yes
12.	Any other document you wish to submit:	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
Professional Theoretical Knowledge/Process	Possesses knowledge in multidisciplinary contexts, broadly, within the chosen fields of technology/ skills/ job role. Deeper knowledge and understanding of specialized field of technology / skills/ job role and its underlying principles, Acquired specialized knowledge and a range of cognitive and practical skills to accomplish tasks like basic design, prototyping, testing so as to solve a problem by selecting appropriate information, methods, tools, and materials. Multidisciplinary and specialized knowledge Possesses broad and deep knowledge and skills to solve problems in specialized fields.	The role of a Tunnel Safety Supervisor is directly aligned with NSQF Level descriptors, requiring deep theoretical understanding of tunnel construction and safety management. This role involves applying specialized knowledge to ensure safe operations, correlating with the NSQF requirement for theoretical comprehension of complex processes.	5
Professional and Technical Skills/ Expertise/ Professional Knowledge	Demonstrates cognitive specialised professional and technical skills required for performing and accomplishing difficult tasks relating to the chosen field/s of technology / skills/ job role; successfully applying techniques in routine or non-routine, Possesses a range of professional and technical skills, displays clarity of knowledge and practice in broad range of activities/ tasks. Project Management Skills, Skill to clearly identify the relevant tools or sometimes improvise the available tools and techniques; and has advance knowledge of materials in difficult situations and different contexts. Very good in data collecting organizing information, analysis and communication of results for informed decision making. Range of skills along with specialized domain skills Excellent cognitive skills and technical prowess utilized to perform complex tasks with ease, project management expertise, and adept at data analysis for informed decision making.	NSQF emphasizes the need for high-level technical skills and expertise. A Tunnel Safety Supervisor must exhibit proficiency in operating safety equipment, conducting risk assessments, and implementing safety protocols. This advanced technical knowledge matches the NSQF descriptors for professional skills at higher levels.	5
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	Possesses excellent oral and written communication and collaboration skills for clearly taking the vision of the leaders to the shop floor level workforce. Possesses very good Digital, Financial and Legal Literacy to use them effectively, Has a good understanding the constitutional, humanistic, ethical, and moral values. Organisation and Time Management, Very good in complex calculations,	The Tunnel Safety Supervisor role demands strong professional skills in leadership, decision-making, and communication, all of which are crucial for maintaining workplace safety. These competencies align with the NSQF 's focus on readiness for employment and the entrepreneurial mindset required for	5

	and mathematical and financial analysis skills for applied solutions. Has well informed practical understanding of the social, political and work environment. Exercise self management within the work contexts. Emotional Intelligence, May have an entrepreneurial Mind set for creating a startup/ small businesses and its end to end management Entrepreneurial mindset, self management. A versatile professional with excellent communication, digital and financial literacy, ethical values, self management and may have entrepreneurial mindset	effective safety management in dynamic environments.	
Broad Learning Outcomes/Core Skill	Demonstrates a wide range of specialized professional and technical skill in broad range of activity involving standard and non-standard practices. Apply the acquired specialized knowledge and a range of cognitive and practical skills to accomplish tasks like basic design, prototyping, testing so as to solve problems by selecting appropriate information, methods, tools, and materials. Communication and collaboration skills to act as a layer between the senior management and workforce/ shopfloor. Should be able to listen and understand properly and present complex information in a clear and concise manner, make judgement and take decision, based on the analysis and evaluation of information, for determining solutions to a variety of unpredictable problems associated with the chosen fields of learning, Takes responsibility for the nature and quality of outputs. Is able to work on processes to improve the quality of outputs, Can analyze and synthesize ideas, Uses discretion and judgement over a range of known and innovative responses to familiar and unfamiliar problems and issues. Judgement / decision making specialized. A skilled professional with technical expertise, adept at solving complex problems and improving output.	The NSQF highlights the importance of broad learning outcomes, such as critical thinking and teamwork. A Tunnel Safety Supervisor must utilize these core skills daily to anticipate and mitigate safety risks. This alignment ensures that the learning outcomes meet the NSQF 's criteria for equipping professionals with versatile, transferable skills.	5
Responsibility	Is accountable for determining and achieving personal and /or group tangible outcomes, Handles/ / adapts/ accommodates change requirements and change management at the ground/ shop floor level. Team Building, Manages processes and procedures within broad parameters for defined activities. Supervises the routine work of others, takes the required responsibility for the evaluation and improvement of work or study	The responsibility carried by a Tunnel Safety Supervisor is in line with higher NSQF levels, which demand the ability to manage teams, make critical decisions, and ensure safety compliance. This role reflects the NSQF descriptor for responsibility, demonstrating the supervisor 's capacity to handle significant	5

	activities. At level 4.5 the candidate is Highly skilled and works as a Junior Technical Supervisor. Constantly motivates, guides, mentors and trains the workforce. At level 5.0 the candidate is a Technical supervisor or junior/ deputy manager. Is responsible for managing an independent work unit/ shop floor/ section/ business activity/ assignment. Team leader Junior technical supervisor, Technical supervisor or junior/ deputy manager. Highly skilled Technical Supervisor responsible for achieving tangible outcomes, managing change, building teams, and mentoring the workforce	duties in high-risk environments, ensuring that safety standards are consistently met.	
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Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 30 Candidates

S. No.	Tool / Equipment Name	Specification	Units	Quantity for specified Batch size	Remarks
1.	Safety Helmet	Industrial safety helmet, IS 2925, green colour	Nos	30	
2.	Safety Shoes	Steel toe, anti-slip, ankle length, IS 15298	Pairs	30	
3.	High Visibility Jacket	Reflective, ANSI Class 2	Nos	30	
4.	Hand Gloves	Cut-resistant + general purpose	Pairs	30	
5.	Safety Goggles	Anti-fog, impact resistant	Nos	30	
6.	Ear Plugs / Ear Muffs	Noise reduction ≥ 25 dB	Sets	30	
7.	Respiratory Mask	N95 / P100 reusable type	Nos	30	
8.	Full Body Harness	With double lanyard & shock absorber	Sets	5	
9.	Cap Lamp / Head Lamp	Rechargeable, intrinsically safe	Nos	10	
10.	Safety Inspection Checklist Boards	Laminated, tunnel-specific	Nos	10	
11.	Permit-to-Work Display Board	Confined space, hot work, blasting	Nos	5	
12.	Incident Reporting Register	Hardbound, pre-formatted	Nos	5	
13.	Risk Assessment (JSA/HAZID) Formats	Printed + digital templates	Sets	30	
14.	Method Statement Files	Lever arch files	Nos	10	
15.	Training Matrix Board	Wall-mounted	Nos	2	
16.	Toolbox Talk Boards	Portable, writable	Nos	3	
17.	Digital Tablet / Laptop	Rugged, for safety reporting	Nos	3	
18.	Measuring Tape	30 m steel	Nos	3	
19.	Lux Meter	Digital, range 0–50,000 lux	Nos	3	
20.	Multi-Gas Detector	O ₂ , CO, CH ₄ , H ₂ S, NO _x	Nos	3	
21.	Single Gas Detector	CO / O ₂	Nos	3	
22.	Calibration Kit	Certified calibration gas & regulator	Sets	1	
23.	Ventilation Fan (Axial)	Portable, 600–800 mm	Nos	1	
24.	Ventilation Ducting	Flexible, fire retardant	Meters	30	
25.	Anemometer	Digital airflow meter	Nos	2	
26.	Dust Monitor	Respirable dust (PM2.5/PM10)	Nos	2	
27.	Noise Dosimeter	Personal exposure type	Nos	2	
28.	Fit Testing Kit	Qualitative respirator test kit	Sets	2	
29.	Air Sampling Pump	Personal air sampling	Nos	2	
30.	Breathing Apparatus (SCBA)	30–45 min capacity	Sets	2	
31.	Rescue Stretcher	Foldable, spinal support	Nos	2	
32.	Tripod Rescue System	Confined space rescue	Sets	2	

33.	Rescue Harness	Chest + full body	Nos	2	
34.	Rope Rescue Kit	Kernmantle rope with accessories	Sets	2	
35.	Emergency Alarm / Siren	Portable, rechargeable	Nos	2	
36.	Walkie-Talkies	Intrinsically safe, UHF	Sets	2	
37.	First Aid Kit	Tunnel-specific trauma kit	Sets	2	
38.	Fire Extinguisher	ABC type, 6 kg	Nos	2	
39.	Scaling Bar	Steel, 1.5–2 m	Nos	10	
40.	Torque Wrench	Rock bolt tightening	Nos	5	
41.	Rock Bolt Samples	Various types (mechanical/resin)	Sets	5	
42.	Wire Mesh Samples	GI mesh	Sq. Meters	20	
43.	Shotcrete Nozzle (Demo)	Training mock-up	Nos	1	
44.	Convergence Measuring Tape	Tunnel convergence monitoring	Nos	3	
45.	Crack Gauge	Mechanical type	Nos	2	
46.	Inspection Hammer	Geological hammer	Nos	2	
47.	Face Access Barricade	Portable safety barricade	Sets	5	
48.	Warning Signage Boards	Rockfall / No-entry	Nos	10	
49.	LOTO Kit	Locks, tags, hasps	Sets	5	
50.	Plant Safety Checklist	Laminated formats	Sets	10	
51.	Blasting Safety Flag & Whistle	Standard statutory type	Sets	5	
52.	Explosives Dummy Models	Training/inert type	Sets	2	
53.	TBM Safety Model	Cutaway / visual model	Nos	1	
54.	Emergency Stop Demonstrator	Training panel	Nos	1	
55.	Speed Limit & Traffic Signage	Tunnel-specific	Nos	10	
56.	Spill Control Kit	Oil & fuel spill	Sets	2	
57.	Fire-Resistant Tool Box	For electrical tools	Nos	5	
58.	Electrical Test Pen	Voltage detector	Nos	5	
59.	Safety Helmets Stickers	Signage & coding	Sets	30	
60.	Log Books	Gas, ventilation, inspection	Nos	30	
61.	Barricade Tape	Red/Yellow	Rolls	3	

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Training Kit (Trainer Guide, Presentations)
2. Whiteboard/ Blackboard
3. Marker
4. Projector
5. Working Model

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.	Sri Sai College of Engineering & Technology	Dr. Vipin Gupta	Director	Badhani Pathankot	9988244444	sarjanskilldevelopment@gmail.com	
2.	Baba Saheb Ambedkar Institute of Technology and Management	Anuradha	Principal	BSAITM Bhawan, Plot No.13, Budhella, Vikaspuri	7703917546	skills@bsates.com	
3.	Baba Saheb Ambedkar Polytechnic	Raj Kumar	Principal	Distt. Jhajjar, Haryana	7011291459	info@bsapolytechnic.com	
4.	Delhi Global Institute of Technology	Ms Shelly Rajput	Principal	VPO-Barhana, Distt Jhajjar	9873000679	info@delhiglobal.ac.in	
5.	IFI Developers Private Limited	Prateek	Associate Manager	VPO MP Majhra Tehsil Beri Distt. Jhajjar Haryana	7011170622	ifidevelopers1@gmail.com	
6.	Madhu Vachaspati Institute of Engineering & Technology	Samar Abbas	Registrar	Rasoolabad Urf Koilaha (Puranufti) G.T. Road	9838077859	samarmvgroup@gmail.com	
7.	Energy Care Efficiency	Dr. Vishal Gupta	Director Operation	335, Lane No.11, Chaman Vihar, Niranjanpur	9997889515	vishalrahi@gmail.com	
8.	Shrikant Gajanan Mhatre	Shrikant Gajanan Mhatre	Director	"Shiv Niwas", Sagar Society, Private High School Road, Tal. Pen, Dist. Raigad	9423379204	sshri1000@gmail.com	
9.	Patel Engineering	Ajit Parihar	Dy G M	Patel Estate Road, Jogeshwari (W), Mumbai - 400109	022-26767507	ajit.parihar@pateleng.com	
10.	The Northcap University	Dr Lokesh Choudhary	Assistant Professor	HUDA Sector 23A, Gurugram	132 2365811	lokeschoudhary@ncuindia.edu	

11.	Jitender Associates	Jitender Muningum	Proprietor	Plot No A175, Phase-II, Near Jalakanya Hotel Last Bus Stop Road, Kukatpally, Hyderabad	9849297759	jitendermuningum@gmail.com	
12.	L & Q Surveys Pvt Ltd	Dr S N Bansal	Chief Executive Officer	307, 3rd Floor, F-14, F Block, Middle Circle, Connaught Place	9811039706	lqsur@yahoo.com	
13.	Anupam Technology	Nileaysh Shriwaas	Director	Swastik Chowk, Godhani Road, Yavatmal - 445001, Maharashtra	9822464935	anupamtechnology@gmail.com	
14.	Pooja Swami Architect	Ms. Pooja Swami	Architect	Gurugarm	7820926350	swamipooja07@gmail.com	
15.	Global Reach Skill Training India Pvt Ltd	Mr. Yogesh Arunrao Bhusa	Director	United Pride Complex, Near MIT College, Beed Bypass Road, Chhatrapati Sambhajnagar	9075020068	grcenterinfo@gmail.com	
16.	Techno Park Skill Training India Pvt Ltd	Ms. Shila Dhage	Project Head	United Pride Complex, Near MIT College, Beed Bypass Road, Chatrapati Sambhaji Nagar	8275387887	tpiteducation@gmail.com	
17.	Trahan Livelihood Mission Pvt Ltd	Mr. Namdev Wankhede	Project Head	United Pride Complex, Near MIT College, Beed Bypass Road, Aurangabad	9049025245	trahoninfo@gmail.com	
18.	Studieux Atelier	Mr. Animesh Aggarwal	Principal Architect	9 Sai Lok, Phase 2, GMS Road, Niranjapur, Dehradun, Uttarakhand	8791237171	Studieuxatelier@gmail.com	
19.	Prabhodita Services India Pvt Ltd	Mr. Sharath Kalappa	Managing Director	#654, 1st floor, 1st Main Rd, TK Layout 4th Stage, TK Layout, Mysuru, Karnataka	9845472751	sharath.k@prabhodita.co.in	
20.	Yash Sharma (Architect)	Mr. Yash Sharma	Architect	Gurugram	9634581376	yashsharma770@gmail.com	
21.	Institute of Technological Studies	Tapan Bhanja Bihari	Chairman	Bhubaneswar, Odisha	9933215425	itsbbsr@yahoo.com	
22.	Rustomjee Prestige Vocational Education &	Mr Vinod S	General Manager	Prestige Terminus-2, Old Airport Exit Road, HAL, Bengaluru	7353300042	info@rpvetc.co.in	

	Training Centre LLP						
23.	National Institute of Technology Delhi	Dr. Ajay Kumar	Associate Professor	Zone P1, National Institute of Technology, Plot No.FA7, GT Karnal Rd, Garthi Khurad, Bakoli		ajay@nitdelhi.ac.in	
24.	Manav Rachna International Institute of Research & Study	Dr. Gurjeet Kaur	Dean Student Welfare	Faridabad	8527695490	dean.dsw@mriu.edu.in	
25.	Dynamite Duro India Pvt Ltd	Rahul Dev	Commercial Manager	Dehradun, Uttarakhand		info@dynamiteduro.com	
26.	Indian Coast Guard	PM Jain	Chief Engineer and Dy. Director	Goa			
27.	Aamdhan	Navneet Yadav	CBO	Hyderabad, Telangana	9455035118	support@amdhan.com	
28.	United Human Resource	Bhupinder Kumar	HR Manager	Rewari, Haryana	7056372603	infounitedhuman@gmail.com	
29.	Distil Education Society Pvt Ltd	Seraj Ahmed	Sr. Executive, HR	Dwarka, New Delhi	9350635425	crc@distiledum.com	
30.	GM Construction Group Company	Shailendra Rajput	Project Manager (North)	Khar, Mumbai, Maharashtra	8869862551	contact@gmconstruction.com	

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
2025-26	700	500	100	70	As per Industry requirement	As per Industry requirement
2026-27	700	500	100	70	As per Industry requirement	As per Industry requirement
2027-28	700	500	100	70	As per Industry requirement	As per Industry requirement

Data to be provided year-wise for next 3 years

Training, Assessment, Certification and Placement Data for previous versions of Qualifications:

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

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:

1. NA

Content availability for previous versions of qualifications:

☒ Participant Handbook ☒ Facilitator Guide ☒ Digital Content ☒ Qualification Handbook ☐ Any Other:

Languages in which Content is available: English and Hindi

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 NOS	List Recommended Tools – for all selected Components	Offline: Online Ratio
1.	☒ Theory/ Lectures - Imparting theoretical and conceptual knowledge	Laptop/PC	5:2
2.	☒ Imparting Soft Skills, Life Skills and Employability Skills / Mentorship to Learners	Laptop/PC	1:1
3.	☐ Showing Practical Demonstrations to the learners		
4.	☐ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shopfloor training		
5.	☐ Tutorials/ Assignments/ Drill/ Practice		
6.	☐ Proctored Monitoring/ Assessment/ Evaluation/ Examinations		
7.	☐ On the Job Training (OJT)/ Project Work Internship/ Candidate Training		

Annexure: Detailed Assessment Criteria

Compulsory NOSs:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Implement Tunnel Site Safety Management System	Establish Safety Management Arrangements for Tunnel Works	6	12		2
	PC 1 confirm and implement the project Tunnel Safety Management Plan (TSMP) as issued by project management				
	PC 2 ensure roles, responsibilities and communication lines for safety on the tunnelling site are documented and displayed				
	PC 3 coordinate with project EHS and engineering teams to integrate TSMP with construction programme				
	PC 4 verify that required permits, licenses and statutory registers are available on site				
	PC 5 ensure safety briefings and induction schedules are planned and delivered for all incoming personnel				
	Monitor Compliance with Safety Procedures and Statutory Requirements	6	12		2
	PC 6 conduct routine site safety inspections and record non-conformances				
	PC 7 ensure implementation of corrective and preventive actions within agreed timeframes				
	PC 8 verify the use and condition of safety equipment and PPE as per TSMP				
	PC 9 report incidents, near misses and unsafe acts/conditions as per reporting procedures				
	PC 10 liaise with regulators and project QA/EHS for audits and inspections				
	Safety Documentation and Record-Keeping	6	12		2
	PC 11 maintain daily safety logs, gas monitoring records, ventilation logs, and permits (confined space, hot work, LOTO, blasting)				
	PC 12 ensure accurate attendance, competency and medical fitness records for tunnel workforce				
	PC 13 manage issuance, review and archival of method statements and risk assessments				
	PC 14 prepare and submit periodic safety performance reports to site management				
	PC 15 ensure signage, hazard maps and emergency contact lists are current and accessible				
	Training, Competency and Toolbox Talks	6	12		2
	PC 16 identify safety training needs and ensure competence verification before assignment				
	PC 17 schedule and conduct site-specific toolbox talks and safety drills				
	PC 18 ensure specialist training (confined space, breathing apparatus, gas monitoring, emergency rescue) is current				
	PC 19 monitor on-the-job coaching and corrective instruction for unsafe behaviour				
	PC 20 maintain training matrix and certificates for audit				

	Contractor/Subcontractor Safety Management	6	12		2
	PC 21 verify that subcontractors submit safety method statements and risk assessments before commencement				
	PC 22 conduct pre-start safety meetings with subcontractor supervisors				
	PC 23 monitor subcontractor adherence to TSMP and take action on non-compliance				
	PC 24 ensure coordination of interfaces (traffic, hoisting, muck handling) to prevent cross-contractor hazards				
	PC 25 enforce contractor performance metrics and include safety KPIs in reviews				
NOS Total		30	60		10

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Conduct Hazard Identification, Assessment & Control for Risk Tunnelling	Prepare for Hazard Identification and Risk Assessment	6	12		2
	PC 1 obtain available geotechnical, design and method statement documents				
	PC 2 identify work activities, access routes and interfaces to be assessed				
	PC 3 assemble competent assessment team including ground/geo engineers and equipment supervisors				
	PC 4 select and confirm appropriate risk assessment method (JSA, HAZID, HAZOP, SWMS)				
	PC 5 schedule assessments to coincide with high-risk activities and changes in conditions	6	12		2
	Identify Hazards and Evaluate Risks				
	PC 6 identify hazards related to ground instability, rockfall, water ingress, gas, dust, ventilation, machinery, lifting and blasting				
	PC 7 assess likelihood and consequence to determine risk rating using agreed matrix				
	PC 8 record existing controls and their effectiveness				
	PC 9 consider cumulative and emergent risks from work sequencing and environmental changes				
	PC 10 communicate assessment findings to site management and affected teams	6	12		2
	Implement Risk Controls and Monitor Effectiveness				
	PC 11 define and implement hierarchy of controls: elimination, substitution, engineering, administrative and PPE				
	PC 12 ensure appropriate ground support, shoring, mesh, rock bolting, and shotcrete measures are implemented where identified				
	PC 13 implement temporary access, exclusion zones and signage for hazards	6	12		2
	PC 14 assign responsible persons for implementation and monitoring of controls				

	PC 15 review controls after incidents, near misses, or condition changes and update RA/SWMS				
	Verify Competence for High-Risk Tasks				
	PC 16 establish procedure for immediate stop and reassessment when ground conditions change				
	PC 17 ensure geotechnical and design team input for changed conditions				
	PC 18 update method statements and risk assessments promptly and re-communicate to workforce				
	PC 19 control and supervise any trial or remedial works				
	PC 20 record decisions and approvals for change control				
	Contractor/Subcontractor Safety Management				
	PC 21 ensure persons undertaking tasks (bolting, scaling, blasting, TBM operation) are competent and certified where required				
	PC 22 verify PPE, tools and equipment suitability for the identified hazard controls				
	PC 23 supervise high-risk activities and ensure spot checks are performed				
	PC 24 maintain competency and certification records for high-risk roles				
	PC 25 conduct post-task reviews to capture lessons and update controls				
	NOS Total	30	60		10

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Manage Ventilation, Gas Monitoring and Occupational Hygiene in Tunnels	Plan Ventilation and Monitoring Needs	6	12		2
	PC 1 review design ventilation requirements and method statements for activity types				
	PC 2 identify location and type of fixed and portable gas monitors and air sampling points				
	PC 3 ensure ventilation equipment (fans, ducts, silencers) is available, certified and correctly sized				
	PC 4 confirm maintenance and calibration schedules for monitors and fans				
	PC 5 coordinate with plant operators to establish airflow routes and contingencies	6	12		2
	Implement and Monitor Gas and Air Quality Controls				
	PC 6 ensure continuous monitoring for oxygen, carbon monoxide, methane, NOx and other specified gases				
	PC 7 record and interpret gas readings and take immediate action on exceedances (evacuation, ventilation increase)				
	PC 8 monitor particulate (dust) levels and ensure dust suppression measures are in place (water sprays, extraction)				
	PC 9 ensure use of respiratory protective equipment when controls cannot adequately reduce exposures	6	12		2
	PC 10 ensure isolation of ignition sources if flammable gas detected and follow hot-work permit suspension				
	Maintain and Test Ventilation and Monitoring Equipment				
	PC 11 ensure pre-shift and periodic checks on fans, ducting, filters and monitors are carried out and recorded				
	PC 12 ensure routine bump tests and calibrations of portable gas detectors are completed				
	PC 13 arrange preventive maintenance and rapid repairs to ventilation plant to prevent loss of airflow				
	PC 14 keep logs of airflow measurements and calibration certificates	6	12		2
	PC 15 implement redundancy plans for critical plant failures (spare fans, backup power)				
	Occupational Hygiene Controls and Worker Protection				
	PC 16 ensure health surveillance, baseline medicals and occupational hygiene monitoring as required				
	PC 17 confirm controls for noise, vibration, diesel exhaust and silica dust are implemented				
	PC 18 ensure fit testing of respirators and that RPE selection matches hazard				
	PC 19 coordinate with health team for exposure records and corrective measures				
	PC 20 promote hygiene facilities (washing, separate eating areas) to reduce ingestion/contamination risks				

	Response to Gas/Air Quality Alarms and Incidents	6	12		2
	PC 21 implement emergency ventilation and evacuation procedures on alarm				
	PC 22 ensure rescue and medical arrangements for contaminated atmosphere events				
	PC 23 preserve and hand over monitoring logs and instrument data for investigation				
	PC 24 debrief and update control measures following an air quality incident				
	PC 25 ensure corrective actions to prevent recurrence are tracked and closed				
NOS Total		30	60		10

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Emergency Preparedness, Rescue & Evacuation in Tunnel Works	Develop and Maintain Tunnel Emergency Plans	6	12		2
	PC 1 prepare site-specific emergency response plans for foreseeable tunnel incidents (fire, gas leak, collapse, flooding)				
	PC 2 ensure plans include roles, communication lines, muster points and rescue resources				
	PC 3 coordinate with local emergency services and project emergency coordination team				
	PC 4 ensure availability and location mapping of rescue equipment (breathing apparatus, stretchers, rescue harnesses, ventilation spares)				
	PC 5 keep up-to-date contact lists and incident decision trees	6	12		2
	Establish Rescue Team and Training				
	PC 6 identify, train and maintain a competent on-site rescue team for confined space and tunnel rescue				
	PC 7 ensure team members have valid certificates for breathing apparatus, rope rescue, first aid and casualty handling				
	PC 8 schedule routine drills (full scale and tabletop) and record outcomes and improvement actions				
	PC 9 ensure rescue team is rostered and available for shiftwork and emergency call-outs	6	12		2
	PC 10 provide refresher training and competency assessment on rescue procedures				
	Emergency Detection, Alarm and Communication				
	PC 11 ensure reliable alarm/PA systems are installed and tested				
	PC 12 confirm redundant communication methods (cable phones, UHF radios, leaky feeder, runner) are functional in tunnel zones				
	PC 13 ensure clear procedures for raising, escalating and recording alarms	6	12		2
	PC 14 test failover communications during drills and maintain logs				
	PC 15 ensure emergency signage and escape wayfinding are visible and maintained				

	Execute Evacuation and Rescue Operations	6	12		2
	PC 16 confirm situation, isolate hazard (if safe) and initiate evacuation plan on receipt of alarm				
	PC 17 coordinate rescue team deployment, ensuring their safety (breathing apparatus, airway management)				
	PC 18 manage casualty handling and handover to onsite medical facility or external services				
	PC 19 secure scene for investigation after immediate rescue and medical needs are met				
	PC 20 initiate post-incident welfare support and worker account for all personnel				
	Review, Learn and Improve Emergency Arrangements	6	12		2
	PC 21 conduct after-action reviews and incident investigations with multidisciplinary inputs				
	PC 22 update emergency plans, training records and control measures based on lessons learned				
	PC 23 maintain inventory, condition and service records of rescue equipment				
	PC 24 ensure corrective actions from drills or incidents are implemented and tracked				
	PC 25 communicate improvements and revised plans to all site personnel				
	NOS Total	30	60		10

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Manage Ground Support, Excavation Face Safety and Rockfall Controls	Prepare Ground Support Plan Implementation	6	12		2
	PC 1 review ground support design and manufacturer's instructions for support materials				
	PC 2 confirm availability and quality certificates of support materials (bolts, mesh, shotcrete)				
	PC 3 ensure method statements specify installation sequence, equipment and QA checks				
	PC 4 establish exclusion zones and access control for face works				
	PC 5 ensure scaffoldings, platforms and anchorage for installers comply with design				
	Supervise Rock Bolting and Mesh Installation	6	12		2
	PC 6 verify drilling patterns, bolt lengths and torque/anchorage as per design				
	PC 7 ensure proper scaling and removal of loose material before support installation				
	PC 8 confirm installation checks (pull tests, torque checks) are performed and recorded				
	PC 9 enforce safe working distances and PPE for installers				
	PC 10 ensure splicing/overlapping of mesh and correct fixation to anchors				
	Supervise Shotcrete and Temporary Lining Works	6	12		2
	PC 11 ensure shotcrete mix, delivery and nozzle operator procedures meet specified design				
	PC 12 confirm curing, reinforcement placement and lining thickness checks				
	PC 13 implement controls for rebound, dust suppression and nozzle safety				
	PC 14 ensure inspection of temporary lining before access is permitted				

	PC 15 coordinate with ventilation to control dust and exhaust when shotcreting				
	Manage Testing, Instrumentation and Monitoring				
	PC 16 ensure geotechnical instrumentation is installed and readings logged (convergence, load on bolts)				
	PC 17 review instrumentation data and escalate anomalies	6	12		2
	PC 18 schedule and supervise pre-task and post-task inspections of face and support				
	PC 19 ensure corrective measures are implemented for observed instability				
	PC 20 maintain a record of tests, inspections and remedial actions				
	Control Working at Face and Exclusion Zones				
	PC 21 enforce single-entry procedures and access permits for face areas	6	12		2
	PC 22 monitor personnel movement and ensure no-go zones are respected during high-risk activities				
	PC 23 manage mucking and haulage to avoid undermining face support or creating vibration				
	PC 24 ensure equipment used near face is correctly rated and inspected				
	PC 25 stop operations when unsafe conditions are observed and re-assess				
	NOS Total	30	60		10

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Manage Plant, TBM, Mechanical & Blasting Safety in Tunnelling	Ensure Plant/Equipment Safety and Certification	6	12		2
	PC 1 verify plant has valid inspection and certification and is suitable for the intended tunnelling task				
	PC 2 ensure pre-shift and periodic plant checks are completed and logged				
	PC 3 confirm guarding, interlocks and emergency stops are functional				
	PC 4 ensure operators hold required licences/certificates and undergo site induction				
	PC 5 manage fuel, lubrication and hazardous substances storage in line with safety procedures	6	12		2
	Supervise TBM and Mechanised Operations				
	PC 6 confirm TBM safety systems (overpressure protection, egress, cutter inspection) are maintained				
	PC 7 ensure TBM work procedures (cutter change, segment installation) are carried out under safe conditions and method statements				
	PC 8 coordinate TBM thrust, backup activities and muck removal to maintain stability and safe access				
	PC 9 ensure confined space and egress procedures for TBM interior work				

PC 10	verify lockout/tagout and control measures during TBM maintenance				
Manage Drill & Blast Operations					
PC 11	ensure explosives handling, storage, transport and use comply with statutory requirements and project procedures				
PC 12	ensure blasting plans including delay patterns, stemming and exclusion zones are reviewed and authorized	6	12		2
PC 13	verify pre-blast warnings, evacuation and monitoring are completed				
PC 14	ensure post-blast inspection and clearance before re-entry				
PC 15	maintain explosives register and competency records for blasters				
Control Mobile Plant Interactions and Haulage					
PC 16	ensure segregation of pedestrian and mobile plant routes in tunnel work areas				
PC 17	implement vehicle short-loading, reversing and illumination controls in confined spaces	6	12		2
PC 18	verify maintenance regimes and emergency response for mobile plant incidents				
PC 19	ensure drivers/operators adhere to speed limits and route controls				
PC 20	supervise safe coupling/uncoupling of muck haulage equipment				
Manage LOTO, Maintenance and Emergency Stop Systems					
PC 21	ensure LOTO procedures are in place and applied for mechanical and electrical maintenance				
PC 22	verify lockout devices, permits and isolation records before maintenance				
PC 23	ensure emergency stop and rescue access routes around plant are maintained	6	12		2
PC 24	ensure competence and supervision during plant repairs and align with manufacturer instructions				
PC 25	record and investigate plant-related incidents to prevent recurrence				
NOS Total		30	60		10

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Follow Environment, Health and Safety (EHS) Guidelines at Construction Sites	Identify hazards and risks	6	12		2
	PC 1 identify common construction site hazards, including falling objects, slippery surfaces and electrical risks				
	PC 2 evaluate the potential risks				
	PC 3 report the identified hazards to the supervisor or safety officer	6	12		2
	Comply with safety standards				
	PC 4 use and maintain personal protective equipment (PPE) such as helmets, gloves, safety boots and harnesses				
	PC 5 follow signage and barricading instructions to avoid restricted or hazardous areas	6	12		2
	PC 6 adhere to safe lifting techniques and tools to minimize strain and injuries				
	Follow health and hygiene guidelines				
	PC 7 maintain personal hygiene by using clean drinking water and designated rest areas	6	12		2
	PC 8 report health symptoms (e.g., respiratory issues, heatstroke) promptly to the designated authority				
	PC 9 ensure proper handling and disposal of materials that may pose health risks, such as asbestos or chemicals				
	Follow environmental protection measures	6	12		2
	PC 10 follow appropriate measures to prevent the spillage of construction materials and chemicals that may harm the environment				
	PC 11 carry out waste segregation activities into biodegradable and non-biodegradable for recycling and disposal				
	PC 12 follow protocols for conserving water and energy at the construction site	6	12		2
	Handle emergencies				
	PC 13 identify emergency alarms and evacuation routes				
	PC 14 use firefighting equipment (fire extinguishers, sand buckets) properly, when necessary	6	12		2
	PC 15 assist in first-aid or CPR procedures, if required				
NOS Total		30	60		10

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Employability Skills (60 Hours)	Introduction to Employability Skills	1	1		
	PC 1 understand the significance of employability skills in meeting the current job market requirement and future of work				
	PC 2 identify and explore learning and employability relevant portals				
	PC 3 research about the different industries, job market trends, latest skills required and the available opportunities	1	1		
	Constitutional values – Citizenship				
	PC 4 recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.				
	PC 5 follow environmentally sustainable practices	1	3		
	Becoming a Professional in the 21st Century				
	PC 6 recognize the significance of 21st Century Skills for employment				
	PC 7 practice the 21st Century Skills such as Self Awareness, behavioral skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	3	4		
	PC 8 adopt a continuous learning mindset for personal and professional development				
	Basic English Skills				
	PC 9 use basic English for everyday conversation in different contexts, in person and over the telephone	1	2		
	PC 10 read and understand routine information, notes, instructions, mails, letters etc. written in English				
	PC 11 write short messages, notes, letters, e-mails etc. in English				
	Career Development & Goal Setting	2	2		
	PC 12 identify career goals based on the skills, interests, knowledge and personal attributes				
	PC 13 prepare a career development plan with short- and long-term goals				
	Communication Skills	1	1		
	PC 14 follow verbal and non-verbal communication etiquette while communicating in professional and public settings				
	PC 15 use active listening techniques for effective communication				
	PC 16 communicate in writing using appropriate style and format based on formal or informal requirements	1	1		
	PC 17 work collaboratively with others in a team				
	Diversity & Inclusion				
	PC 18 communicate and behave appropriately with all genders and PwD	1	1		
	PC 19 escalate any issues related to sexual harassment at workplace according to POSH Act				

	Financial and Legal Literacy				
	PC 20 identify and select reliable institutions for various financial products and services such as bank accounts, debit and credit cards, loans, insurance etc.	2	3		
	PC 21 carry out offline and online financial transactions, safely and securely, using various methods and check the entries in the passbook				
	PC 22 identify common components of salary and compute income, expenses, taxes, investments etc				
	PC 23 identify relevant rights and laws and use legal aid to fight against legal exploitation				
	Essential Digital Skills	3	5		
	PC 24 operate digital devices and use their features and applications securely and safely				
	PC 25 carry out basic internet operations by connecting to the internet safely and securely, using mobile data or other available networks through Bluetooth, Wi-Fi, etc				
	PC 26 display responsible online behaviour while using various social media platforms				
	PC 27 create a personal email account, send and process received messages as per requirement				
	PC 28 carry out basic procedures in documents, spreadsheets and presentations using respective and appropriate applications				
	PC 29 utilize virtual collaboration tools to work effectively				
	Entrepreneurship	2	3		
	PC 30 identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research				
	PC 31 develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion				
	PC 32 identify sources of funding, anticipate and mitigate any financial/ legal hurdles for the potential business opportunity				
	Customer Service	1	2		
	PC 33 identify different types of customers and ways to communicate with them				
	PC 34 identify and respond to customer requests and needs in a professional manner				
	PC 35 use appropriate tools to collect customer feedback				
	PC 36 follow appropriate hygiene and grooming standards				
	Getting ready for apprenticeship & Jobs	2	3		
	PC 37 create a professional Curriculum vitae (Resume)				
	PC 38 search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively				
	PC 39 apply to identified job openings using offline /online methods as per requirement				
	PC 40 answer questions politely, with clarity and confidence, during recruitment and selection				
	PC 41 identify apprenticeship opportunities and register for it as per guidelines and requirements				
	NOS Total	20	30		

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.

1. Assessment System Overview:

Assessment is done through ICES affiliated Assessment Agencies. Assessors are trained & certified by ICES after Training of Assessor (ToA) program. Assessments are conducted to gauge and assess the trainee's skill and knowledge competency in the specified areas.

The assessment will have both theory, practical and viva components as per ratio specified in each NOS for **Tunnel Safety Supervisor** job role.

During the practical task, trainees are assessed on their workmanship, quality of finished product and time management. They will be graded for all their assessments based on the approved assessment strategy which is signed off by ICES. The Assessor submits an assessment plan to ICES prior to assessments.

The assessment plan contains the following information:

- What will be assessed, i.e. the competency based on each NOS based on theory, practical and viva questions
- How assessment will occur i.e. methods of assessment
- When the assessment will occur
- Duration of assessment
- Where the assessment will take place i.e. context of the assessment (workplace/simulation)
- The criteria for decision making i.e. those aspects that will guide judgments
- Where appropriate, any supplementary criteria are used to make a judgment on the level of performance.

ICES will be monitoring thoroughly the complete Assessment process.

2. Testing Environment:

- Training partner shares the batch start date and end date, number of trainees and the job role.
- Assessment will be 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/test center only.
- The knowledge/theory assessments are conducted with proper seating arrangements with enough space between the candidates to prevent mal practicing.
- Question set for Theory and Practical will be distributed to each candidate by the Assessor.
 - Theory testing will include MCQ type questions, pictorial questions etc. which will test the trainee on his theoretical knowledge of the subject.
 - Practical assessments will be conducted in the approved test centers. The training provider will ensure adequate tools and materials are available to conduct the practical test.
 - Viva Testing will be conducted during or post to the practical assessment by the assessor concerned. This Viva Assessment is applicable to understand the outcomes from OJT attended by the concerned candidate.
- One (1) Assessor is eligible to conduct assessments of a batch of maximum 30 candidates.

- The assessment must comprise of two components, namely:
 - Knowledge assessment (Theory and Viva assessment)
 - Skill assessment (Practical / Hands-on Skill assessment)

3. Mode of assessment

- Demonstration/Practical Performance /Skill Assessment
- Synoptic multiple-choice question test for Theory Assessment
- Viva for Knowledge Assessment (Applicable to note the outcomes from OJT only)

4. Performance/skill assessment:

- The performance/skill assessment will be conducted through demonstration/practical
- For the practical test trainees are assessed through a given task, which they have to complete correctly for them to be marked as passed.
- The assessment is conducted in a simulated working environment. Due to this fact, the assessors must note that the naturally occurring evidence of competence is unavailable or infrequent. Simulation must be undertaken in a Realistic Working Environment which provides an environment that replicates the key characteristics of the workplace in which the skill to be assessed is normally employed.

5. Knowledge Assessment:

- The knowledge assessments are conducted through Theory (written) Test and Viva Test
- Synoptic test is used for this. It is an MCQ (Multiple Choice Question) test which is prepared externally and externally marked, meaning by agency having no link with training partners.
- The Viva test will be conducted by the assessor in the oral mode considering the communication and domain understanding of skills of trainees.
- The assessment strategy, weightage and duration of assessment for **Tunnel Safety Supervisor** is summarized below

Assessment Type	Formative or Summative	Strategies	Weightage	Duration (hours)
Knowledge	Summative	MCQ	30	1 hour
Knowledge	Summative	Viva	10	1 hour
Skill	Summative	Structured practical Task	60	6 hours

6. Assessment Quality Assurance levels/Framework

- ICES has developed assessment criteria framework for each Qualification pack as per National Occupational Standards. The criteria framework includes weightages/marks for each criterion under knowledge and skill. The criteria ensure quality assurance as they ensure valid, consistent and fair assessments at all locations. Issued to the affiliated Assessment body. The Assessment Body develops questions based on ICES's approved assessment criteria.
- The training partner will intimate the time of arrival of the assessor and time of leaving the venue. Random spot checks/audit may conducted by ICES to monitor assessment.
- Continuous Monitoring through virtual and In-person mode are conducted to ensure the assessment is conducted as per stipulated process
- Process and Technical audit of assessment batches by quality team are conducted to avoid errors in assessment process
- A well -defined comprehensive framework of NON-COMPLIANCE MATRIX is defined and implemented to identify the non-compliance made by assessor and AA and punitive actions are taken correspondingly.

- The capacity building sessions are conducted regularly for assessors and assessment agencies to update them about best practices in assessment

7. Types of evidence or evidence-gathering protocol:

- Evidence in the form of answer sheets in case of knowledge assessments (Theory only) is collected.
- For Practical and Viva assessments videos and photographs are prepared as evidence. These are submitted by the assessor to the assessment agency. ICES does random checks of the same with the participant/ trainee's ID and ascertains authenticity and validity of assessments.
- Post Assessment, the evidence are uploaded by Assessor to assessment agency and further assessment agency to ICES as per stipulated TAT
- Evidence are broadly photographic and video graphics in nature (Geo-Tagged)
- Results along with evidence to be submitted to ICES by the concerning Assessment Agency in the prescribed format and on Digital Format and Physical Format (As required)
- Results to be uploaded on SIDH and other relevant portals for collective data management.

8. Method of verification or validation:

- The process and technical audit of assessment batches are done by Awarding Body
- Attendance of each candidate is verified and it is ensured that only those candidates are assessed by assessors who are meeting the stipulated minimum percentage of attendance
- The result of each candidate is verified; it is verified that that result on SIP is matched with respect to summary sheet submitted by AAs
- Under detailed technical audit for sample batches, the knowledge and skill assessment results for each candidate are checked in technical aspect.
- All the evidence of batches are preserved on server of Awarding Body digital platform

9. On the Job:

- On job training (OJT), candidates undergo training and leaning at actual workplace for a fixed period of time and a certain weightage of assessment is allocated out of total skill weightage of Qualification Pack for undergoing OJT as stipulated by ICES. This OJT score and assessors' end point score are combined to arrive at final Marking/grading of trainees' skill test. The OJT score is determined by Supervisor / Engineer / other authorized head of departments of relevant industry under which candidates undergo on job training.
- The Assessment is subject to take place only after submission of OJT data (in case of STT only) approved by concerned industry and training provider.
- The Hard copy of the OJT report (on trainings, outcomes, exposures learnt and feedback certified by Supervisor / Engineer / other authorized head of departments of relevant industry) will be submitted to the Assessor by the concerned candidate on the Assessment date only, failing which the candidate may not be allowed for attending the Assessment.
- As OJT is mandatory for this QP, the TP should ensure the correct submission of all relevant reports pertaining to OJT of each trained candidate. The Assessment agency is responsible for collecting all the relevant information and submit the same to ICES in future (if required).

Annexure: Acronym and Glossary

Acronym

Acronym	Description
NOS	National Occupational Standard(s)
NSQF	National Skills Qualification Framework
QP	Qualification Pack
TVET	Technical and Vocational Education and Training
MSDE	Ministry of Skill Development and Entrepreneurship
NCVET	National Council for Vocational Education and Training
NSDC	National Skill Development Corporation
ICES	Integrated Council for Entrepreneurship and Skilling (erstwhile Integrated Council for Entrepreneurship and Skilling)
AB	Awarding Body
AA	Assessment Agency
TP	Training Partner
TC	Training Centre
ITI	Industrial Training Institute
ISCO	International Standard Classification of Occupations
NCO	National Classification of Occupations
NCrF	National Credit Framework
NEP	New Education Policy
Q-File	Qualification File
MC	Model Curriculum
PC	Performance Criteria
KU	Knowledge and Understanding
GS	Generic Skills

PMKVY	Pradhan Mantri Kaushal Vikas Yojana
DDUGKY	Deen Dayal Upadhyaya Grameen Kaushalya Yojana
STT	Short Term Training
RPL	Recognition of Prior Learning
NAPS	National Apprenticeship Promotion Scheme
NQR	National Qualification Register
OJT	On the Job Training
NSQC	National Skill Qualification Committee
IS	Indian Standard
PTW	Permit to Work
JSA	Job Safety Analysis
RA	Risk Assessment
HAZID	Hazard Identification
HAZOP	Hazard and Operability Study
LOTO	Lock Out – Tag Out
SCBA	Self-Contained Breathing Apparatus
TBM	Tunnel Boring Machine
NATM	New Austrian Tunnelling Method
CO	Carbon Monoxide
H₂S	Hydrogen Sulphide
CH₄	Methane
NO_x	Oxides of Nitrogen
O₂	Oxygen
RPE	Respiratory Protective Equipment
MSDS	Material Safety Data Sheet
QA	Quality Assurance
QC	Quality Control

ITP	Inspection and Test Plan
PTI	Pre-Tunnel Inspection
ERT	Emergency Response Team
ERP	Emergency Response Plan
FRC	Fibre Reinforced Concrete
PLC	Programmable Logic Controller
ISO	International Organization for Standardization
ISI	Indian Standards Institution
CPR	Cardio Pulmonary Resuscitation
FMEA	Failure Mode and Effects Analysis

Glossary

Term	Description
Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.

Annexure: Career Progression

